सत्यमेव जयते

Reference Manual for Male Sterilization

October 2013

Family Planning Division
Ministry of Health and Family Welfare
Government of India

NATIONAL RURAL HEALTH MISSION
राष्ट्रीय ग्रामीण स्वास्थ्य मिशन

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PREFACE

FOREWORD

ACKNOWLEDGEMENT

The illustrations and details of the surgical procedure of NSV have been adapted from "No Scalpel Vasectomy – An Illustrated Guide for surgeons: by EngenderHealth for which we are grateful to them.

We are also thankful to Dr. R.C. M. Kaza Director Professor, MAMC, New Delhi for the photographs of NSV procedure.

TABLE OF CONTENTS

ABBREVIATIONS

AIDS	Acquired Immuno Deficiency Syndrome
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
IUCD	Intra Uterine Contraceptive Device
FP	Family Planning
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HLD	High Level Disinfection
IP	Infection Prevention
LAM	Lactational Amenorrhea Method
MEC	Medical Eligibility Criteria
NSV	No-Scalpel Vasectomy
OT	Operation Theatre
STI	Sexually Transmitted Infection
RTI	Reproductive Tract Infection
WHO	World Health Organization

SECTION – 1

Reference Manual for Male Sterilization

Chapter 1: Introduction, Purpose and Background

Sterilization is currently the world's most widely used contraceptive method, in developing and developed countries alike and it is projected to remain so over the next two decades. Sterilization accounts for nearly half of all contraceptive use. Today, one out of four couples worldwide, choose sterilization as their family planning method.

The first recorded vasectomy was performed on a dog by Cooper in 1830. R. Harrison of London performed the first human vasectomy. During the Second World War, vasectomy was finally regarded as a method of contraception. The first vasectomy programme on a national scale was launched in 1954 in India. Vasectomy is safer, simpler, less expensive and just as effective as female sterilization. However, the number of female sterilization users exceeds the number of vasectomy users. Worldwide, approximately 253 million couples rely on sterilization. An estimated 43 million of these couples rely on vasectomy. Asia accounts for 77% of vasectomy users worldwide, with China and India alone representing more than 70% of the world's vasectomy users.

Before the introduction of laparoscopic tubectomy in India, vasectomy was the main stay of the sterilization, accounting for about 85 to 90% of the acceptance. With the simplicity of the laparoscopic procedure, vasectomy started losing its acceptance and the focus shifted towards female sterilization. The low prevalence of the procedure results more from an inadequate supply of services than from a lack of demand. There is compelling evidence that the principal reason for the low and declining use of vasectomy is not resistance of men to the method, but more because of the failure of health professionals to make information and services available and accessible to men. This failure is often a result of health professionals' lack of knowledge, misinformation and personal dislike of vasectomy or untested presumptions about what men thought and wanted.

Men in every part of the world and every cultural, religious or socio economic settings have demonstrated interest in or acceptance of vasectomy, despite commonly held assumptions about male attitudes or societal prohibitions. When program managers and providers take an active role in addressing men's needs, rather than simply making vasectomy services available, men will respond and more vasectomies will be performed.

Historical Background of No Scalpel Vasectomy

No Scalpel Vasectomy (NSV) was developed and first performed in China in 1974 by Dr. Li Shunqiang of the Chongqing Family Planning Scientific Research Institute, located in Sichuan Province. At that time, vasectomy was unpopular with Chinese men, and tubal occlusion was the predominant method of voluntary sterilization. Today in Sichuan, vasectomies out number tubal ligation by a ratio of four to one; in the rest of China, tubal occlusion is still a popular method with the ratio of five to one. Subsequently an international team of experts visited Dr. Li Shunqiang in 1985 and observed his refined vasectomy technique and were convinced that the technique should become the standard approach for vasectomy. One of the team members, Dr. Phaitun Gojaseni, introduced the No Scalpel technique in Thailand and Dr. Marc Goldstein, performed the first NSV in the United States. NSV technique then slowly spread to European, African and Asian countries.

In India, the NSV technique was brought first time in 1991 after two surgeons, Dr. R.C. M. Kaza and Dr. Alok Banerjee got the skill training from Dr. Apichart Nirapathpongporn at Bangkok, Thailand, and subsequently they became the National Trainers for the NSV procedures. In March 1992, NSV was officially put into National Family Planning Programme of India. Subsequently with the initiatives of Government of India, nationwide promotion, skill training and advocacy on NSV procedure was done, which resulted in several State/District level trainers and NSV service providers in almost all the districts of the country.

Purpose of the Reference Manual

The purpose of this guideline is to provide MBBS doctors/surgeons with an easy-to-use reference for acquiring requisite skills and become competent in performing No-Scalpel Vasectomy (NSV). This reference manual provides a detailed description of each step of the procedure, drawings and actual photographs illustrating the various steps.

Target Audience

The guide has been designed primarily to assist:

- Experienced vasectomists around the country, who want to change from the traditional incisional technique to the no scalpel approach
- Doctors who want to provide NSV services

The trainees may use it during their training as a reference book for study and later use it reference to further develop proficiency in the technique.

Chapter 2: Vasectomy Techniques: Incisional and NSV

Vasectomy is one of the safest and most effective contraceptive method having very low complication and failure rates. Vasectomy is a very simple minor surgical procedure that takes about 10 to 15 minutes to perform, with minimal bleeding during the procedure. The acceptor can walk back home within 30 minutes after the procedure and recover much faster with almost negligible post procedure discomfort or complications. However, it demands correct pre and post procedure counselling to dispel the associated misconceptions, as well as to explain the time lag to become sterile after the procedure and to increase satisfaction and reduce chances of failure.

Currently, the two most common surgical techniques for approaching the vas during vasectomy are the incisional method and the no-scalpel technique. Whereas the conventional incisional technique involves the use of a scalpel to make one or two incisions (each 1 to 2 cm in length) to deliver the vas; the no-scalpel technique uses a sharp, pointed, forceps-like instrument to puncture the scrotum.

NSV neither requires any cut on the skin with a scalpel blade nor any skin stitch, after the procedure is completed. It is much less painful and faster procedure than conventional vasectomy. No-scalpel vasectomy is the recommended technique for reaching vas in the scrotum (vas deferens) that carries sperms to the penis. It is now becoming the standard technique of vasectomy around the world. There are more similarities than differences between incisional vasectomy and NSV. For example, client counselling, pre-vasectomy assessment, vas occlusion, post-vasectomy care, and complications management are the same in both techniques. The differences between the two techniques are few but significant (Table 2.1 and 2.2).

Table-2.1: Differences between Incisional Vasectomy and NSV

Steps/method	Incisional Vasectomy	NSV
Instruments used for entry	Scalpel	Ringed clamp, Dissecting forceps
Anaesthetic method	Local injection, 2 or more	Peri-vasal block, special anaesthesia technique, needs only one needle puncture
Entry technique	1 or 2 scalpel incisions in the scrotum, blunt dissection	One small skin puncture
Dissection	Blunt and sharp dissection; multiple steps	Single step dissection
Skin closure	Sutures/ stitches required to close the skin	No closure needed

Table-2.2: Advantages of NSV over Incisional Vasectomy

Step/Method	Advantages of NSV
Instruments	Vas fixation forceps secures the vas externally and assists in scrotal entry
Anaesthetic method	Perivasal block: Both vasa are anaesthetized from single site.
Entry technique	Single step puncture dissection technique reduces trauma, risk of bleeding and haematoma formation as compared to multiple steps of incisional procedure.
Skin closure	No need for closure
Pain	Less pain and bruising and quicker recovery
Duration of procedure	Procedure takes less time when skilled provider uses the no-scalpel approach
Chances of Complications	Less damage to the tissue Fewer surgical complications
Others (Post-operative)	Able to resume sexual activity earlier No need to come for suture removal

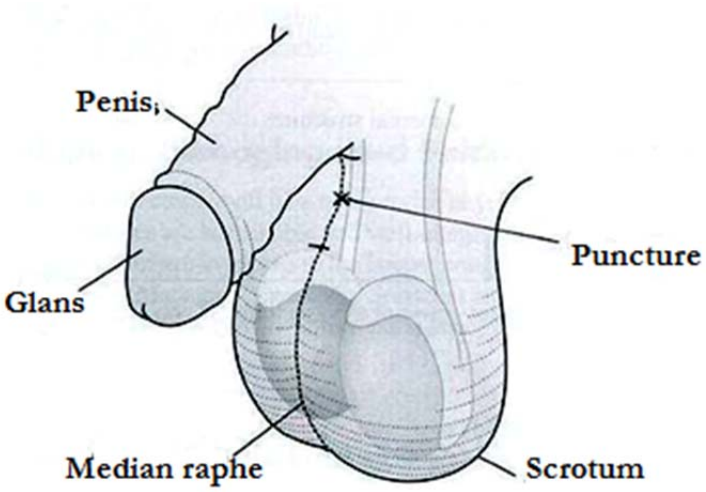
Chapter 3: Anatomy & Physiology of Male Genital System

Anatomy of the Male Genital System

External Organs of the Male Genito-Urinary System

The male external genito-urinary organs (Fig. 3.1) consist of a scrotum and penis which has urethra. The scrotum is divided into two parts by a median raphe. During NSV an opening is made midway between the base of the penis and the top of the testes on the median raphe. This puncture site is chosen because it gives easy access to both the vasa through the scrotal sac and secondly it avoids risk of injury to the epididymides and the testicles. Besides, mid-scrotal vas is easily approached from this site which is the best site for vasectomy.

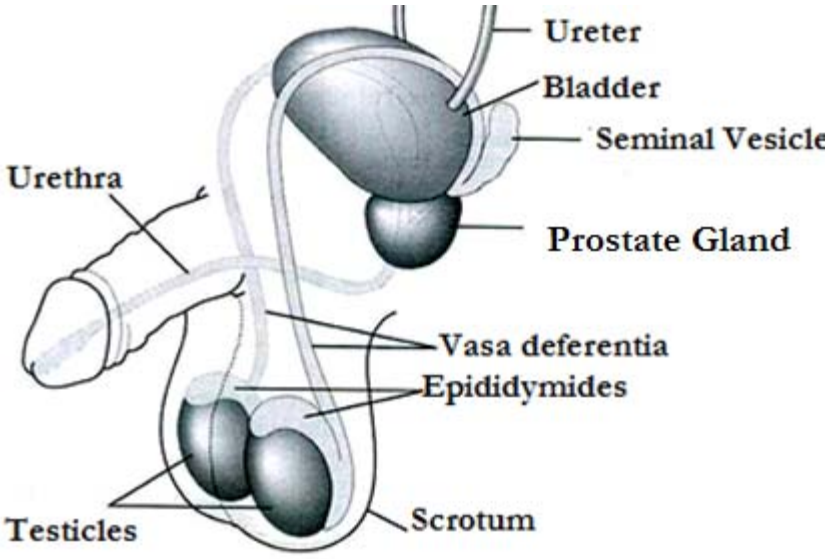
Figure 3-1.: External Male Organs



Internal Organs of the Male Genito-urinary System

Male internal reproductive organs are made up of three groups: ***the testes, the vas deferens, and the accessory glands.*** The testes are the site of spermatogenesis and hormonogenesis (testosterone). After vasectomy, the testes continue to produce both sperms and hormones. The second group of organs is a series of connected ducts: the epididymal ducts, the vasa deferentia, the ejaculatory ducts, and the urethra. The sperms develop their mobility and ability to fertilize during their stay in epididymides. Each vas ends at the base of the prostate, in the ampullary part further on it is joined by the seminal vesicle. Together, the vas and duct from seminal vesicle join to form an ejaculatory duct (not pictured in Fig. 3.2). The two ejaculatory ducts open into the urethra to allow the passage of sperms and seminal fluid during ejaculation.

Figure 3-2: Internal Male Organs

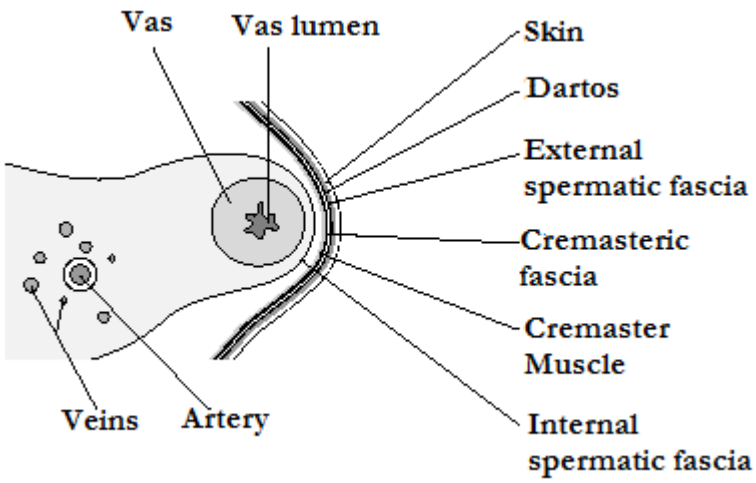


The accessory glands include the seminal vesicles, the prostate, and the bulbo-urethral glands (not pictured in Fig. 3.2). These glands produce secretions that form seminal fluid. About two-thirds of seminal fluid is contributed by seminal vesicle. The seminal fluid provides a nutritive and protective medium for the spermatozoa during their journey through the female reproductive tract. These glands empty their secretions into the urethra through ejaculatory ducts. The sperms get mixed up with seminal fluid during ejaculation.

The Spermatic Cord

The spermatic cord is a cord like structure formed by the vas deferens, testicular artery, pampiniform plexus, nerves, lymphatic vessels and fat. The spermatic cord is ensheathed in three layers of tissue- external spermatic fascia, cremasteric muscle and internal spermatic fascia (Fig. 3.3). An important step in vasectomy is to identify the vas deferens, so that it can be ana esthetized and occluded. During the injection of local anesthetic and during vasectomy procedure, care should be taken to avoid the testicular artery and veins located within the internal spermatic fascia. The vas deferens can be easily palpated and differentiated from other structures in the cord (spermatic fascia, arteries, and veins), as it is a firm, thick structure within the spermatic cord. The internal spermatic fascia is used for fascial interposition. The vas is approximately 35 cms long and 2–3 mms in diameter. The small diameter of the lumen of the vas presents the main challenge to vasectomy reversal and needs microsurgical techniques.

Figure 3-3: Cross Section of the Spermatic Cord



Physiology of Male Genital System

The testes are responsible for production of sperms at seminiferous tubules and male sex hormones at Leydig Cells in interstitial tissue. The seminal fluid is primarily from the accessory glands. About 65% of the seminal fluid is contributed by the seminal vesicle; 30% by the prostate and only 5% by the testes and epididymis *(Source: WHO)*

Erection is a complex process which involves vascular engorgement of spongy tissues in the penis mediated by psychogenic and neurogenic components. The nerves involved in erection are derived from hypogastric plexus which are not touched during vasectomy.

Table 3.1: Normal Seminal Parameters *(Source: WHO)*

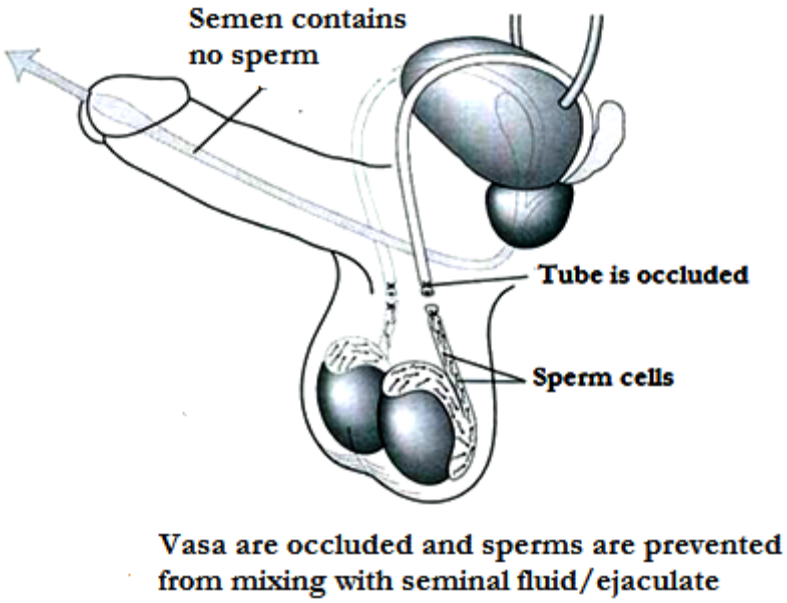
S. No.	Item	Parameter
1.	Volume	2 ml or greater
2.	pH	7.2 - 8.0
3.	Sperm concentration	20 million/ml and above
4.	Sperm motility	50% or more with forward progression (Categories A & B) within 60 minutes of ejaculation

Physiological Changes after Vasectomy

After vasectomy, the male sexual physiology remains unaffected, aside from the desired change in fertility. The nerves involved in erection are not endangered during the procedure so after NSV there is no effect on erection. Seminal fluid continues to be produced and the tubes that carry seminal fluids remain intact. Therefore the vasectomy acceptor can have normal ejaculation and he experiences the same pleasure. Sperm production continues, even though the sperm's passage into seminal fluid is blocked. These sperms are absorbed in the lumen of the epididymal tubules.
(Fig. 3.4).

Vasectomy causes a breakdown in the blood-testes barrier that leads to increased levels of serum anti-sperm antibodies in many men. If a man has a vasectomy reversal, the presence of these antibodies can inhibit pregnancy, even if the vasa are successfully reconnected. However, sperm antibodies have no known impact on general health and sexual performance.

Figure 3-4: Effects of NSV on Male Anatomy



Long-Term Health Effects

Over the years, there have been concerns about possible negative health consequences resulting from vasectomy. However, results of large, well-designed studies have consistently shown no adverse effects of vasectomy on the risks of heart disease, testicular or prostate cancer, immune system disorders, and a host of other conditions. Men requesting the procedure can thus be reassured that there is no long-term health risk associated with the procedure.

Chapter 4: Eligibility Criteria for Vasectomy Clients and Providers

Eligibility of Vasectomy Clients

(Self-declaration by the client will be the basis for compiling this information).

- Clients should be at least 22 years old.
- Clients should ideally be below the age of 60 years.
- Clients should be ever-married.
- The couple should have at least one child, whose age is above one year unless the sterilization is medically indicated.
- Clients or their spouses/partners must not have undergone sterilization in the past (not applicable in the cases of failure of previous sterilization).
- Clients must be in a sound state of mind, so as to understand the full implications of sterilization.
- Mentally ill clients must be certified by a psychiatrist, and a statement should be given by the legal guardian/spouse regarding the soundness of the client's state of mind.

Eligibility of Providers

- Any trained and empanelled MBBS doctor can provide vasectomy services at an accredited facility.
- The state should maintain a district-wise list of doctors empanelled for performing sterilization operations in government institutions and accredited private/NGO facilities. The list of empanelled doctors should be updated quarterly.

Chapter 5: Counselling

Key points for clients, providers and counsellors

- Intended to provide life-long, permanent, and very effective protection against pregnancy.
- Involves a safe, simple surgical procedure.
- Three or some times more months delay in taking effect. The couple must use condoms or another contraceptive method for three or more months, till semen analysis shows azoospermia after the vasectomy.
- Does not affect male sexual performance
- Reversal can be possible, but involves a complex surgery and success cannot be guaranteed.

Counselling in family planning is the process of facilitating and enabling clients to make well informed, well considered, and voluntary decision about their fertility and to choose a contraceptive method. Counselling is a client-centred approach that involves communication between a service provider/counsellor and client. Although counselling is a specialized process but any willing provider; medical officer, nurse, ANM, OT technician, ASHA etc. can learn it. Counselling enables the service provider to understand clients' perceptions, attitudes, values, beliefs, family planning needs, and preferences and accordingly the counsellor can guide him/ her towards decision making. The provider/counsellor should be non-judgmental. Privacy should be maintained during the process of counselling. During counselling use the language that client can easily understand.

Men often have less information about vasectomy and its effects which is further compounded by misconceptions and concerns. These should be dispelled by providing correct information.

General Counselling

General counselling should be done whenever a beneficiary has a doubt or is unable to take a decision regarding the type of contraceptive method to be used. They should be provided all the available options of contraception and help to choose the one which suits them the best. *However, in all cases method-specific counselling on the chosen method must be given.*

Method Specific Counselling

During pre-vasectomy counselling, use language the client can easily understand. Use of simplified schematic diagrams can be helpful. A man who has chosen a vasectomy needs to know what will happen during the procedure.

The following features of the vasectomy procedure should be explained:

- It is a permanent procedure for preventing future pregnancies.
- It is a surgical procedure that has a possibility of complications (including failure) requiring further management.
- It does not affect sexual pleasure, ability or performance.

- It does not affect the client's strength or his ability to perform normal day-to-day functions.
- After vasectomy, it is necessary to use a back-up contraceptive method until azoospermia is achieved (usually this takes three months; some times more).
- It does not protect against RTIs, STIs, and HIV/AIDS.
- A reversal of this surgery can be possible but it involves a complex surgery and its success cannot be guaranteed.

Explaining the effects of vasectomy to the client

- How vasectomy works
- Point out where the sperms are produced in the testes
- Explain how the tubes those carry the sperms (the vas deferens) will be cut so that sperms cannot pass through
- Show him that the seminal fluid will still pass through to the urethra and that he will still be able to ejaculate normally.
- Assure the client that his sexual desire will not be affected and that he will still be able to have normal erection.
- Show clients where the small opening for NSV will be made, explaining that the puncture is not into their penis or testes.

Explaining the procedure to the client

1. The provider uses proper infection-prevention procedures at all times.
2. The client receives an injection of local anaesthetic in his scrotum to prevent pain. He stays awake throughout the procedure.
3. The provider feels the skin of the scrotum to find each vas deferens—the two vasa in the scrotum that carry sperms.
4. The provider makes a puncture or incision in the skin:
    - In the no-scalpel vasectomy technique, the provider grasps the tube with specially designed forceps and makes a tiny puncture in the skin at the midline of the scrotum with a special sharp surgical instrument.
    - In the conventional vasectomy technique, the provider makes 1 or 2 small incisions in the skin with a scalpel.
5. The provider lifts out a small loop of each vas from the puncture or incision. Provider then cuts each tube and ties both cut ends closed with a silk thread
6. The puncture is covered with an adhesive tape, or the incision may be closed with stitches and bandaged, depending upon the procedure used.
7. The client receives instructions on what to do after he leaves the clinic or hospital.

The client needs to rest for 30 minutes after vasectomy, usually can leave within half an hour.

Informed Choice and Informed Consent

The concepts of informed choice and informed consent are related but quite different in their intent. Informed consent means that a client understands the proposed medical procedure and the other options and then agrees to receive the proposed care. However, informed consent alone does not constitute informed choice. The purpose of informed choice is to ensure that all clients choose the best option/s for their health care needs after getting full information about all available options.

Informed Written Consent

- The provider must ensure that the client has made an informed and voluntary decision for vasectomy before signing the consent form.
- Clients must be encouraged to ask questions to clarify their doubts, if any.
- Clients must be told that they have the option of deciding against the procedure at any time without being denied their rights to other reproductive health services.

Documentation of Informed Consent

In India, the client's signature or putting his thumb impression on an informed consent form is the legal authorization for the vasectomy procedure to be performed. Though the consent of spouse is not a pre-requisite, ideally the spouse should also be counseled about the vasectomy procedure. (Annexure II).

Clients must be told that a reversal of this surgery can be possible, but the reversal involves a complex surgery and its success cannot be guaranteed.

Frequently Asked Questions about Vasectomy

1. Will vasectomy make a man lose his sexual ability, make him weak or fat?

No. After vasectomy, the male sexual physiology remains unaffected (aside from the desired change in fertility). The nerves involved in erection are not touched/ cut during the vasectomy procedure. Seminal fluid continues to be produced and the tubes that carry seminal fluid remain intact. The male sex drive, ability to have an erection and ejaculation of semen will be unaffected by a vasectomy and will remain the same as before. Testicles will continue to produce sperms.

After vasectomy, the sperm cells produced in the testis will be absorbed into the body instead of coming out in the semen. With sperms making up less than five percent of semen, there will be no noticeable differences in ejaculation i.e., the volume of seminal fluid, colour and texture of ejaculate remain the same. The person can work as hard as before. He will not gain weight because of the vasectomy.

For some couples, the ability to have sex without worrying about conception can even improve their sex life.

2. Does a man need to use another contraceptive method after vasectomy?

Vasectomy does not start working immediately. After vasectomy, the male will still have active sperms in his semen for about 3 months or more. Not using another method for the first 3 months is the main cause of pregnancies among couples relying on vasectomy. Over the next few months the semen will be tested to ensure there are no active sperms and that the vasectomy is complete.

Besides that, vasectomy does not protect against RTIs/STIs, including HIV. All men at risk of STIs, including HIV, whether or not they have had vasectomies, need to use condoms to protect themselves and their partners from infection.

3. Is it possible to check if a vasectomy is working?

Yes. A provider can examine a semen sample under a microscope to see if it still contains sperms. If the provider sees no moving (motile) sperm, the vasectomy is working. A semen examination is recommended at any time after 3 months following the procedure. If there is less than one non motile sperm per 10 high-power fields (less than 100,000 sperms per milliliter) in the fresh semen sample, then the man can rely on his vasectomy and stop using a backup method for contraception. If his semen contains more motile sperm, the man should continue to use a backup method and return to the clinic monthly for a semen analysis. If his semen continues to have motile sperm, even six months after vasectomy, he may need to have a repeat vasectomy.

4. What if a man's partner gets pregnant after vasectomy?

Every man undergoing a vasectomy should know that vasectomies may sometimes fail and his partner could become pregnant. He should not make the assumption that his partner was unfaithful, if she becomes pregnant. Remind the man that for about initial 3 months, they needed to use another contraceptive method. It takes three months or more for the seminal fluid to be sperm free. Semen analysis should be performed and, if sperms are found, repeat tests are required at one month interval till success of vasectomy is established.

Rarely failure occurs due to occlusion of a structure other than the vas deferens, reattachment of the cut vas deferens ends, and spontaneous recanalization. The risk of failure is about 1-4 per 5000 vasectomy procedures.

5. Will the vasectomy stop working after a time?

Generally not. Vasectomy is intended to be permanent. In rare cases, spontaneous recanalization may occur. The risk of this is about 1-4 per 5000 vasectomies. Recanalization occurs when the cut ends of vas deferens are reconnected by sperm pushing through the healing/healed tissue and forming many small channels which connect with the cut vas deferens upstream from the occlusion site.

6. Can a man have his vasectomy reversed, if he decides that he wants another child?

Vasectomy is intended to be permanent and men considering vasectomies should not think of them as reversible. **Clients must be told that a reversal of this surgery can be possible, but the reversal involves a complex surgery and its success cannot be guaranteed**. People who are not ready for a permanent method of sterilization, who may want more children, should choose a different family planning method. Surgery to reverse vasectomy is possible only in some men and reversal often does not guarantee pregnancy. The reversal procedure is difficult and expensive, and there are very few providers who are able to perform such surgery. Vasectomy causes a breakdown in the blood-testes barrier that leads to increased levels of serum anti-sperm antibodies in most men. If a man has a vasectomy reversal, the presence of these antibodies can inhibit pregnancy, even if the vasa are successfully reconnected/ recanalized.

7. Is it better for the man to have a vasectomy or for the woman to have female sterilization?

Each couple must decide for themselves which method is best for them. Both are very effective, safe and permanent methods for couples who know that they will not want more children. Ideally, a couple should consider both methods. If both are acceptable to the couple, vasectomy would be preferable because it is simpler, safer, easier, less invasive and involves lesser expenditure as compared to female sterilization.

8. Does vasectomy have long term health risk?

Over the years, there have been concerns about possible negative health consequences resulting from vasectomy. However, results of large, well-designed studies have consistently shown no adverse effects of vasectomy on the risks of heart disease, testicular or prostate cancer, immune system disorders, and a host of other conditions. Men requesting the procedure can thus be reassured that there is no substantial long-term health risk associated with the procedure.

9. Can a man who has a vasectomy transmit or become infected with sexually transmitted infections (STIs), including HIV, HBV and HCV?

Yes. Vasectomy does not protect against STIs, including HIV, HBV and HCV. All men at risk of STIs, including HIV, HBV and HCV, whether or not they have undergone vasectomy, need to use condoms correctly and consistently to protect themselves and their partners from STIs.

10. Are there risks involved in undergoing vasectomy?

As with any surgical procedure, there is a small risk of infection. Complications are unusual, but may occur in the form of inflammation or slight bleeding and are typically treated with medication and rest.

11. How effective is a vasectomy?

A vasectomy is 99% effective.

12. How soon can a person return to work after a vasectomy?

Most clients can return to work after two to three days of undergoing vasectomy, if they feel comfortable. After the vasectomy procedure a person can continue doing household chores same day. Strenuous work should be avoided for 48 hours. After 48 hours of the NSV procedure, one can resume strenuous work like lifting heavy bags, ploughing etc. if he feels comfortable. The acceptor should avoid cycling for at least one week (because testicles and vas rub against seat of the bicycle while pedalling, which will cause pain and sometimes bleeding).

13. When one can resume intercourse after the vasectomy?

After vasectomy procedure, client can have intercourse as soon as it is comfortable for him, which usually takes about two to three or more days. The client or his partner will need to use another method of contraception for 3 or more months following vasectomy, to avoid an unplanned pregnancy, as **it takes almost three months for the sperm count to reach zero in the seminal fluid**. Clients should not have unprotected sex until semen has been tested and a zero sperm count has been confirmed. Every client should be offered the opportunity to have a semen analysis. At least, one sperm-free semen specimen should be obtained from the client after vasectomy, to be reasonably sure that the vasectomy operation has been successful.

Chapter 6: Clinical Assessment and Screening of Clients

Demographic Information

The following information is required: Name, age, marital status, occupation, religion, educational status, number of living children, and age of youngest child.

Medical History

i. History of illness to screen out the diseases mentioned under the medical eligibility criteria and also to screen out acute febrile illness, uncontrolled diabetes, bleeding disorders, sexual problems and mental illness;

ii. Current medications, if any;

iii. Current use of contraception by the couple;

iv. Last menstrual period (LMP) of the wife.

Physical Examination

Pulse and blood pressure, temperature, general condition, and local examination of penis, testicles, and scrotum. Further examinations as indicated by the client's medical history.

Laboratory Examination

Urine analysis for sugar and other laboratory examinations as indicated.

There are no absolute contraindications for performing vasectomy.

There are certain conditions that require caution, delay or referral to a specially equipped center.

The Medical Eligibility Criteria for Male Surgical Sterilization procedures outlined by WHO (2011) serves as guidelines for case selection based on the clinical findings of the client (Annexure III).However, the final selection of the case should be based on the case selection criteria outlined in Annexure I and guided by the medical eligibility criteria stated above.

The operating surgeon must fill in the Medical Record and Checklist for Sterilization (Annexure I) before initiating the surgery.

Timing of Surgical Procedure

Male sterilization can be done at any convenient time on healthy and eligible clients.

Chapter 7: Steps Prior to Vasectomy Procedure

Written, Informed Consent

- Consent for the sterilization operation should not be obtained under coercion or when the client is under sedation.
- Client must sign the consent form for sterilization before the surgery, on the form specifically provided for this. (Annexure II).

The consent of the spouse is not required for sterilization.

Preoperative Instructions

The client should:

- Preferably trim the pubic, scrotal, and perineal hair. ***Shaving of pubic hair should be avoided; unless done just prior to surgery.***
- Wear clean and loose clothes to the OT.
- Have a light meal on the morning of the surgery.
- Empty the bladder before entering the OT.

Chapter 8: Part Preparation

Skin Preparation and Surgical Draping

i) The pubic hair can preferably be trimmed, if not done earlier; as shaving the operative site night before surgery increases colonization of micro-organisms. However, shaving done just prior to surgery is acceptable.

ii) The operative site should be prepared immediately pre-operatively with an antiseptic solution such as iodophore (Povidone iodine).It should be applied liberally at least two times on and around the operative site, which should be thoroughly cleaned by gentle scrubbing.

iii) Wait for at least two minutes as iodophores require 2 minutes to work because there must be time for the release of free iodine, which inactivates the micro-organisms.

iv) Entire scrotum should be painted beginning at the site of incision/puncture.

v) Excess antiseptic solution should not be permitted to drip and gather beneath the client's body as this may cause irritation.

vi) After preparing the operative site, the area should be covered with a sterile drape.

Chapter 9: No Scalpel Vasectomy

No Scalpel Vasectomy is a refined approach for isolating and delivering the vas that uses vasal block anaesthesia; the technique requires unique surgical skills, including new ways to handle special instruments. Because of the novel features of NSV, it is essential that a doctor interested in learning the approach should receive hands-on training from a well-qualified and experienced trainer as manipulating the special NSV instruments requires manual skills and hand-eye coordination that are different from those used in conventional/incisional vasectomy. The skills can be learned with hands-on, supervised training, but even then they take time and practice to master.

Isolation of Vas

Isolation of the vas can occasionally be challenging. The technique used to position the vas is the key to a successful NSV procedure. A **"three-finger technique"** for positioning the vas has been described in which the non-dominant hand is used to manipulate the vas into a subcutaneous position.

Vas can be isolated by using the **"three-finger technique"**. The thumb of the non-dominant hand is placed anterior to the cord and scrotum, and the vas is trapped between the anterior thumb and the middle finger placed posteriorly *(Fig. 9.1)*. The index finger is then used to retract the skin, yielding improved exposure of the vas.

With either technique, the cord is then maneuvered subcutaneously to the desired operative site, which is usually at the junction of the middle and upper one third of the midline scrotal raphe. A midline approach should be selected.

Local Anaesthesia in NSV

Premedication is not necessary in NSV. However, if the client is very anxious, and to assist in relaxing the scrotum, tablet diazepam 5-10 mg may be given.

Good local anaesthetic technique is essential for a pain-free vasectomy. The technique of local anaesthesia as developed by Dr. Li (Dr. Liet al, 1992) creates a very effective vasal block. It also prevents multiple blind injections and injury to testicular vessels. The technique of LA as used in conventional vasectomy is less effective (Sokal et al, 1999) and makes fixation of vas and entry into skin more difficult because of a persistent skin wheal.

Preparing for Anaesthesia in NSV; Selecting the Anaesthetic and Supplies

Remember

- The following instructions and accompanying illustrations are for the right-handed surgeon. The left handed surgeons have to reverse the movements.
- Every surgeon must make it a practice to remember the side on which one starts the procedure.

Prepare a 5 cc syringe with 1% or 2% lignocaine **without adrenaline**. This amount should be sufficient for skin wheal and vasal block anaesthesia in most clients.

Attach a 1 inch, 24/26 gauge needle to the syringe.

> **Remember**
>
> It is essential to ensure that both vasa have been anaesthetized before starting the surgical procedure

The maximum individual dose of lignocaine without adrenaline should not exceed 4.5 mg/kg of body weight. In general, it is recommended that the maximum total dose does not exceed 200 mg. This equates to 10 cc 2% or 20 cc 1% lignocaine.

Administration of Local Anaesthesia

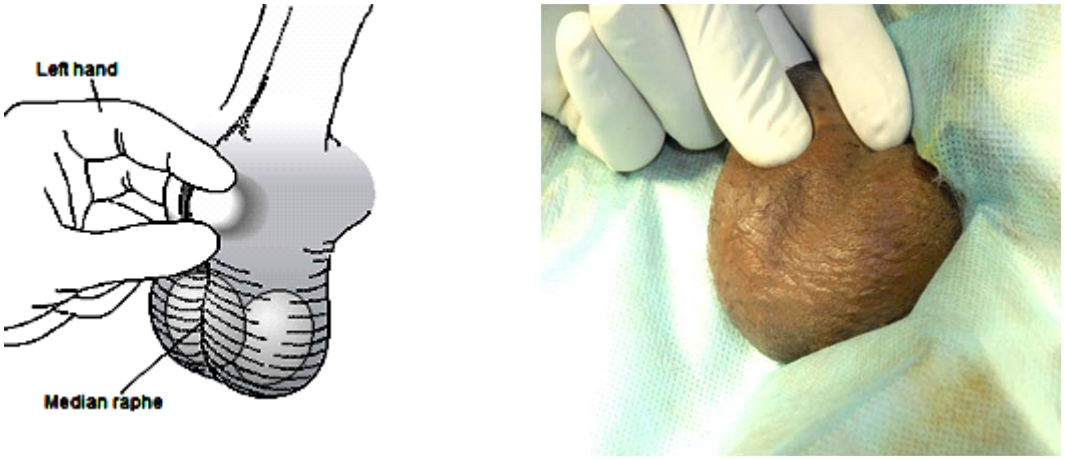
Step 1: Isolation of the Right Vas

The vas is isolated in NSV by the three finger technique as follows:

Stand on the client's right side. Place your left thumb approximately at the junction of upper one-third and lower two-third of the anterior scrotal raphe, with the middle finger of your left hand behind the scrotum at a level midway between the top of the testis and base of the scrotum. Palpate the vas and sweep it towards the raphe beneath your thumb. Hold the vas in position between the thumb and middle finger while placing your left index finger on top of the scrotum, slightly above the thumb *(Fig. 9.1)*.

You will have created a "window" between your thumb and index finger through which you will perform the procedure. Upward pressure from the middle finger, combined with downward pressure exerted by the index finger, creates a bend in the vas for easier entry. Maintain the three finger hold as you anaesthetize the right vas.

Figure 9.1: Determining the entry site – Isolating the Right Vas

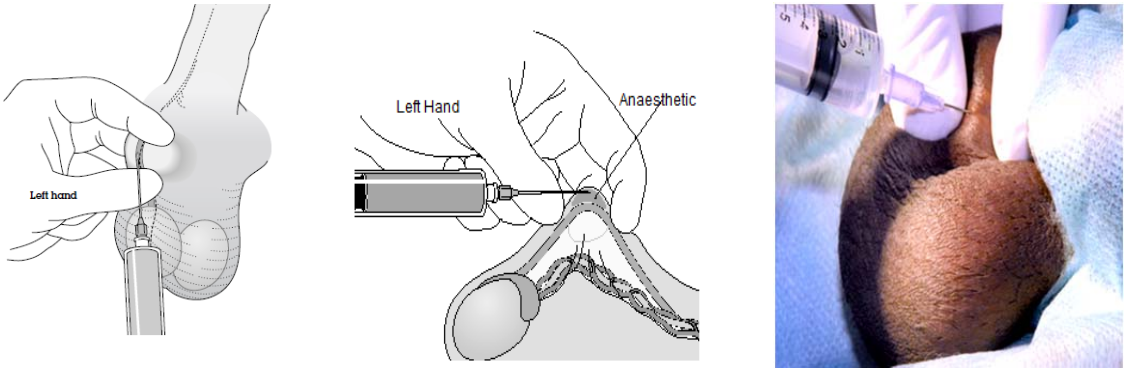


The ideal entry site for NSV is midway between the top of the testis and base of the penis.

Step 2- Raising the Skin Wheal

The needle entry site is at the midline, over the vas deferens midway between the thumb and the index finger. Use only the tip of the needle to raise a superficial skin wheal about 1 cm in diameter. To raise the skin wheal, hold the syringe at approximately a 5 to 15 degree angle with the needle bevel facing up *(Fig. 9.2)*. Inject lignocaine into the dermis; 0.5 cc is usually adequate.

Figure 9.2: Raising the Skin Wheal



Remember

- Do not inject the lignocaine too deeply. At this point in the procedure, you are anaesthetizing only the scrotal skin. In the next step, you will create a vasal block that will anaesthetize deeper tissues.
- To avoid swelling around the vas at the puncture site, do not inject more than 1 cc of lignocaine. A persistent wheal will prevent the ringed clamp from closing properly around the vas.

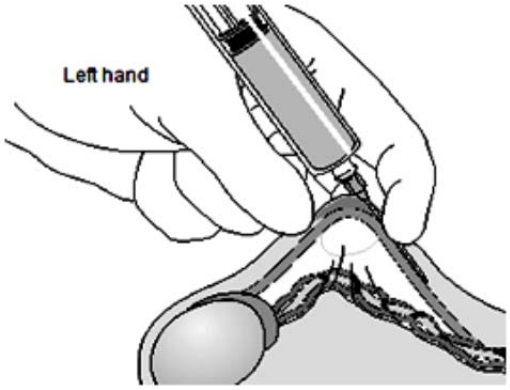
Step 3- Creating the Vasal block: Right Vas

Remember

Creating a vasal block is a critical difference from the way anaesthesia has been traditionally administered for vasectomy. The steps described below create a vasal nerve block away from the operative site.

After making the superficial skin wheal, advance the needle adjacent and parallel to the vas towards the superficial inguinal ring *(Fig. 9.3)*. Advance the full length of the needle without releasing any of the anaesthetic. **Gently aspirate to ascertain that the needle is not in a blood vessel.** Without withdrawing the syringe, slowly inject 2 cc of lignocaine around the right vas deferens.

Figure 9.3: Advancing the needle parallel to the vas within the external spermatic fascial sheath toward the inguinal ring



Remember

When the needle is in proper position and the injection is performed inside the external spermatic fascia, there is no resistance to the injection.

Withdraw the needle; do not inject lignocaine while withdrawing the needle.

Step 4: Isolating and Anaesthetizing Left Vas

Remember

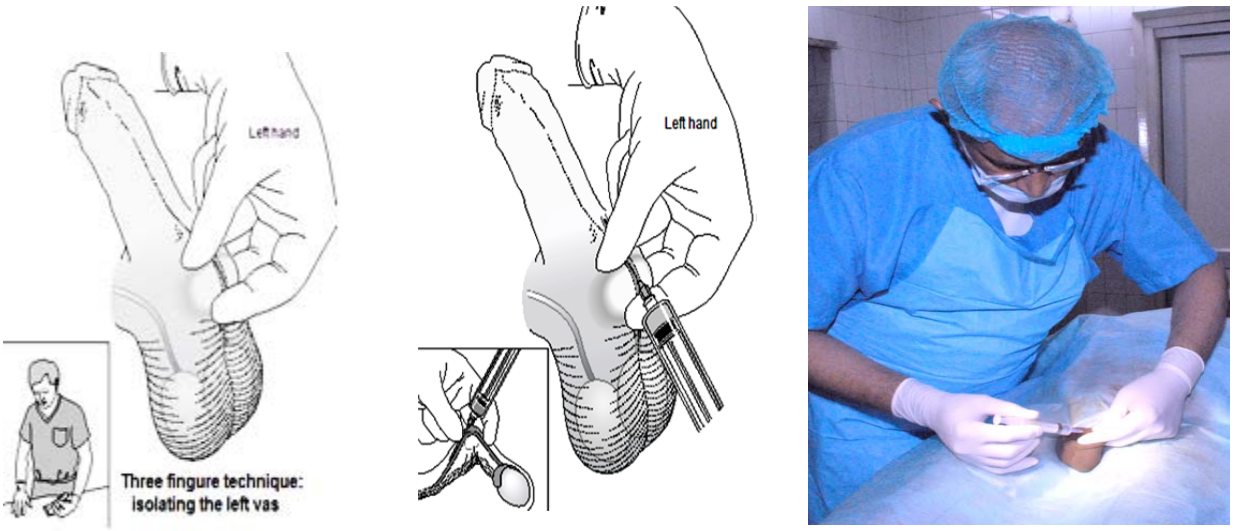
- Anaesthetize both sides before entering the scrotum.
- To hold the client's left vas in the three-finger grip while standing on his right side, you will be more comfortable if you take a step towards the client's head and turn a bit to face his feet. To approach the vas from this lateral position, reach across the client's abdomen with your left hand.

The next step will be to position the left vas under the previously anaesthetized puncture site. To do this, begin by placing your thumb over the skin wheal in the upper third of the scrotum while the index finger is in the middle third. (This is different from the three-finger hold on the right side.) As with the right side, position the middle finger beneath the scrotum to identify the vas and sweep it to the proposed puncture site. Once again, use the middle finger to elevate the vas, while your thumb and index finger press downward to create a bend in the vas at a point directly under the previously created skin wheal. By this, the thumb is superior to the index finger. For a right-handed operator, isolating the left vas may be more difficult and awkward than was isolating the right vas. It may take time and practice to master the technique. A left-handed operator will need to reverse these positions and thus may find isolation of the right vas more difficult.

Step 5: Creating the Vasal Block: Left Vas

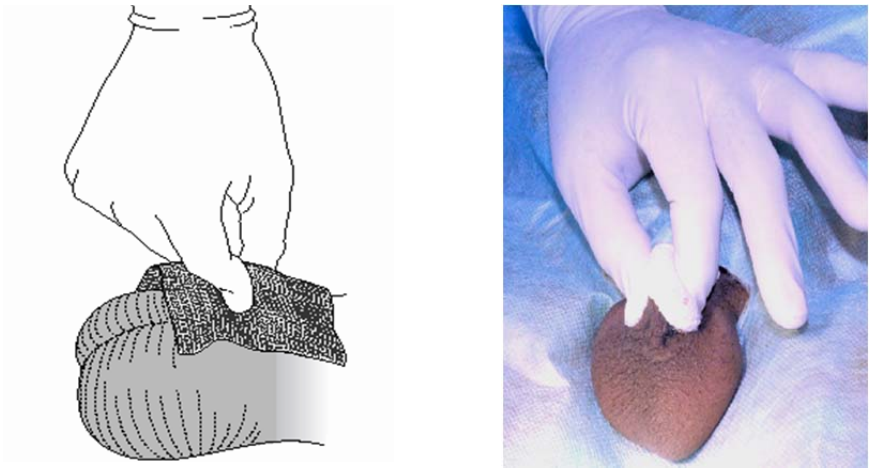
Reintroduce the needle, preferably, through the same puncture hole previously used for administering local anaesthesia; a second skin wheal is not needed. Advance the needle parallel to the left vas into the external spermatic fascia (Fig. 9.4).

Figure 9.4: Anaesthesia technique for deep infiltration of Left Vas



As with the right vas, inject 2 cc of lignocaine within the external spermatic fascial sheath around the left vas deferens. After removing the needle, gently pinch the skin wheal between the thumb and forefinger for a few seconds to reduce its size and to soften and thin the local tissues *(Fig. 9.5)*.

Figure 9.5: Pinching the Skin Wheal



If the client feels pain after surgery begins

If 2 cc of lignocaine has been injected into each side and the client still feels pain when the surgical procedure begins, repeat the vasal block on the painful side. Do not raise another skin wheal

Remember

- Gentle compression helps to reduce the size of the wheal.
- Vasectomy involves brief surgery. Constant communication with the client will alert the surgeon to any adverse event.

Chapter 10: NSV-Surgical Approach and Occlusion of Vas

Instruments for NSV*

- Vas fixation forceps or Ringed Clamp
- Vas dissecting forceps
- A 10-cc syringe with a 11⁄2-inch, 26- or 24 gauge needle,
- Swab holding forceps[*not shown in the picture*]
- Straight scissors

* **For Details see Annexure VII**

NSV technique requires two specially designed instruments: Vas Fixation Forceps/Ringed Clamp and Dissecting Forceps.

Vas Fixation Forceps

The vas fixation forceps or ringed clamp *(Fig. 10.1.a)* is a type of clamp used to fix the vas deferens and it grasps the vas extracutaneously. This comes in three ring sizes 3 mm, 3.5 mm and 4 mm. These different diameters accommodate different thickness of vas and scrotal skin.

Vas Dissecting Forceps

The vas dissecting forceps *(Fig. 10.1.b)* is similar to a curved mosquito haemostat: except that tips are sharply pointed. It is used to puncture the scrotal skin, to spread the tissues including the sheath and to deliver the vas deferens. It can also be used to control bleeding.

Figure 10.1.a: Ringed Clamp

Figure 10.1.b: Dissecting Forceps

Occlusion of Right Vas

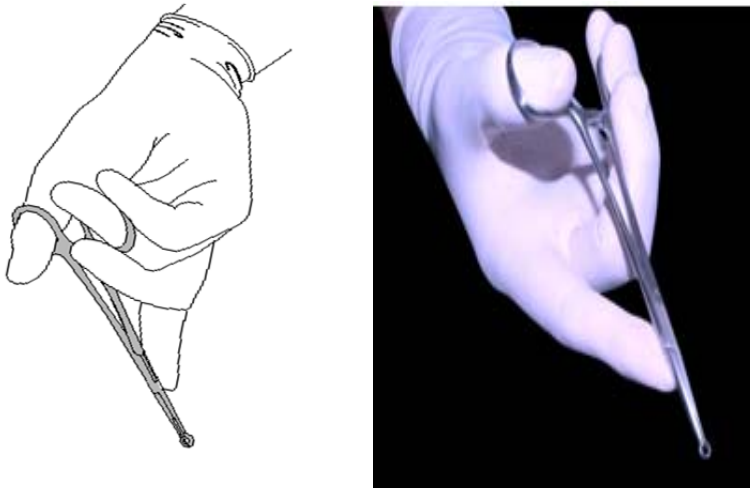
Step 1- Fixation of Vas

Holding the Ringed Clamp

When holding the ringed clamp, it is important to remember three points-

1. Hold the ringed clamp with the palm facing up and the wrist extended. This helps to keep the surgical field under vision *(Fig. 10.2)*.
2. Apply the clamp at a 90-degree angle, perpendicular to the vas *(Fig. 10.3 and 10.4)*. The palm-up hand position helps make this easier to do.
3. Hold the shaft of the ringed clamp in line with the axis of the vas-parallel to and directly over the vas *(Fig. 10.4)*.

Figure 10.2: Holding the ringed clamp, with the palm up



Remember

If you fail to follow these three points, the clamp may not fix the vas completely *(Fig. 10.3.)* or it may grasp too much skin.

The ringed clamp must encircle the entire vas.

Applying the Ringed Clamp to the Scrotal Skin and underlying Right Vas

Using the three-finger technique (as described in the anaesthesia chapter), isolate the right vas and bring it to the midline under the anaesthetized skin. Apply the vas fixation forceps (ringed clamp) perpendicularly over the vas deferens enclosing minimum amount of skin. This step will be assisted if upward pressure is applied by the middle finger behind the scrotum to resist the downward push of the ringed clamp. In this way, the vas can be gently pushed into the ring of the ringed clamp. *(Fig.10.4)*

Remember

- Be sure to elevate the middle finger underneath the scrotum, otherwise, the finger will give way under the downward pressure of the ringed clamp, and you will have difficulty stabilizing the vas.
- Do not grab too much skin with the ringed clamp. If you do, you will have difficulty dissecting and delivering the vas, and slight bleeding may occur. The skin should be stretched out over the vas just before the ringed clamp is applied. If you grab too much skin, stabilize the vas with your left hand, and then loosen the clamp slightly, without entirely releasing it. Use the fingers of the left hand to ease some of the skin away from the clamp's hold, while retaining the clamp's grasp on the vas.

Figure 10.3: Grasping the vas with the ringed clamp, extracutaneously (scrotal skin not shown)

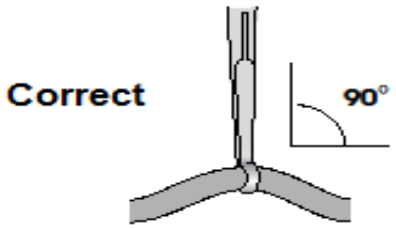
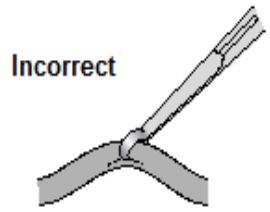
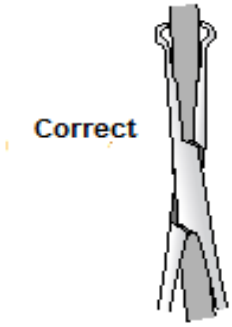
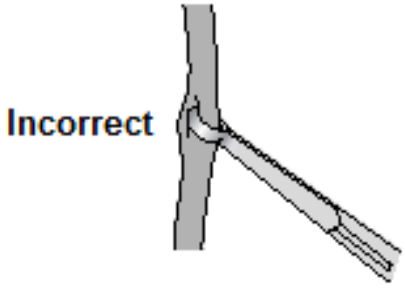
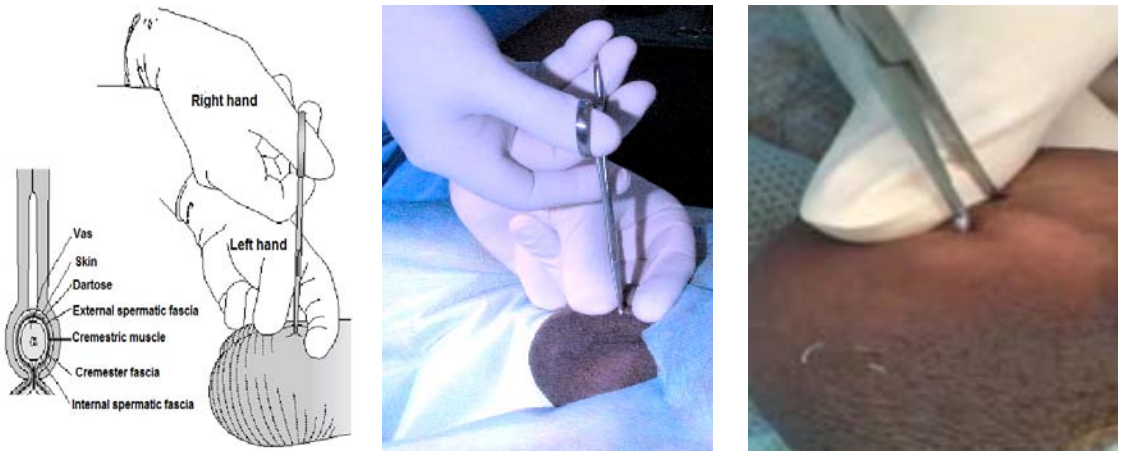
a) Applying the ringed clamp at a 90 - degree angle, perpendicular to the vas 	***b) If the ringed clamp does not grasp the vas at a 90-degree angle, the surgeon may grasp the vas incompletely.*** 
c) ***Holding the shaft of the ringed clamp in line with the axis of the vas (parallel to and directly over the vas).*** 	***d) If the ringed clamp is not held parallel to the vas, the surgeon may grasp the vas incompletely*** 

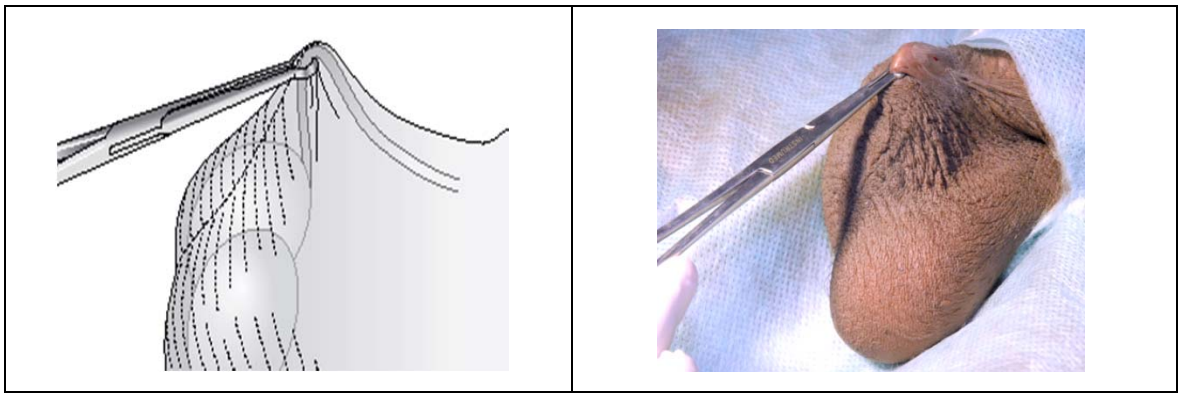
Figure 10.4:Pressing the tips of the ringed clamp onto the scrotal skin overlying the right vas



Elevating the Underlying Right Vas

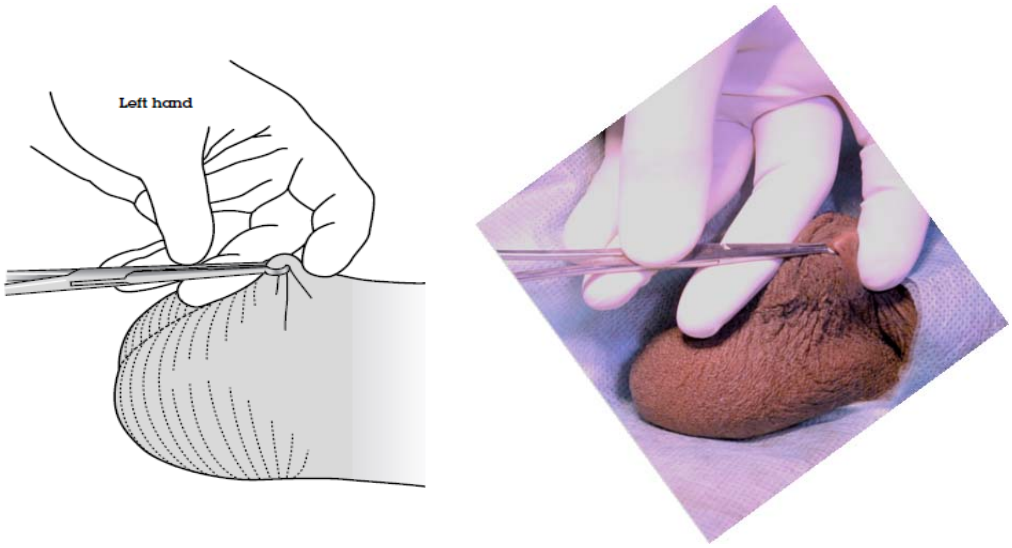
While the ringed clamp is still grasping the scrotal skin and the underlying right vas, transfer the instrument to your left hand. Then lower the handles of the ringed clamp, causing a bend in the vas *(Fig. 10.5).*

Figure 10.5: Lowering the handles of the ringed clamp to elevate the vas



This motion elevates the vas. Continue to keep the shaft of the clamp in line with the vas. *(Fig.10.6).*

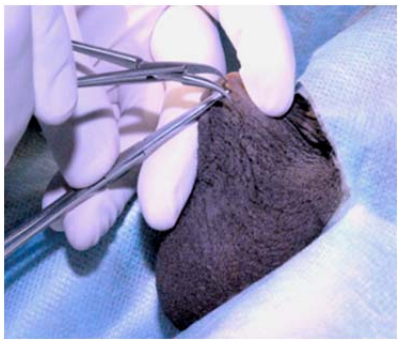
Figure 10.6: Pressing the index finger downward to tighten the scrotal skin just ahead of the tips of the ringed clamp and over the anesthetized area



Step 2: Puncturing the Scrotal Skin

The skin should be punctured in the previously anaesthetized spot. With the left index finger, press downward lightly to tighten the scrotal skin just ahead of the tips of the ringed clamp and over the anaesthetized area.

Figure 10.7: Piercing the skin with the blade of the dissecting forceps



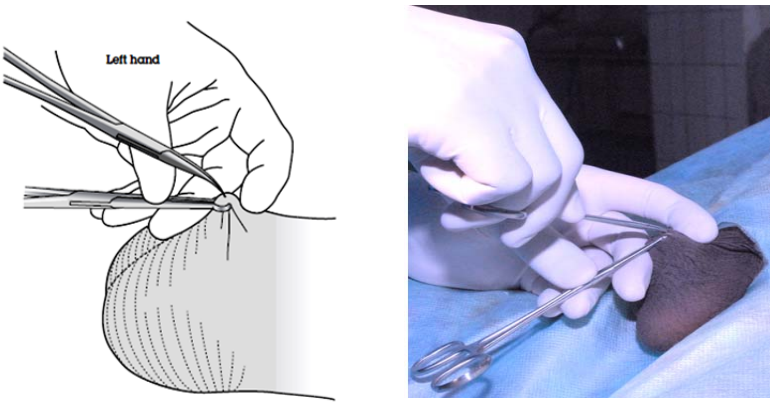
Hold the dissecting forceps in the right hand, points curved downward, in preparation for puncturing the vas. Hold the instrument so that there is a 45-degree angle between the closed tips of the forceps and the vas. Then open the forceps; using one blade of the forceps, pierce the scrotal skin **just superior to the upper edge of the ringed forceps**—where the vas is most prominent (*Fig. 10.7)*. This piercing should result in a puncture of the midline of the vas. When making the puncture, do not slowly push the dissecting forceps forward. Instead, use a quick, sharp, single movement to make a clear puncture of the skin down into the **lumen of the vas**.

Remember

- Be sure to penetrate the anterior wall of the vas with the blade of the vas dissecting forceps. Otherwise, overlying fascia may remain intact and will prevent further elevation of the vas out of the puncture wound.
- Do not puncture deep as this may injure the artery to vas.
- If puncture is too deep, transaction of the vas might occur and the vasal artery may be damaged, and bleeding will follow.
- Be sure to puncture the vas just superior to the upper edge of the ringed forceps; if the puncture is made in the tissue that is enclosed in the ring of the ringed forceps, you will not be able to spread the tissues at all.

After making the puncture, withdraw the blades of the dissecting forceps. Close the tips of the forceps. At the same 45-degree angle as before, insert both tips of the forceps in the same puncture hole, in the same line, and to the same depth as when you made the puncture with the single blade *(Figure 10.8)*.The ringed clamp remains in place and locked while the skin is punctured.

Figure 10.8: Inserting both tips of the dissecting forceps into the puncture site

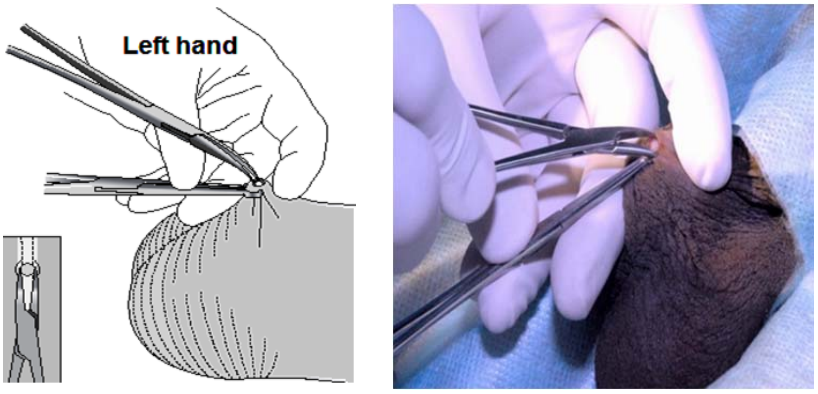


Step 3: Spreading the Tissues

Gently open the tips of the dissecting forceps transversely across the vas, to create a skin opening twice the diameter of the vas *(Figure 10.9)*. In one motion, spread all layers of tissue from the skin to the vas deferens. No harm is done if you enter the lumen. Be careful to keep the closed blades of the dissecting forceps parallel to the vas.

The bare vas should be visible in the depth of the wound.

Figure 10.9: Spreading the tissues to make a skin opening twice the diameter of the vas



The stretched opening in the skin and sheath, which should be twice the diameter of the vas, will enable you to lift out a loop of the vas. The ringed clamp remains in place and locked while the tissues are spread.

Remember

When spreading the tissues-

- If you fail to open the blades of the forceps transversely at a right angle to the vas, one blade could slip out of the puncture site. This could cause an unnecessary skin tear.
- Maintain depth of puncture, but do not push down further than the original puncture.

Step 4: Delivering and Elevating the Right Vas

The vas is then directly grasped between the blades of the dissection forceps, taking care not to include any fascial tissue. Usually, fascial tissues are deep to the slit open vas, and do not get grasped unless the blades are too deep.

There are two methods of elevating the vas out of the puncture wound:

Method I- this is an easier method. When the blades of the dissecting forceps are opened to twice the diameter of the vas; the bare vas will be seen to lie at the depth of the wound between the two blades. Usually the blades are a bit too deep due to pressure required to enlarge the skin wound. Therefore, the blades should be pulled out slightly but not entirely out of the wound.
At this stage the blades will be touching the lateral walls of the vas. The vas is then held between the two blades of the vas dissecting forceps *(Fig. 10.11)*.

Method II- it is more elegant but delicate. The blades of the dissection forceps are withdrawn out of the wound. Then with one blade, preferably the medial one, the vas is pierced (skewered). The blades of the vas dissecting forceps are then closed and the vas elevated as above. This skewering results in a more secure grip of the vas (*Fig. 10.10*).

Figure 10.10: Piercing the wall of the vas with the tip of the lateral blades and rotation of dissecting forceps

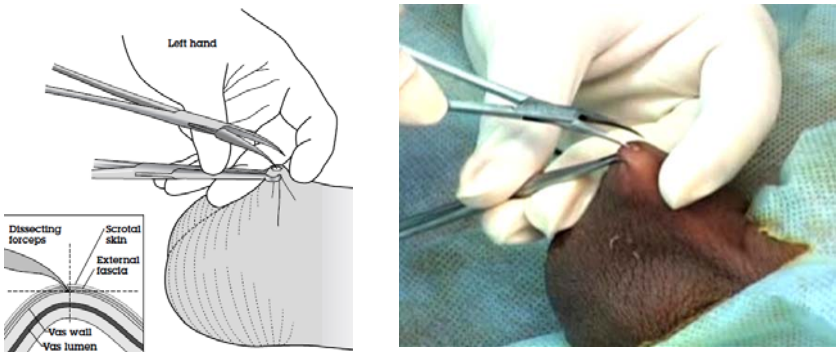
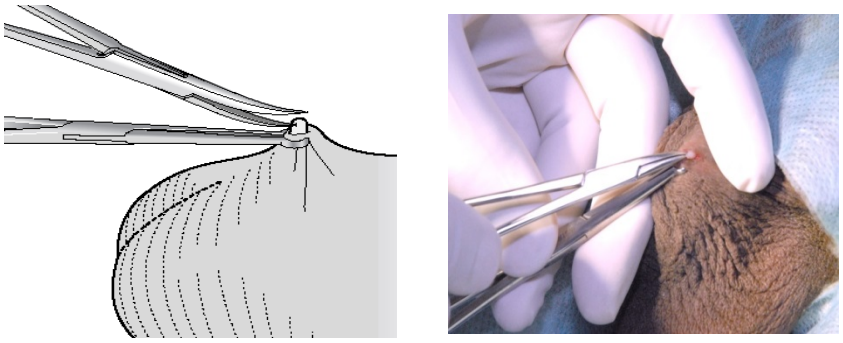


Figure 10.11: Rotation of the dissecting forceps



The surgeon then rotates his forearm by 180 degrees while releasing the ringed clamp on the scrotum. In other words, the forearm of the surgeon moves from a position of pronation to supination so that the tips of the dissection forceps face up. The hand is now elevated. This manoeuvre delivers the vas out of the puncture wound. (*Figures 10.11 & 10.13*)

Figure 10.12: Releasing of the ringed clamp - ringed clamp is open but still in place

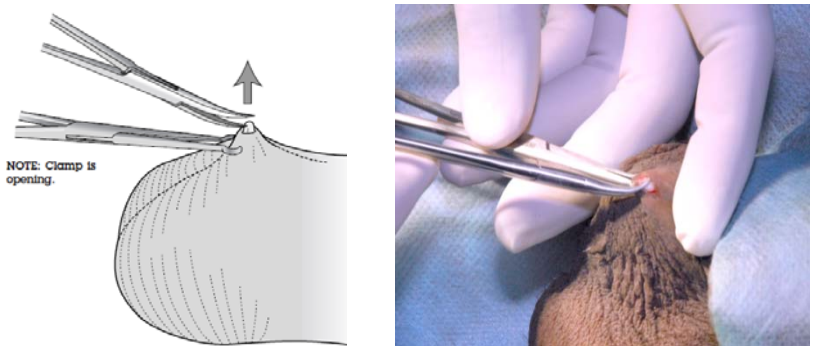
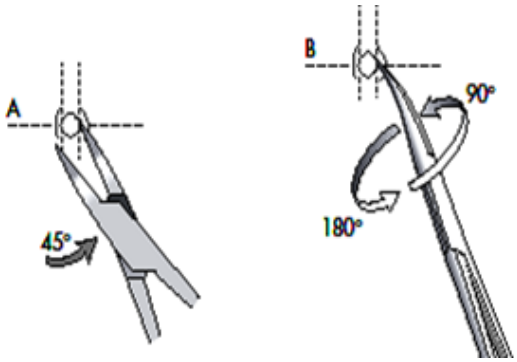


Figure 10.13: Rotation of forearm (Apichart technique)- REMOVE



Remember

While delivering the vas

- Do not attempt to deliver the vas while the ringed clamp is still locked; if you do, the vas may be severed.
- If fascial tissue is caught between the tips of the dissecting forceps, you will not be able to rotate and elevate the vas.
- The blades of the vas dissecting forceps should hold the vas gently but firmly so that the vas does not slip back into the scrotum.

Step 5: Grasping the Vas with the Ringed Clamp

Once a loop of the vas has been delivered, the ringed clamp is removed from the skin and applied at the top of the loop of the vas. The clamp encloses the full thickness of the bare vas ensuring not to take any fascial tissue.

Figure 10.14 : Grasping the elevated vas

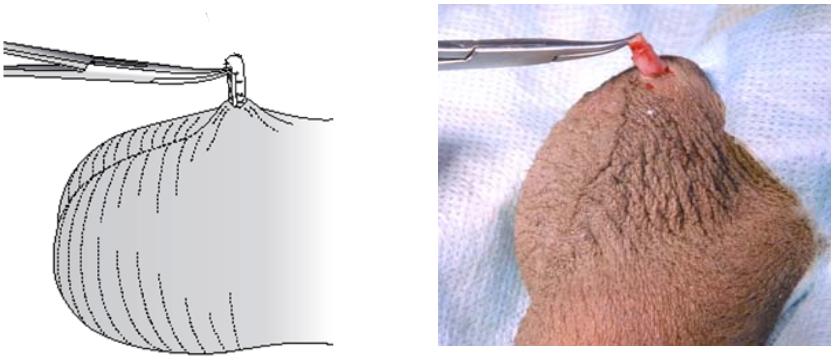
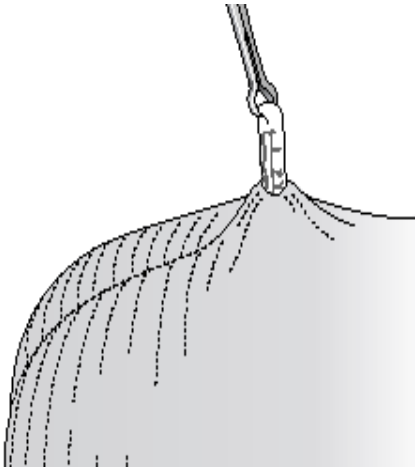


Figure 10.15: Grasping the elevated vas at the top of the loop, with only the ringed clamp attached



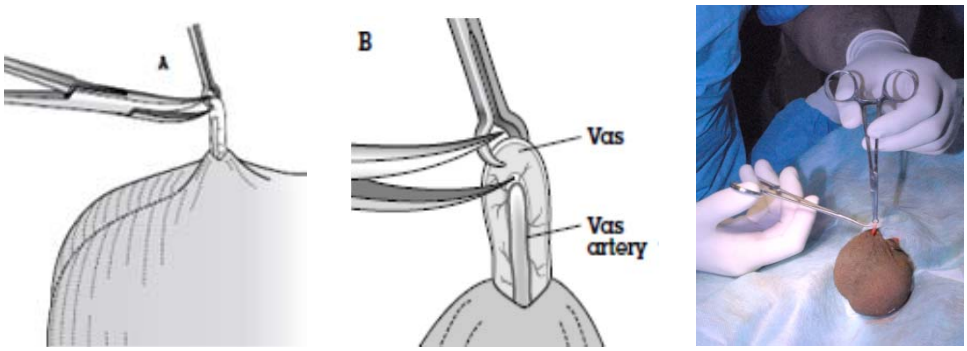
Remember

- Be careful not to release the dissecting forceps until you have grasped a loop of the vas with the ringed clamp. This will prevent the vas from slipping back into the scrotum.
- To avoid damaging the vas artery, be sure to grasp the vas at the top of the loop *(Fig. 10.15)*. Grasping elsewhere leads to asymmetrical stripping of the sheath from the vas.

Step 6: Puncturing and Stripping the Sheath

With the tip of one blade of the vas dissecting forceps facing up, gently puncture the tissue in the loop of the vas, taking care not to injure the artery to the vas *(Fig. 10.16)*.Then remove the tip of the blade. Close both the blades of the vas dissecting forceps. Insert vas dissecting forceps, both tips facing upwards, into the previously made puncture and then rotate by 90 degrees (tips facing to the side) and open the blades vertically so that all the tissues are stripped down up to 2 cm of the length of vas. This movement of stripping the tissues should not be a transverse one as it may cause breakage of the vas and injury to blood vessels. (*Figs. 10.17 & 10.18*)

Figure 10.16 :Puncturing the sheath with one tip of the dissecting forceps



Remember

Be careful to avoid blood vessels. Clamp and control the bleeders immediately otherwise it will be difficult to catch hold of the retracted bleeders.

Figure 10.17: Inserting both tips of the vas dissecting forceps into the punctured sheath (Tips facing to the side)

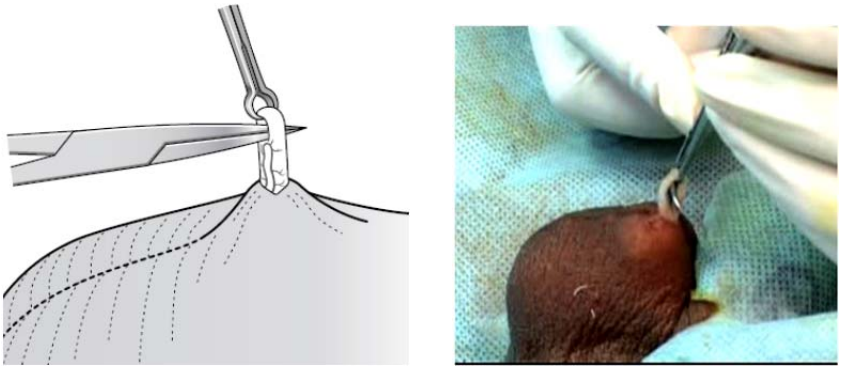
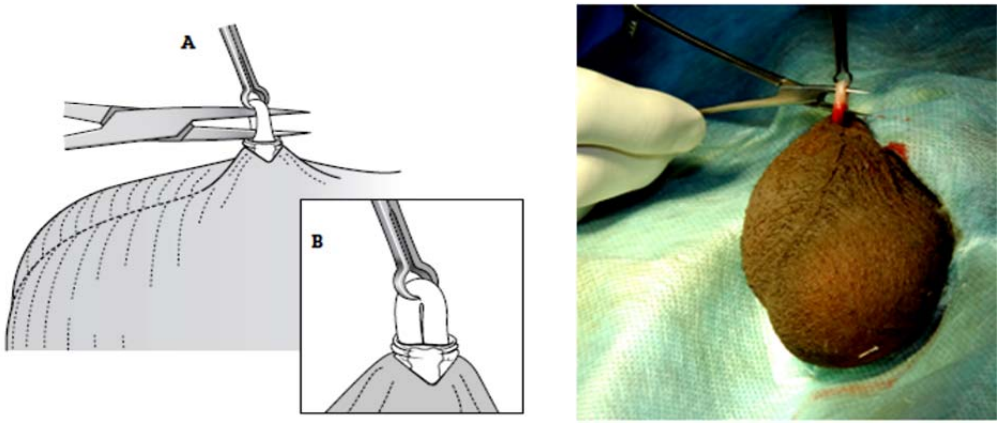


Figure 10.18: Opening the vas dissecting forceps to strip the sheath



Step 7: Ligating and Excising the Right Vas

Before beginning ligation, make sure that all tissue and vasal vessels have been stripped away from the segment of vas to be occluded. Ligate the isolated vas at two points about 1.5 cm apart using two separate ligatures, first ligating the prostatic end of the vas and then the testicular end with 2-0 silk. Keep the ligature on the abdominal/prostatic end long to aid in fascial interposition. Excise at least one cm segment of the vas, keeping a single uncut end of about 5 cms in length of suture on the abdominal end. Cut both end of the suture at the testicular end. (*Figures 10.19 to 10.21*)

Remember

When excising the section of vas, leave an adequate stump at each end of the vas (approximately 2 mm), to ensure that the ligature does not slip off later.

Inspect for bleeding and control it when it is present. **Before the ligature of the testicular end is trimmed, haemostasis must be ensured.** After ensuring that both stumps are separated, cut the ligature at the testicular end. (*Figures 10.22 to 10.24*)

Allow both ends of the vas to drop back into the scrotum by gently pinching and pulling up on the scrotum with the thumb and index finger until the prostatic end is felt passing through the fingers.

Figure 10.19: Steps in performing vasectomy by ligation with excision: Sheath and vasal vessels are stripped away from the part of the vas being occluded

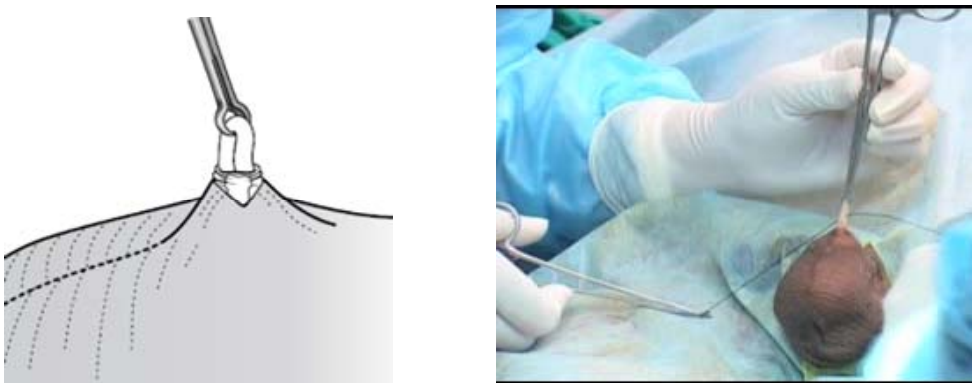


Figure 10.20: The prostatic end of the vas is ligated, and one end of the ligature is cut

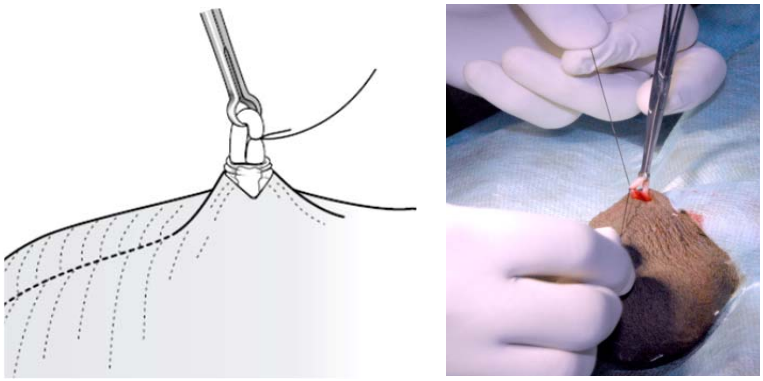


Figure 10.21: The testicular end of the vas is ligated

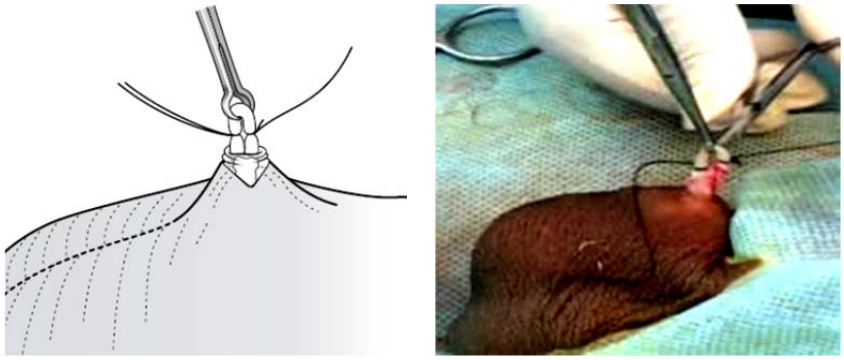


Figure 10.22: A segment of vas is excised

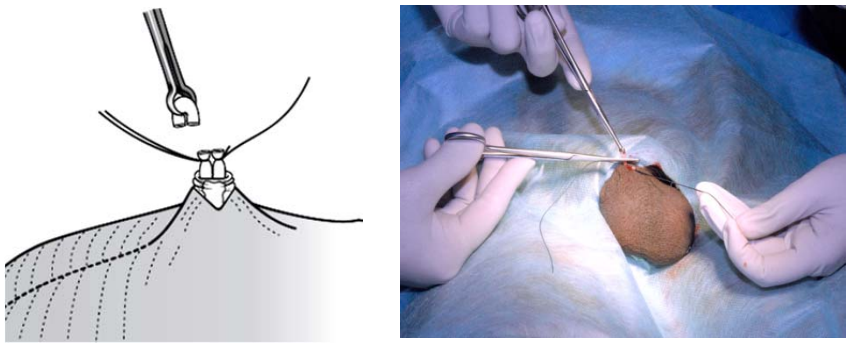


Figure 10.23:Both stumps of the vas are separated by at least 1 cm

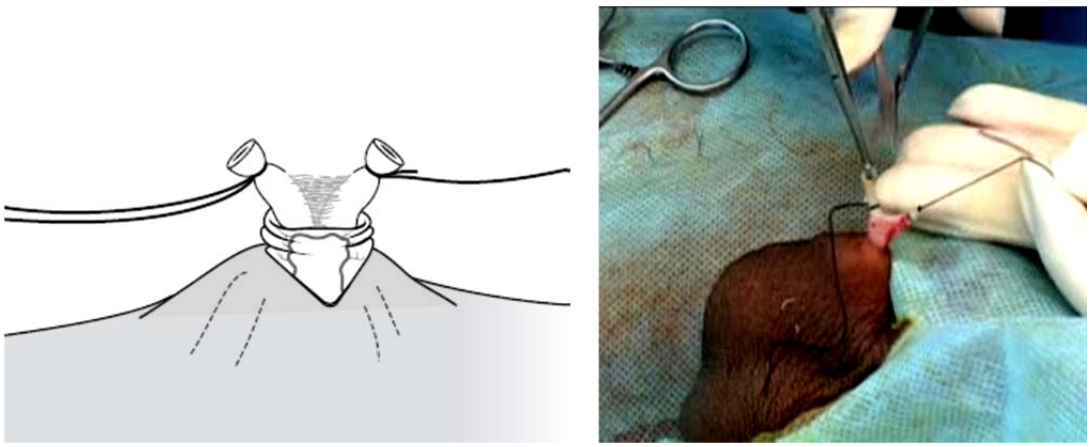
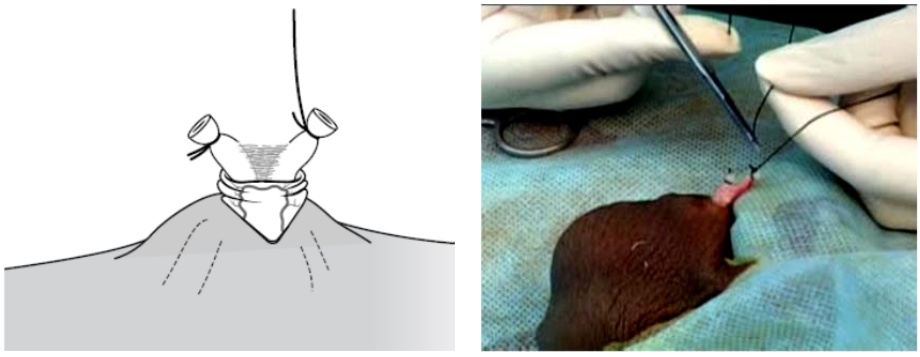


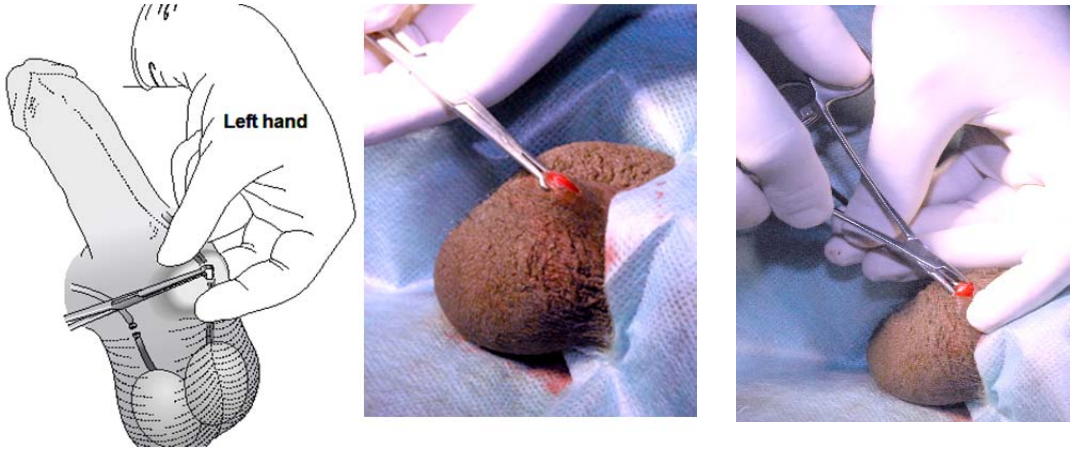
Figure 10.24: The ligature at the testicular end is cut. Ligature of prostatic end is left as such, if fascial interposition is to be done



Occlusion of the Left Vas

Adjust the left hand to grasp the left vas, using the three-finger technique *(Fig. 10.25)*. As described in the anaesthesia chapter, place the middle finger below the scrotum, with the thumb and index fingers above the scrotum; position the vas directly under the previously opened puncture site.

Figure 10.25: Isolating the left vas before occlusion



This position may be awkward at first, but with practice the right-handed operator will be able to isolate the left vas as smoothly as the right. Holding the vas with the left hand frees the right hand to handle the instruments (vice versa for the left-handed surgeon).

Applying the Ringed Clamp to the Scrotal Skin and underlying Left Vas

The ringed clamp is applied just below the previous puncture site such that it encloses the left vas. This results in extra-cutaneous fixation of the left vas. The vas is visible, covered by various layers through the puncture site if the fixation has been correct, especially when the handles of the fixation clamp are depressed between the client's thighs.

In case there is any difficulty in extra cutaneous fixation, then the instrument can be introduced through the punctured site and the vas fixed. This should be done only after the vas is brought under the puncture wound in three finger grip. The vas dissecting forceps should not be introduced blindly to grope for the vas in the scrotum as this adds to trauma and infection.

Delivering, Elevating, and Occluding the Left Vas

Follow the steps as for the right vas, for delivering, elevating, and occluding the vas.

Fascial Interposition

Fascial interposition places a tissue barrier between the two cut ends of the vas, as a result of the surgeon positioning a thin layer of tissue that surrounds the vas (the fascial sheath) over one end of the vas. The stump of the prostatic (proximal) end is kept outside the cord and when the vasectomy is completed, the stump of the testicular (distal) end is inside the cord. Fascial interposition should be done on both left and right sides. The method of performing this is as follows:

After ligating the prostatic end, cut one end of the ligature, leaving a single uncut end of about 5 cm in length. **This will identify the prostatic end. The single uncut end of the ligature will be used to retrieve the vas, to facilitate fascial interposition.** Next, ligate the testicular end and cut both ends of the ligature.

Start the fascial interposition technique by very gently pulling the uncut ligature of the prostatic end through the puncture wound *(Figures 10.26 to 10.28)*. As the vas is pulled out, it appears covered with the fascial sheath, which is seen as a translucent membrane covering the stump of the cut vas. If the translucent membrane (the fascial sheath) is not seen covering the vas, the vas should be dropped back into the scrotum and pulled out again, more gently.

Carefully pick up the fascia over the stump of the vas, pull it up over the cut end and tie it with the prostatic end below the previous tie that is occluding the vas and cut both ends of the ligature. Allow the stump of the prostatic end to drop back into the scrotum by gently pinching the scrotum so that the stump falls back to its original position *(Fig.10.31)*. When fascial interposition is complete, the stump of the prostatic end should be outside the fascial sheath, and the stump of the testicular end should be inside the fascial sheath *(Fig.10.32)*.

Fascial interposition improves the effectiveness of vasectomy. It reduces failures by half, although it adds a little bit of time and effort. (Sokal et al, 2001)

Remember

Make sure not to tie the fascia with the vas while ligating to occlude the vas. If the fascia is tied with the vas during ligation, then fascial interposition may not only be difficult but it may be impossible to perform

Fascial Interposition

Steps of Fascial Interposition

Figure 10.26: Surgeon gently pinches and pulls up on the scrotum with the thumb and index finger

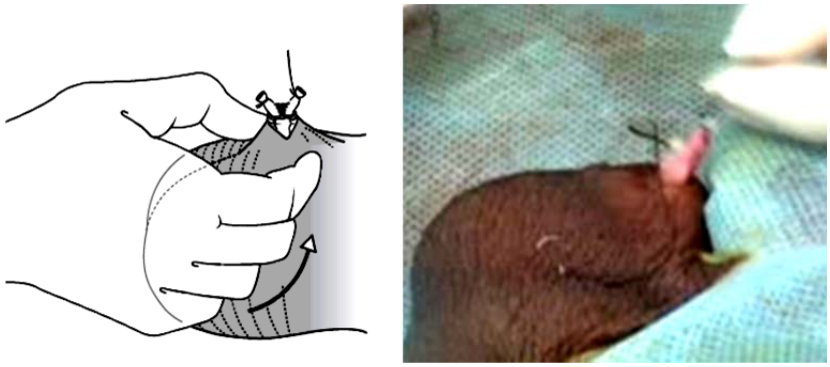


Figure 10.27: The prostatic end of the vas passes between the fingers into the scrotum

Figure 10.28: The uncut ligature at the prostatic end is pulled through the puncture wound

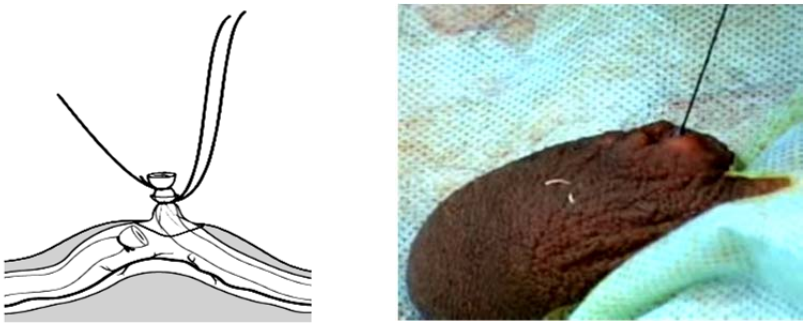


Figure 10.29: With the tip of the dissecting forceps, the fascial sheath is grasped

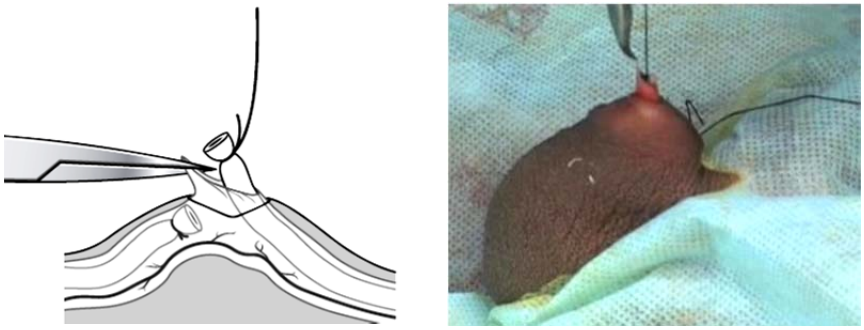


Figure 10.30: The fascial membrane is tied about 2 to 3 mms below the tie at the prostatic end

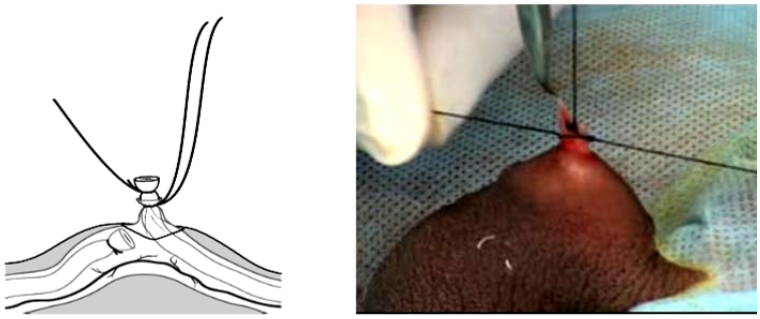


Figure 10.31: The stump at the prostatic end is allowed to slip back into the scrotum

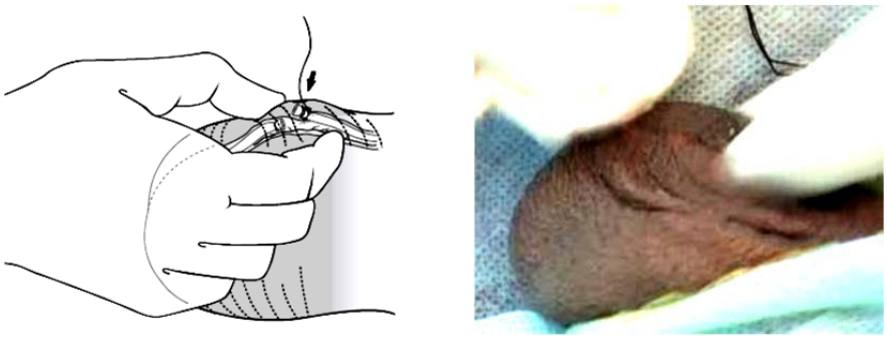
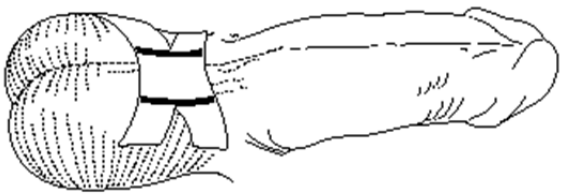


Figure 10.32: The completed fascial interposition, with the stump of the prostatic end outside the fascial sheath and the stump of the testicular end inside the fascial sheath

Dressing the Wound

After both vasa have been occluded and returned to the scrotum, pinch the puncture site tightly and apply pressure by holding the gauze for a minute. Inspect for bleeding. If bleeding is present, haemostasis must be achieved. No skin sutures are necessary. Apply a swab with antiseptic solution. A sterile gauze dressing can be held in place with a scrotal supporter or an adhesive tape. *Please* note that the width of each end of the adhesive tape has been slit, allowing the tape to adhere to the scrotum (*Fig. 10.33).*

Figure 10.33: Dressing the Wound after NSV



Chapter 11: No Scalpel Vasectomy in Special Situations

1. Inability to perform/complete NSV Procedure

It is always advisable to perform NSV since it is a gold standard for vasectomy. However, there may be situations in which NSV cannot be performed or completed. In such cases, vasectomy should be performed by making incision in the scrotum under local anaesthesia. The vas should be isolated in a painless manner as before and local anaesthesia should be administered at the site of skin incision as well as peri-vasally as described before. The vas should then be brought out of the incision with an Allis Forceps/ Ringed Forceps. All the layers above vas deferens should be incised and bare vas exposed. The vas is now ligated and excised as described before and a layer of fascia from the surrounding tissues should be interposed between the two cut ends of the vas. The cut ends of the vas are restored to the scrotum and the incision closed in layers after ensuring haemostasis.

2. Hydrocoele

The clients presenting with hydrocoele require special attention. NSV should only be performed in these cases, provided the vas is easily palpable at the root of the scrotum above the hydrocoele using thumb and middle finger. The administration of local anaesthesia is as before. Fixation of vas with the ringed forceps can be done percutaneously, as described before, or a prior puncture may be made in the scrotal skin with a vas dissection forceps. The vas is then fixed through the puncture. This technique is known as pre-puncture technique. The dissection of vas deferens and ligation and excision are as before. In case of bilateral hydrocoele, both the vasa may not come out through the same puncture. In such a situation a double puncture technique may be adopted. It is important to remember that the puncture sites should be at a convenient location over the vas deferens.

3. Filariasis with elephantiasis

In filariasis and elephantiasis, the sub dermal lymphatics are involved and hence there is considerable fibrosis in the layers of the skin. Therefore the vasa may not be palpable and their fixation extra-cutaneously may be difficult. In this situation pre-puncture and double puncture techniques should be utilized to perform vasectomy. Quite often the skin postero-laterally remains thin and this area may be chosen for fixation. There should be no hesitation in converting the procedure to incisional vasectomy, if required.

4. Varicocoele

Varicocoele is commonly found in cases of vasectomy. Presence of a large number of veins of pampiniform plexus makes palpation of vas difficult. Special precaution should be taken while administering local anaesthesia, as there is a risk of venous injury. In case injury occurs and a hematoma begins to form, it must be compressed between two fingers and hemostasis ensured. It is preferable that vasectomy should be immediately performed on this side as a hematoma will preclude proper fixation and elevation of the vas at a subsequent stage.

5. Retractile Testes

The testes located at the root of scrotum either because of exposure to cold weather or cremasteric contraction is known as retractile testes. NSV can be performed in this situation but some special manoeuvres are required. A warm sponge has to be applied to relax the cremasteric muscle. This helps in bringing the testes down as well as isolating and fixing the vas. In addition, administration of local anaesthetic helps in relaxing the cremaster. Even a pre-puncture and a double puncture technique can be applied, if required.

6. Undescended Testes

NSV should be performed on the normally descended side. It should be impressed upon the client that he should come back after three months for semen analysis as vasectomy has been performed only on one side. In case the semen analysis is positive after three months, case should be referred to a higher centre for further management.

7. Scrotal Scar

Following previous surgery or injury, scrotal skin may be scarred and the anatomy of the structures distorted which often makes it difficult to palpate the vas and there is increased chance of bleeding. If the vas is palpable through the adhesions of the scar or above the scar, NSV may be performed as usual. Pre-puncture and double puncture may also be tried depending on the circumstances.

8. Inguinal Hernia

NSV is contra-indicated in complete inguinal hernia. However, in bubonocoele, NSV can be done as the vas may be easily palpable.

9. Vasectomy for HIV Positive Men

- Vasectomy and other RH Services should not be denied to HIV positive clients.
- Men who are HIV positive or have AIDS, or are on antiretroviral (ARV) therapy can safely have a vasectomy.
- While performing vasectomy on HIV positive clients usual infection prevention practices and universal precautions should be followed.
- Vasectomy does not prevent transmission of HIV.
- In addition to vasectomy, urge these men to adhere to standard prevention and use condoms for each sexual act correctly and consistently. Consistent and correct use of condoms helps prevent transmission of HIV and other STIs.
- No one should be coerced or pressured into getting a vasectomy, and that includes men with HIV.

Chapter 12: Incisional Vasectomy - Procedure

Conventional incision vasectomy has been used for half a century and has proved to be a method that is simple, inexpensive and effective. The surgical incision, however, accounts for most of the operation-related complications, in particular bleeding, haematoma, and infection. Incisional vasectomy requires the same client counselling, pre-vasectomy assessment, vas occlusion, post-vasectomy care, and complications management are the same as in NSV techniques.

Steps of Incisional Vasectomy

- Anaesthetise the surgical area by injecting 1% lignocaine into the skin of scrotum with a fine bored needle *(Fig.12.1)*.
- Locate the vas deferens and stabilise it close to the root of scrotum.
- Make a small incision in the upper part of scrotum after the area is anaesthetised (*Fig. 12.2)*
- Feel for the vas deferens through the incision with an Allis Clamp. (*Fig. 12.3 and 12.4)*.
- Pull the cord out of the scrotum *(Fig. 12.5)*.
- Expose the vas by cutting all the layers over the vas
- Grasp the clear vas with an Allis and elevate it out of the cord.
- Clear the loop of vascular structures and ligate them if necessary.
- Ligate and excise a segment of vas.
- Before cutting and ligation, make certain that all tissue and vasal vessels have been stripped away from the segment of vas to be occluded.
- Ligate the isolated vas at two points about 1.5 cm apart using two separate ligatures, first ligating the prostatic end of the vas and then the testicular end with 2-0 silk. Return the ends of the vas deferens to the scrotum *(Fig. 12.6 and 12.7)*.
- Insert a layer of fascia between two cut ends of the vas.
- The incision is closed with a couple of stitches. *(Fig. 12.8 and 12.9)*.

After Surgery Client Should

- Support scrotum with a bandage and tight fitting underwear for at least 48 hours after vasectomy.
- Limit activities after surgery and rest is needed for 24 hours after surgery. Light activities can be resumed after two or three days, but clients need to avoid sports, lifting weights and heavy work for a week or so. Overdoing it could cause pain or bleeding inside the scrotum.
- Refrain from bathing for at least 24 hours after surgery.
- Avoid any sexual activity for a week or so. Pain may be felt or blood may be noticed in semen. If client wants to have sexual intercourse, he should use either condom or another method of family planning until it is confirmed that sperm are no longer present in the semen.

Figures 12.1 to 12.9 –Steps of Conventional Incisional Vasectomy

Fig. 12.1: Anaesthetize the surgical field by injecting 1% lignocaine into the skin of scrotum. The vas is maneuvered to the desired location

Fig. 12.2: 1 to 2 cm horizontal or vertical incision is made in the scrotal skin overlying the vas

Fig. 12.3: The soft tissue is bluntly dissected with a fine curved hemostat. An Allis Forceps clamp is used to isolate the vas.

Fig. 12.4 An Allis Forceps is then advanced through the incision to grasp the vas and surrounding tissue

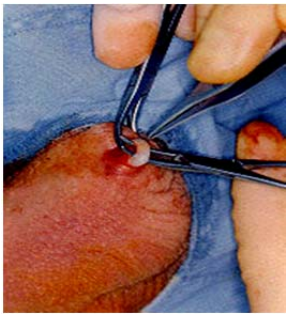


Fig. 12.5: The vas and surrounding tissue are then elevated through the incision. After dissection, the fibrous layer is incised longitudinally isolating the vas

Fig. 12.6: Remove by cutting at least 15 mm of each vas and then tying both remaining cut ends of the vas.

Fig. 12.7: The fascia is closed over the proximal end in a purse-string fashion.

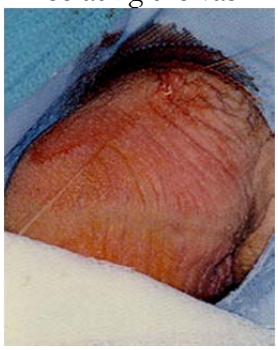


Fig. 12.8: The wound is inspected for active bleeding, and hemostasis is ensured.

Fig. 12.9: The incision is closed with absorbable suture material. Figure shows appearance immediately after procedure

Chapter 13: Post-operative Care and Instructions

Post-operative Care

Men who have undergone vasectomy may leave the health facility after resting for 30 minutes. If sedation has been used, monitor the client's vital signs every 15 minutes after surgery until they are stable.

Explain to the client in simple language how to care for the wound, what side effects to expect, what to do if complications occur, where to go for emergency care, and when and where to return for a follow-up visit. Tell him that minor pain and bruising are to be expected, which do not require medical attention. The man should seek medical attention if he has fever, if blood or pus oozes from the puncture site, or if he experiences excessive pain or swelling. Give the man a brief, simply written summary of the instructions.

It is essential that the client be informed of the low likelihood (but the possibility nonetheless) of vasectomy failure. He may resume normal activities and sexual intercourse with temporary contraception within two to three days, if he feels comfortable. The client or his partners will need to use another method of contraception during the first 3 months following vasectomy to avoid an unplanned pregnancy. Every client should be offered the opportunity to have a semen analysis. Ideally, one sperm-free semen specimen should be obtained from the client after vasectomy to be reasonably sure that the operation has been a success.

Post-operative Instructions

The client should be provided with a discharge card indicating the name of the institution, the date and type of procedure, and the date and place of follow-up (Annexure IV). Both verbal and written post-operative instructions should be given in the local language.

The client should be told to do the following after he is discharged:

a) Return home and take adequate rest.

b) Resume normal work after 48 hours and return to full activity, including cycling, after one week following surgery.

c) Take analgesics and other medicines as advised by the doctor.

d) Resume a normal diet as soon as possible.

e) Keep the operated area clean and dry, and not disturb or open the dressing.

f) The client may bathe after 24 hours, while keeping the operated part of the body protected. If the dressing becomes wet, it should be changed. In NSV, after 48 hours, the dressing may be taken off. In incisional vasectomy client should get the stitches removed on 7^{th} day.

g) The client should report to the doctor or the clinic, if there is excessive pain, fainting, fever, bleeding, increase in scrotal size, or pus discharge from the operated site.

h) The client should report to the clinic for semen analysis after three months.

i) If the client has any questions, he should contact the health personnel or doctor at any time.

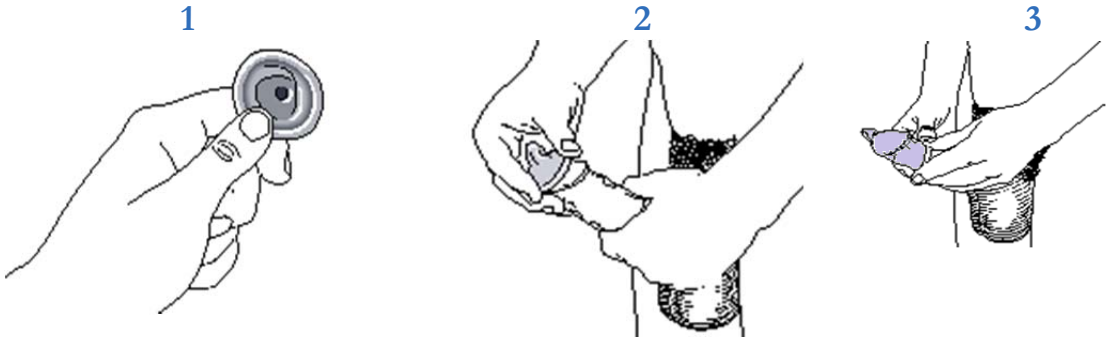
j) The client must be provided with instructions about where to go in case of complications (such as infection, swelling of the scrotum, fever, increase in pain, and bleeding from the wound).

k) After vasectomy, clients can resume sexual activity as soon as it is comfortable for them. This usually takes at least two to three days after the procedure. Counsel clients that vasectomy does not work immediately and they can still get their partners pregnant. **Post vasectomy clients have to use condoms or their partners should use another family planning method consistently and correctly for at least for three months. After three months, client should return to the clinic for a semen analysis to make sure that the vasectomy was successful**. All vasectomy clients should be provided with instructions and practice on the correct use of condoms for use immediately after the vasectomy. It should be stressed that when used properly, condoms effectively prevent the transmission of RTIs/STIS including HIV, HBV and HCV and also make place for safe, tension-free and enjoyable sexual activity.

Using Condom after Vasectomy

It is very important for vasectomy client to know how to use a condom correctly.

Figure 13.1: Instructions for Condom Use



- Carefully open the package so the condom does not tear. (Do not use teeth or a sharp object to open the package.)
- Put the condom on the penis before makes any sexual contact.
- Do not unroll the condom before putting it on.

- Pull back the foreskin. Put the condom on the end of the hard penis.

Note: If the condom is initially placed on the penis backwards, do not turn it around. Throw it away and start with a new one.

- Pinching the tip of the condom to squeeze out air, roll on the condom until it reaches the base of the penis.

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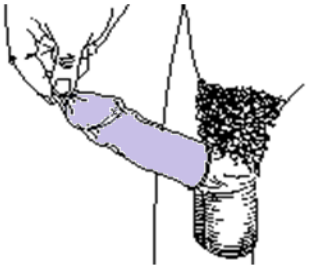

- Check to make sure that there is space at the tip and condom is not broken.
- Insert the penis with the condom on.

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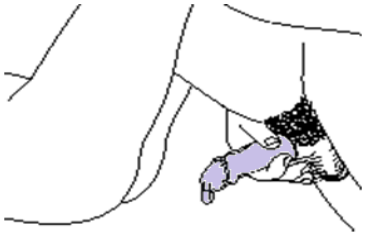


- After ejaculation, hold the condom at the base of the penis.
- Keeping the condom on, pull the penis out before it gets soft.

6

- Slide the condom off without spilling the liquid (semen) inside.
- Dispose of the used condom safely.

Chapter 14: Post-Operative Complications & their Management

Intra-operative complications

Although the probability is low, the following may be encountered:

- **Transient drop in blood pressure or dizziness due to vaso-vagal attack:** In such cases, the procedure should be delayed and the patient allowed to rest. The head end of the bed should be lowered and the leg end raised. An intravenous injection of atropine (0.6 mg) may be given if there is bradycardia. It can be repeated if the baseline pulse rate is not achieved within 1 to 2 minutes. Oxygen should also be administered simultaneously.
- **Convulsions and reactions to local anaesthesia:** In such cases, first and foremost, maintain the patency of airway and give 100% oxygen inhalation. If convulsions still persist, injection diazepam 5—10 mg IV may be given. Administration of IV fluids is generally not needed, but may be done depending on the case. In such an event, surgery should be stopped and the patient allowed to recover. Further surgery should be performed only at a centre with a full range of services.
- **Injury to testicular artery:** This complication is very rare, but if it does occur, first pressure should be used to tamponade both ends of the vessel. Subsequently, both ends of the artery must be ligated.

Early complications

a) Swelling of the scrotal tissue, bruising, and pain

These minor complications often disappear without treatment within 24 to 48 hours. Ice packs, scrotal support, and simple analgesics may provide relief.

b) Haematoma

If small, it can be treated by scrotal support, analgesics, and antibiotics. A large haematoma may need evacuation, antibiotics, and further treatment. If a haematoma is detected early, it is desirable to cut the stitches, remove the clots, and look for the bleeding or oozing points, which should be tied. In case of NSV, scrotum should be opened, clots removed and haemostasis achieved. The wound should be packed and left open. Referral should be considered, if needed.

c) Infection

i. **Stitch abscess:** To be treated with removal of stitch, drainage, dressings and antibiotics.

ii. **Wound sepsis:** In case of severe sepsis, the wound should be opened and the pus drained. Further treatment should include application of dressings and administration of antibiotics and analgesics.

iii. **Orchitis:** Cases must be treated with antibiotics, analgesics, scrotal support, and bed rest. Severe orchitis may require hospitalization.

d) Tetanus

A rare complication. If tetanus is detected, the patient must be transferred immediately to a well-equipped centre for treatment.

Delayed complications

a) Sperm granuloma

This can occur either at the site of the vas occlusion or over the epididymis. The majority of these are symptomless, and respond to analgesics and anti-inflammatory drugs. Very occasionally a persistent and painful granuloma may necessitate surgical intervention.

b) Psychological problem

Uncommon. However, discussion of the problem, through counselling regarding male sterilization procedure and answering questions are important steps. Appropriate referral should be given if the problem persists.

c) Failure of vasectomy

Incidences of failure are quite low, but may occur because of technical deficiencies in the surgical procedure or as a result of spontaneous re-canalization. The client's partner should be offered MTP or should be medically supported throughout pregnancy. The client should be offered a repeat surgery, as indicated.

There is no association of prostatic or testicular cancer and cardiovascular disorder with vasectomy.

Remember

- All cases of failure and complications, major or minor, arising during surgery or post-surgery must be documented.
- The major complications that required hospitalization and all cases of failure must be reported to the District Quality Assurance Committee (DQAC).
- The District Quality Assurance Committee (DQAC) will in turn be responsible for processing the claims as per the guidelines of Family Planning Indemnity Scheme.

Chapter 15: Certificate of Sterilization

A certificate of sterilization should be issued only after the semen analysis shows no sperm. (Annexure V)

Remember

- Tell client that he should report to the clinic for semen analysis after three months.
- If sperms are still present in semen after three months then client is tested every month till six months.
- Do not declare failure of vasectomy till six months.
- If sperms are still present after six months consider re-vasectomy

Chapter 16: Vasectomy Failure

Male Sterilization (both NSV & Conventional method) is not effective till the seminal fluid is completely sperm free, which takes almost about a period of three months or more, after the procedure. The reason for this is that the sperms are stored in distal reproductive system located 'upstream' from the sites of vasal occlusion and it takes 3 months or more to make the reproductive passage empty. Pregnancy may occur after vasectomy, if the couple does not use condoms or another effective contraceptive method consistently and correctly before the seminal fluid is devoid of all sperms and semen examination proves azoospermia. This is sometimes presumed to be a vasectomy failure, which is not correct. This is the most common reason for pregnancy after a male sterilization (vasectomy).

Rarely failure occurs due to occlusion of a structure other than the vas deferens, presence of an additional vas/ third vas, re-attachment of the cut vas deferens ends and recanalization of the blocked vas spontaneously. The risk of this is about 1 - 4 per 5000 vasectomies. Recanalization occurs when the two ends of vas deferens are reconnected by sperm being pushed up through the healing tissue and forming many small channels which connect with the cut vas deferens upstream from the occlusion site.

Chapter 17: Vasectomy Reversal

Men considering vasectomies should not think it is reversible. Most men and their partners are satisfied with the procedure but life circumstances and outlooks can change which may need reversal of vasectomy. Reversal of vasectomy or vaso-vasotomy is a microsurgical procedure requiring considerable skills. Vaso-vasostomy is effective at achieving pregnancy in a variable percentage of cases. Typical success rate of pregnancy following a vasectomy reversal is around 55% if performed within 10 years and drops to around 25% if performed after 10 years. After reversal, sperm counts and motility are usually much lower than pre-vasectomy levels. There is evidence that men who have had a vasectomy may produce more abnormal sperm, which would explain why even a technically successful recanalization operation does not always restore fertility. The higher rates of aneuploidy and diploidy in the sperm cells of men who have undergone vasectomy reversal may lead to a higher rate of birth defects.

Some reasons that men seek vasectomy reversals include wanting a family with a new partner following a relationship breakdown/divorce, their original wife/partner died and subsequently going on to re-partner and to want children, the unexpected death of a child, or a long-standing couple changing their mind some time later often by situations such as improved finances or existing children approaching the age of school or leaving home.

Clients often comment that they never anticipated the possibility of a relationship breakdown or death (of their partner or child) or how that may affect their situation at the time of having their vasectomy. A small number of vasectomy reversals are also performed in attempts to relieve post-vasectomy pain syndrome.

Chapter 18: Increasing Awareness of Community on NSV

No Scalpel Vasectomy (NSV) is a safe, simple and effective method of terminal contraception for men. Despite many advantages, its acceptance is abnormally low in India. The most important reasons for its low acceptance are:

1. Gaps in the availability and quality of vasectomy services
2. Poor awareness of community on the facts of vasectomy and its advantages

It is known for decades that misconceptions around vasectomy are the main barriers to its acceptance. People relate it to old traditional vasectomy that is relatively a more invasive procedure than NSV. They assume that vasectomy will cause weakness and they will not be able to do strenuous manual labour which is necessary to earn their livelihood. They also have concerns for sexual weakness which they are hesitant to discuss. Many people believe that during vasectomy, the tubes that carry spermatic fluid are cut, therefore they will not have ejaculation during sexual intercourse and it will no more be pleasurable. Not only community, many health workers are also ignorant on this aspect. Women are equally or sometimes more concerned because they fear that after having undergone vasectomy, their husband will lose interest in sex. Often they offer to undergo tubal ligation rather than allowing their husbands go for vasectomy. Community members, outreach workers and health providers are all hesitant to discuss and clarify these issues.

The basic concept of increasing demand for vasectomy services is to provide correct information to eligible clients about all available methods of family planning including vasectomy. Many people who had avoided vasectomy because of misconceptions may accept vasectomy, when they get correct information on the facts of vasectomy and are counselled properly.

Outreach workers- ASHAs and ANMs can play an important role in increasing awareness of community on vasectomy. Studies have shown that they have high credibility in the community. During monthly meeting of ANMs or ASHAs, the vasectomy surgeon or medical officer in-charge should take some time to explain the facts of vasectomy and motivate them to disseminate the information to couples in their areas who have completed their family. Even if women are convinced the chances of their husbands accepting vasectomy increase. Secondly, hospital staffs like nurses, laboratory technicians, pharmacists, housekeeping staffs etc. should also be made aware of these facts. If they are well informed and have a positive attitude towards vasectomy, the community will follow suit.

Chapter 19: Prevention of Infection

It is mandatory to practise appropriate infection-prevention procedures at all times, with all clients to decrease the risk of transmission of infection, including the Human Immunodeficiency Virus (HIV), Hepatitis C Virus (HCV) and Hepatitis B Virus (HBV).

Standard Universal Precautions of infection prevention include:

1. Washing hands
2. Ensuring self-protection by wearing gloves and employing other physical barriers
3. Adopting safe work practices (to prevent injuries from sharps instruments)
4. Maintaining proper methods of environmental cleanliness
5. Ensuring the proper processing of instruments and other reusable items
6. Following proper waste-disposal practices and handling, transporting and processing used and/or soiled linens in the recommended and prescribed manner.

Hand Washing

Routine Hand Washing

- Routine hand washing should be done before wearing gloves, after examining or after having any direct contact with a client, after contact with body fluids and after removing gloves.
- Plain or antiseptic soap should be used for routine hand washing. Hands should be rinsed in running water and air-dried.

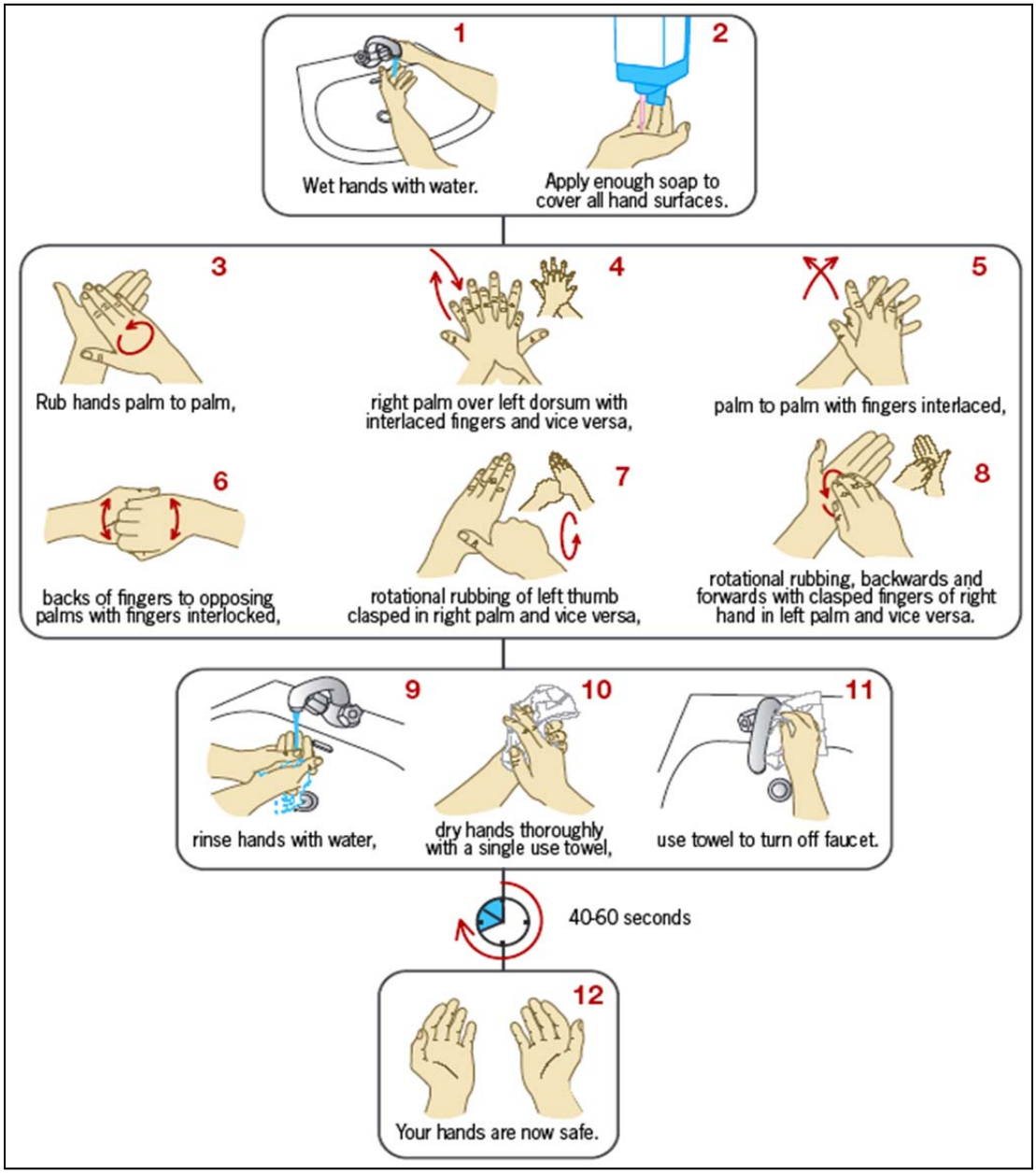
Practices such as using a common basin where a number of people or even one person washes or dips his/her hand(s) repeatedly is dangerous and must be abandoned.

Surgical Scrub

- The surgeon and his/her assistant must scrub both their hands and forearms up to the elbows thoroughly with soap and running water or antiseptic agents. The entire procedure should be repeated at least three times such that the scrub lasts for at least 3 minutes. The hands and forearms should be air dried. Do not dry hands with sterile surgical gown which you are going to wear for surgical procedure.
- A small, soft brush should be used for cleaning fingernails.

Follow all steps of hand wash as shown in figure 19.1.

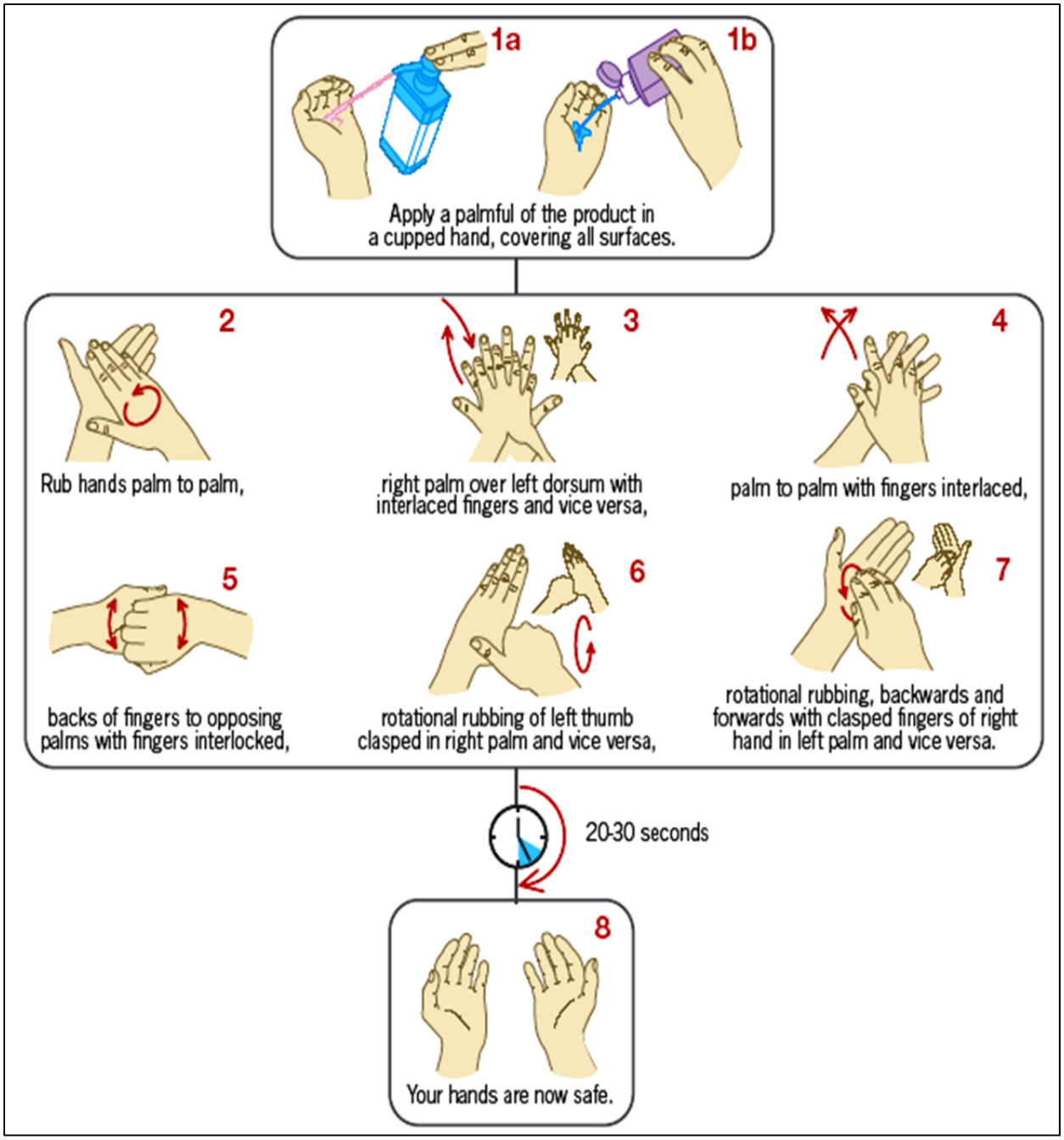
Figure 19.1: Steps of effective hand wash with soap and water



Adapted from *WHO guidelines on hand hygiene in health care (advanced draft): A summary,* World Alliance for Patient Safety, World Health Organization, 2005

Ideally, the surgeon and the assistant should scrub thoroughly between each procedure. In camp settings, in order to prevent re-colonization of the skin by micro-organisms, the surgical staff should do a three-minute surgical scrub every hour or after every five cases (whichever is earlier) or if the surgeon (and/or the surgical stuff) goes out of the OT, or touches any infected item or if the glove is torn. In between antiseptic alcohol scrub should be done.

Fig.19.2 Hand washing using alcohol based hand-rub



Adapted from *WHO guidelines on hand hygiene in health care (advanced draft): A summary,* World Alliance for Patient Safety, World Health Organization, 2005

Self-protection of Health Care Providers

- All doctors, nurses and other health providers should wear proper attire including gloves during all procedures involving contact with all patients and biological fluids.

- Cleaners and other staff working in sluice rooms and laundries should wear protective attire including heavy-duty gloves and gumboots while cleaning and handling other soiled materials and linen.
- The staff should wear utility gloves when handling and transporting waste and should decontaminate and wash the gloves and also wash their hands when finished.
- For vasectomy, the surgical team should wear cap, mask, gown, gloves, OT shoes or use shoe covers.

Safe Work Practices

- Safe handling of sharp instruments during the operation requires using the 'Hands Free technique' by placing them in a kidney tray.
- Accidental needle-stick injuries occur mostly during the removal of the needle from the syringe or during cap replacement. Therefore, before disposal, used needles should not be bent, broken, recapped, or removed from the syringe. Instead, the assembled needle and syringe should be discarded in a puncture-resistant container. If recapping is absolutely necessary, the cap should be held with a clamp while lacing it back over the needle or a one-handed technique should be used (while holding the syringe in one hand, scoop the cap off the flat surface with the needle, and then secure the cap on the needle with the other hand).
- Immediately after use, sharp objects (those need to be disposed; such as needles, scalpel blades, suture needles, glass ampoules, etc.) should be disposed of in a puncture-resistant container with a lid made of either metal or heavy rigid plastic or cardboard. The container should be sealed and disposed of once three-fourth is filled.

Maintenance of Asepsis in OT

Before Surgery

- Clean the operating table, table/counter top and light handles with a cloth soaked in 0.5% chlorine solution and detergent.
- Clean the floor with a mop soaked in 0.5% chlorine solution.

After Surgery

- Decontaminate all operating room surfaces that come into contact with the patient (such as table) between procedures by scrubbing and wiping them with 0.5% chlorine solution.
- The operating table, counters/table tops, and light handles should be wiped with a detergent and 0.5% chlorine solution.

When Not in Use

- The OT should be locked when not in use.
- **Weekly cleaning:** Scrub the room with 0.5% chlorine solution and detergent. Scrubbing should be performed from top to bottom.

Movement In and Around the OT

- The entry of people and their movement inside the OT should be minimal as the introduction of a number of micro-organisms is related directly to the number of people and their movement.
- During surgery, the door of the OT should be kept closed. Only the personnel performing or assisting should enter the OT.
- Personnel who have any infection should not enter the OT at all.

Processing of Equipment, Instruments, and Other Reusable Items

Decontamination and cleaning of equipment, instruments and other reusable items, followed by sterilization or high-level disinfection (HLD), minimizes the risk of transmission of infection. HLD does not reliably destroy all bacterial endospores. Hence instruments and other items used during surgery should be sterilized. When that is not possible, HLD is the only acceptable alternative for processing instruments and other items for reuse.

I. Decontamination

Surgical instruments, reusable gloves, and other items that have been in contact with blood or other body fluids should be decontaminated. Immediately after use, these instruments should be placed in a plastic bucket containing a solution of 0.5% chlorine for 10 minutes. After 10 minutes, the items should be removed from the chlorine solution and rinsed with water or cleaned immediately. Utility gloves and protective clothes should be worn during this and subsequent steps.

A new chlorine solution should be prepared at the beginning of each day. The chlorine solution should be discarded after 24 hours or when it is visible dirty.

Preparation of 0.5% Chlorine Solution

Take 150 gms of commercially available bleaching powder (10 tablespoonful/30 teaspoonful) and make it into a paste. Mix this paste in ten litres of tap water.

Cleaning

Cleaning reduces the number of micro-organisms and endospores on instruments and equipment.

The instruments and other items should be scrubbed vigorously with a tooth brush in lukewarm water with detergent to remove all blood, tissue, and other residue.

Detergent should be used as water alone will not remove proteins or oil. Soap is not recommended as it can leave a residue.

Hot water should not be used because it can coagulate protein such as blood, making it harder to remove.

The items should then be rinsed thoroughly with water and allowed to dry with soft cloth or air-dry. Items that require HLD by boiling can be placed directly in a pot of water after cleaning.

Remember

Take care to place the instruments in an open position during decontamination, cleaning and HLD/sterilization

High-level Disinfection (HLD)

HLD is effective in eliminating all micro-organisms except endospores. It is the only acceptable alternative for processing instruments and other items for reuse, if sterilization is not possible. HLD can be achieved either by boiling or by soaking in a high-level disinfectant depending on the heat-resistant properties of the objects that are to be disinfected.

a) HLD by Boiling

- Instruments for HLD must be decontaminated and cleaned with detergent and water prior to boiling.
- Once the water starts boiling, boil for 20 minutes in a pot with a lid.
- Articles must be completely immersed in the water.
- Do not add anything to the pot after boiling begins.
- After boiling, remove objects with a sterile or previously HLD forceps.
- Use objects immediately or store them in a covered, airtight and dry HLD container for up to seven days. If stored in an ordinary covered container, the objects can be used for up to 24 hours.

b) HLD by Chemical Method

- After decontaminating, cleaning, and drying the used objects, soak for 20 minutes in a solution containing 2% glutaraldehyde.
- Thoroughly rinse the objects with water boiled for 20 minutes before use.
- Use objects immediately or place them in a covered, dry HLD container.
- All antiseptics including povidone iodine are low level disinfectants and not to be used for HLD and storing.
- Always store HLD items dry.

Sterilization

Sterilization eliminates all micro-organisms, including endospores. For sterilization to be effective, decontamination, careful cleaning, thorough rinsing and drying must precede sterilization. It can be done by using steam (autoclaving) or soaking in a chemical solution.

a) Steam Sterilization (Autoclaving)

Always consult the specific operating instructions provided by the manufacturer.

Decontaminate, clean, and dry all instruments that are allowed to be autoclaved.

Wrap cleaned instruments in cloth or newspaper, or place unwrapped instruments in a metal container. Arrange wrapped packs in the chamber or drum to allow free circulation of heat or steam among the surfaces of all items. Items such as scissors and forceps should be sterilized in an open position. Sterilize instruments for the recommended time as shown below:

Steam Sterilization Standards

Time: 20 minutes for unwrapped and 30 minutes for wrapped instruments and linen. If combined then 30 minutes. Time should be counted after 15 lbs pressure is attained.

Remember

Do not roll the gloves in balls and sterilize.

Gloves should always be sterilized for 30 minutes by wrapping in paper or cloth cover, and should only be used after 48 hours after sterilization so that they regain their elasticity.

Pressure: 15 lbs/sq inch.

Sterilized packs can be used for up to one week, if kept dry and intact and if the drum is not opened. Once the drum is opened, use within 24 hours.

b) Sterilization by Chemical Method

Decontaminated, cleaned, and dried items are put in 2% glutaraldehyde solution for at least 8 hours.

Do not add or remove any items once the timer starts.

Items should be rinsed well with sterile water (not boiled water), air-dried, and stored in a covered sterile container for up to 7 days. Sterile water can be prepared by autoclaving water for 20 minutes at 15 lbs/sq inch in an autoclave.

SECTION – 2

Training Guide:
No Scalpel Vasectomy Training

Selection of Trainees

The intended trainees for NSV are:

- MBBS doctors/Surgeons who want to learn the NSV technique
- Committed to provide this service as a family planning option after they have completed the course.

When selecting or deputing trainees,

- Priority should be given to doctors from institutions that are committed to provide NSV
- Each hospital deputing trainees should be able to provide the staff, space, equipment and operating time needed for NSV services.

Training Site Selection

The facility for training NSV should have sufficient number of clients of NSV to complete the training and evaluation.

Duration of Training

- Five days
- Three days for refresher courses

Training Materials, Supplies and Equipment

- Reference Manual for Male Sterilization
- Standards of Female and Male Sterilization (GoI Guidelines)
- Quality Assurance in Sterilization Services (GoI Guidelines)
- Standard Operating Procedures for Sterilization Services in Camps (GoI Guidelines)
- No-Scalpel Vasectomy Video
- NSV Instruments: Dissecting Forceps, Ringed Clamp, Suture cutting scissors
- Scrotal Model
- NSV supplies (as per list in standards of sterilization).

Training Design

The goal of clinical training is to assist trainees in learning to provide safe high quality male sterilization (NSV) services through improved work performance.

To achieve this, the clinical training is to be **competency based,** that require **knowledge, attitudes or skills,** provided sufficient time is allowed and appropriate training methods are used. The emphasis during NSV training is on ***doing***; demonstration, scrotal model practice, and supervised surgical practice. Though there is some didactic material to be covered, it need not always be covered using a lecture technique; more participatory methods such as questioning, role plays, case studies, observation, and discussion can also be used.

NSV Knowledge-Assessment Test

This pretest, which appears at the end of this section, is designed to be given at the beginning and end of the training course. The trainer can use the results to customize the training to best suit the trainees. Answers to this test appear in this section.

NSV Training Evaluation

This is a competency-based course. Each trainee's performance will be evaluated using the NSV Clinical Skills Checklist, which appears in Annexure IX. Trainees should not begin supervised surgical practice until the trainer has evaluated their performance on the scrotal model as satisfactory. Trainees will not have successfully completed this course until the trainer has evaluated their clinical performance as satisfactory using the score sheet.

Follow-up

Learning about NSV does not end at the end of the course. At the completion of the course, most trainees will have gained skill in a new technique; with practice they will gain competency in the technique over the next few months and gradually proficiency.

Certification

Certification of a trainee's skill and ability to perform NSV indicates that the trainee has demonstrated the competency needed to perform this procedure independently. The Hospital that conducts the training shall issue a Certificate of Training to be signed by the NSV Trainer and In-charge of the hospital (CMS/CMO/CMHO)

Follow-up

A follow up post training should be conducted within one to three months.

SCHEDULE OF FIVE DAYS TRAINING COURSE

(FOR TRAINEES WITHOUT VASECTOMY EXPERIENCE)

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Session 1: Introduction (60 minutes) **Session 2:** Over view of FP Methods and Overview of vasectomy (30 minutes) **Session 3:** Anatomy and Physiology (30 minutes) **Session 4:** Temporary and permanent methods of family planning (30 minutes) **Session 5:** Vasectomy techniques (30 minutes) **Session 7:** Scrotal Model Practice (60 minutes) **Session 8:** Supervised Surgical Practice	**Session 9:** Counseling for NSV (60 minutes) **Session 10:** Prevasectomy Evaluation (30 minutes) **Session 11:** Pre-operative instructions (30 minutes) **Session 12**: Anesthesia, analgesia & resuscitation (60 minutes) **Session 13:** Informed Consent (30 minutes) **Session 14:** Supervised Surgical Practice	**Session 15:** Infection Prevention (90 minutes) **Session 16:** Post vasectomy Care and follow-up (30 minutes) **Session 17:** Management of Complications: their prevention & management (60 minutes) **Session 18:** Supervised Surgical Practice **Session 19:** Discussion on pitfalls in NSV procedure	**Session 20:** FP Indemnity Scheme & Standards of Sterilization (60 minutes) **Session 21:** Vasectomy under special situations **(60 minutes)** **Session 22:** Supervised Surgical Practice **Session 23:** Quality Assurance, Documentation and Certification (60 minutes)	**Session 24:** Reversal of vasectomy (30 minutes) **Session 25:** Supervised Surgical Practice **Session 26:** Course Summary, Post test, training evaluation and Closure (60 minutes)
Note: Sessions should be positioned according to the availability of the clients.				

REFRESHER TRAINING COURSE OF THREE DAYS

DAY 1	DAY 2	DAY 3
Session 1: Introduction (30 minutes) **Session 2:** Anatomy and Physiology (30 minutes) **Session 3:** Overview of Vasectomy and Vasectomy techniques (30 minutes) **Session 4:** Counseling and Informed Consent for NSV (60 minutes) **Session 5:** Scrotal Model Practice (60 minutes) **Session 6:** Supervised Surgical Practice	**Session 7:** Pre vasectomy Evaluation (30 minutes) **Session 8:** Anesthesia, analgesia & resuscitation (30 minutes) **Session 9:** Infection Prevention (60 minutes) **Session 10:** Vasectomy under special situations (30 Minutes) **Session 11:** Post vasectomy Care (30 minutes) **Session 12:** Supervised Surgical Practice	**Session 13:** Management of Complications (60 minutes) **Session 14:** Reversal of vasectomy (30 minutes) **Session 15:** Supervised Surgical Practice **Session 16:** • FP Indemnity Scheme • Standards of Sterilization • Quality Assurance Manual (60 minutes) **Session 17:** Course Summary, Post test, training evaluation and Closure (60 minutes)

IMPORTANT TIPS FOR THE TRAINERS

1. Familiarize yourself with the content of each chapter in the "Reference Manual for Male Sterilization" and Annexures.

2. Besides that familiarize with the following:
   - Standards of Female and Male Sterilization
   - Quality Assurance in Sterilization Services
   - Standard Operating Procedures for Sterilization Services in Camps
   - NSV Clinical Skill Assessment checklist
   - Agenda
   - Pre and post test
   - Video on NSV

2. Advance preparation is the key to a successful session. Use the reference material to prepare thoroughly in advance. The reason is, it hinders concentration of the trainees if the trainers constantly refer to the reference material.

3. As far as possible trainers need to work together as a team; subtly supporting each other in every session. This will also set the tone for teamwork among the trainees in their assignments.

4. Each day ends with a wrap up session and is followed by a recap session the next day to provide continuity in the training course.

5 Training is most effective when trainers adopt a warm and friendly attitude towards the trainees and take care not to ridicule any trainee.

7. Leading questions and discussions are used to draw out information from the trainees to fill in any gaps. This way, the trainees will find it easier to assimilate the knowledge.

Pre & Post Test Questionnaire

NSV Knowledge-Assessment Test

Note: This test will not be graded but used to adapt this course to best suit your needs.

Name: (Optional)----------Date----------

Designation: ----------Place of Posting----------

Decide whether each of the following statements is T (True) or F (False). Write your answer in the space provided for each statement.

S. No.	Statement	True or False
Anatomy and Physiology		
1	During vasectomy an opening is made along the median raphe midway between the base of the penis and the top of the testes	
2	Following a vasectomy, the flow of semen and seminal fluid is blocked.	
3	The vas deferens is located just outside of and parallel to the spermatic cord	
Counseling and Informed Consent		
4	A trained counsellor or a doctor is the best person to choose an appropriate contraceptive method for a couple	
5	Surgeon should verify a client's informed consent by talking with him before the procedure	
6	During vasectomy, counselling the client should be assured that he can change his mind at any time before the procedure without losing the right to other medical services	
Pre-vasectomy Evaluation		
7	A man with diabetes cannot have a vasectomy	
8	A pre vasectomy evaluation includes a medical history, a complete physical and a haemoglobin or hematocrit	
9	A client with syphilis should be treated before having a vasectomy	
10	A client whose vasectomy needs to be postponed should be counseled	
11	Prophylactic antibiotics should always be given before vasectomy	
Infection Prevention		
12	Povidone Iodine is an appropriate antiseptic to use on the scrotal area before NSV	
13	Instruments that have been boiled for 20 minutes can be used in NSV	

S. No.	Statement	True or False
14	Instruments can be high-level disinfected by soaking them in alcohol or in Povidone Iodine for 20 minutes	
15	Instruments and gloves can be decontaminated by soaking them in a 0.5% chlorine solution for 10 minutes	
16	Hand washing is indicated before putting on and after removing sterile or high-level disinfected gloves to perform a vasectomy	
17	Used hypodermic needles should be recapped, bent, or broken, then disposed of in a puncture-resistant container	
Surgical Knowledge		
18	The three-finger technique is used to identify the vas	
19	Before performing a vasectomy, you should inject 20 cc of lignocaine without epinephrine	
20	The ringed clamp is used to puncture the vas	
21	The occlusion techniques used in NSV differ from those used in conventional vasectomy	
22	After the right vas has been occluded, the left vas is isolated, anaesthetized and occluded	
Post vasectomy Care		
23	After vasectomy, a man should use an alternative contraceptive for 3 weeks or 10 ejaculations, whichever comes first.	
24	A man who has bruising and/or passes a blood clot during ejaculation should immediately return to his NSV provider	
25	Following a vasectomy, a man should avoid strenuous activity and wear a snug undergarment for 48 hours	
26	Vasectomy provides protection against pregnancy and sexually transmitted diseases	
Management of Complications		
27	If a client becomes nauseated and weak and has a low blood pressure during a vasectomy, you would suspect a vasovagal reaction	
28	Providing clients with clear post vasectomy instructions is an important way to prevent complications	
29	Infectious epididymitis can be caused by an untreated sexually transmitted disease	
30	Non-steroidal pain relievers can be used for pain related to sperm granulomas	

NSV Knowledge-Assessment Test–Answer Key

Name: (Optional)----------Date----------
Designation: ----------Place of Posting----------

Decide whether each of the following statements is T (true) or F (false). Write your answer in the space provided for each statement.

S. No.	Statement	True or False
Anatomy and Physiology		
1	During vasectomy an opening is made along the median raphe midway between the base of the penis and the top of the testes	**T**
2	Following a vasectomy, the flow of semen and seminal fluid is blocked	**F**
3	The vas deferens is located just outside of and parallel to the spermatic cord	**F**
Counseling and Informed Consent		
4	A trained counsellor or a doctor is the best person to choose an appropriate contraceptive method for a couple	**F**
5	Surgeon should verify a client's informed consent by talking with him before the procedure	**T**
6	During vasectomy, counselling the client should be assured that he can change his mind at any time before the procedure without losing the right to other medical services	**T**
Pre-vasectomy Evaluation		
7	A man with diabetes cannot have a vasectomy	**F**
8	A pre vasectomy evaluation includes a medical history, a complete physical and a haemoglobin or hematocrit	**F**
9	A client with syphilis should be treated before having a vasectomy	**T**
10	A client whose vasectomy needs to be postponed should be counseled	**T**
11	Prophylactic antibiotics should always be given before vasectomy	**F**
Infection Prevention		
12	Povidone Iodine is an appropriate antiseptic to use on the scrotal area before NSV	**T**
13	Instruments that have been boiled for 20 minutes can be used in NSV	**T**

S. No.	Statement	True or False
14	Instruments can be high-level disinfected by soaking them in alcohol or in Povidone Iodine for 20 minutes	**F**
15	Instruments and gloves can be decontaminated by soaking them in a 0.5% chlorine solution for 10 minutes	**T**
16	Hand washing is indicated before putting on and after removing sterile or high-level disinfected gloves to perform a vasectomy	**T**
17	Used hypodermic needles should be recapped, bent, or broken, then disposed of in a puncture-resistant container	**F**
Surgical Knowledge		
18	The three-finger technique is used to identify the vas	**T**
19	Before performing a vasectomy, you should inject 20 cc of lignocaine without epinephrine	**F**
20	The ringed clamp is used to puncture the vas	**F**
21	The occlusion techniques used in NSV differ from those used in conventional vasectomy	**F**
22	After the right vas has been occluded, the left vas is isolated, anaesthetized and occluded	**F**
Post vasectomy Care		
23	After vasectomy, a man should use an alternative contraceptive for 3 weeks or 10 ejaculations, whichever comes first	**F**
24	A man who has bruising and/or passes a blood clot during ejaculation should immediately return to his NSV provider	**F**
25	Following a vasectomy, a man should avoid strenuous activity and wear a snug undergarment for 48 hours	**T**
26	Vasectomy provides protection against pregnancy and sexually transmitted diseases	**F**
Management of Complications		
27	If a client becomes nauseated and weak and has a low blood pressure during a vasectomy, you would suspect a vasovagal reaction	**T**
28	Providing clients with clear post vasectomy instructions is an important way to prevent complications	**T**
29	Infectious epididymitis can be caused by an untreated sexually transmitted disease	**T**
30	Non-steroidal pain relievers can be used for pain related to sperm granulomas	**T**

Scrotal Model Practice

It emphasizes surgical skills development through practice with the scrotal model and provides an opportunity to acquire the skills.

Explain to the trainees and demonstrate each of the steps on the model and that trainess will practice those steps after the demonstration. Perform each step of the procedure slowly so that the trainees can see the movements clearly. Ask them to refer to the appropriate figures/photos in the Reference Manual for Male Sterilization in NSV Section, as each step is performed.

- Show them the technique of occluding the vas by demonstrating how to do a surgical knot on the tubes in the model. Only demonstrate the procedure for the right vas, but instruct them to perform the procedure for both the right and the left vasa during their practice sessions. Make sure trainees demonstrate the correct technique of doing a surgical knot.
- Give them immediate feedback which will help them remember the steps of the procedure. Encourage them to ask questions and continue practice on their own.

Steps to Be Practiced on a Scrotal Model

Step No.	Scrotal model practice steps	Matching figure in Reference Manual
Step 1.	Three-finger technique, right vas	Figure 9.1
Step 2.	Needle insertion for right vas	Figures 9.2
Step 3.	Three-finger technique and needle insertion, left vas	Figures 9.4
Step 4.	Pinching the skin wheal	Figure 9.5
Step 5.	Holding the ringed clamp	Figure 10.2
Step 6.	Applying ringed clamp to right vas	Figure 10.4
Step 7.	Elevating the underlying vas	Figure 10.5
Step 8.	Piercing the skin	Figure 10.7
Step 9.	Spreading the tissue	Figure 10.9
Step 10.	Piercing the vas wall	Figure 10.10
Step 11.	Rotating the dissecting forceps and releasing the ringed clamp	Figure 10.12
Step 12.	Elevating and grasping the vas	Figures 10.14 & 10.15
Step 13.	Stripping the vas	Figures 10.16, 10.17 & 10.18
Step 14.	Occluding the vas	Figures 10.19, 10.20, 10.21, 10.22 & 10.23
Step 15.	Isolating the left vas	Figure 10.25

Practice Hints

- Work on the center line of the scrotal model as you will be working on the median raphe on clients.
- The loop of the scrotal model should be considered to be in the direction of the client's abdomen and should be used with this orientation during model practice.
- Practice the three-finger technique on the scrotal model.
- Scrotal model practice is especially useful for practicing the application of the ringed forceps. Work on applying the ring forceps at different angles according to specifications in 'Reference Manual for Male Sterilization'.
- When practicing occlusion, it will provide opportunity to practice the hand tying technique.

Note: Simulated model can be prepared with the help of empty water bottles, clean used surgical gloves and scalp vein set as shown in figure. Trainees will practice all steps on model before working on clients.

Supervised Surgical Practice

During demonstration of actual NSV technique/procedure, one trainee should assist in the procedure as it provides him maximum exposure in gaining experience, especially in relation to acquiring skills. While demonstrating, the trainer should provide a running commentary or talk through the steps as the rest of trainees observe the procedure. They may also use the NSV Clinical Skill Checklist (Annexure) as their guide while observing the procedure. Discussion of the other topics related with performing the actual procedure follows immediately, emphasizing on client support and infection prevention.

In addition to demonstrating the pre and post-procedure techniques, the entry, location and delivery of vas, injection of anesthesia, and occlusion, demonstrate:

- Gentle tissue handling to reduce pain and the possibility of complications
- Control of bleeding from vessels in the spermatic cord
- Identification of the internal and external fascia sheath
- Supporting and conversing with the client during surgery

After surgical observation:

- Ask if there are any questions
- Point out how aseptic technique was maintained during surgery
- Discuss techniques that were used to support the client during the procedure
- Identify the emergency equipment and supplies and explain their use.

Supervised Surgical Performance

After trainee's skills have been evaluated as satisfactory on the scrotal model and after trainee has observed and assisted at least five NSV procedures, they should be encouraged to perform an NSV under the trainer's supervision with the trainer assisting them. Trainees should not perform NSV until the trainers have evaluated their skill on the scrotal model as satisfactory using the NSV Clinical Skills Checklist. If the performance is satisfactory and has assisted in five cases, trainee may be allowed to do perform NSV procedure independently with another trainee as assistant.

Surgical training requires a great deal of patience. Some trainees may take time to perform an NSV. New techniques are hard to learn and trainees will require repetitive practice on the scrotal model and on clients. Trainees should also review the NSV video and the figures and photos in No-Scalpel Vasectomy section in the Reference Manual of Male Sterilization. Be supportive of trainees and acknowledge their accomplishments.

Immediately after surgical practice, review the procedure with the trainee, who performed the NSV and the observers. Give the trainee feedback on his or her performance and answer any questions. Use the NSV Clinical Skills Checklist as a reference while you review the trainee's performance. During the case review, be prepared to refer to the figures on NSV technique in the Reference Manual of Male Sterilization, review the NSV video. Additionally, you might want to use the scrotal model to demonstrate specific techniques.

Note

During supervised surgical performance, if a complication arises during surgery, the trainer should take the charge of managing the situation and complete the procedure.

Evaluation of Surgical Skills

The number of NSVs a trainee must perform before achieving satisfactory performance varies according to the skill and experience of the trainee.

Once the trainee is ready for evaluation, use the NSV score sheet to review the performance and score at least 50% to label as service provider.

Note

Each trainee must observe/assist at least five NSVs and perform at least five NSVs independently to get certified as NSV service provider.

If the client caseload is not sufficient for all NSV trainees to receive enough surgical practice, make arrangements for follow-up training. Trainer may choose to invite trainees back individually or as a group or may choose to visit their facilities to provide training, follow-up and certification.

Post-Vasectomy Care

After NSV procedure the trainees should able to provide post vasectomy care and instructions. Trainer must see that the trainees go through the relevant section in the Reference Manual for Male Sterilization to get acquainted with the correct information.

Emphasize with trainees that post vasectomy clients have to use condoms or their partners to use another family planning methods at least for three months after the vasectomy. After 3 months, client should get a semen analysis done to make sure that the vasectomy is successful. All vasectomy clients should be provided with instructions and practice on the correct use of condoms for use immediately after the vasectomy.

Management of Complications

The trainees need to be informed about how to prevent, recognize and manage potential complications of vasectomy.

Review Chapter on Post-operative complications & their management in the Reference Manual for Male Sterilization

Training Steps

Activity 1: Gauging gain in knowledge

- Provide opportunity through a post-test to gauge how much knowledge the trainees have gained through the training.
- Distribute copies of the post-test to all trainees and give them 15 minutes in which to complete the test and return the test sheets back to you.

Activity 2: Evaluation of training

- Provide opportunity through an evaluation format to evaluate the success of training
- Explain to the trainees that the training evaluation is meant for gauging the success and short coming in the training manual, teaching methods, duration and schedule. It will guide the trainers to restructuring of the contents, teaching methods, duration and schedule in future training. Tell them to be honest and frank in expressing their views.

Activity 3: To clear any doubts related to NSV services

- Return the corrected pre-test and post-test papers to the trainees.
- Review the questions that were incorrectly answered.
- Clear any doubts and encourage them to ask as many questions as possible and answer them patiently.

Activity 4: Follow-up

- Explain that all trainees will be followed up at their work sites within three months of their training.
- The observer will use the learning guide checklists and score sheets to assess their performance in the field.
- Ensure that each person has a copy of the relevant checklists.

SECTION – 3

Annexures

Annexure I

Medical Record and Checklist for Female/Male Sterilization

Reg. No ..... Date..... /..... / (D/M/Y)	OT No ..... Date of operation Date ..... / / (D/M/Y)
Name of the State	
Name of the District	
Name and type of the Hospital/Facility	Outreach Camp
	PHC/CHC
	District Hospital
	Medical College Hospital
	Other (specify)
Name of the Acceptor	
Name of Father	
Name of Husband/Wife	
Address	
Contact number (if available)	

1. Socio-demographic information

Age of client	_____ (in completed years)
Age of spouse	_____(in completed years)
Education	Illiterate
	Primary school
	Middle school
	High school
	Higher secondary
	Graduation and above
Religion	Hindu .
	Muslim
	Christian
	Other (specify)
Caste	SC
	ST
	OBC
	Others
Occupation	
Marital status	Married .
	Divorced/Widowed/Separated
Number of children born	_____Total
	(Sons)

	(Daughters)
Number of children currently living	_____ Total
	(Sons)
	(Daughters)
Age of the youngest child	

2. A. Menstrual history (for female acceptors)

Cycle days	
Length	
Regularity	Regular Irregular
Date of LMP	

2. B. Obstetrics history (for female acceptors)

No. of spontaneous abortions	
No. of induced abortions	
Currently lactating	Yes No
Amenorrhoeic	Yes
	No
Whether pregnant	Yes
	No
	If yes (no. of weeks of pregnancy)

2. C. Contraceptive history

Have you or your spouse ever used any contraception?	Yes
	No
Are you or your spouse currently using any contraception, or have you or your spouse used any contraception during the last 6 months?	None
	IUCD
	Condoms
	Oral pills
	Any other (specify)

2. D. Medical history

Recent medical illness	Yes	No
Previous surgery	Yes	No
Allergies to medication	Yes	No
Bleeding disorder	Yes	No
Anaemia	Yes	No
Diabetes	Yes	No
Jaundice or liver disorder	Yes	No
RTI/STI/PID	Yes	No

Convulsive disorder	Yes	No
Tuberculosis	Yes	No
Malaria	Yes	No
Asthma	Yes	No
Heart disease	Yes	No
Hypertension	Yes	No
Mental illness	Yes	No
Sexual problems	Yes	No
Prostatitis	Yes	No
Epididymitis	Yes	No
H/O blood transfusion	Yes	No
Gynaecological problems	Yes	No
Currently on medication (if yes, specify)	Yes	No
Comments		

Physical Examination

BP Pulse Temperature

Lungs	Normal	Abnormal
Heart	Normal	Abnormal
Abdomen	Normal	Abnormal

3. Local examination

Male sterilization

Skin of scrotum	Normal	Abnormal
Testis	Normal	Abnormal
Epididymis	Normal	Abnormal
Hydrocele	Yes	No
Varicocele	Yes	No
Hernia	Yes	No
Vas deferens	Normal	Abnormal
Both vas palpable	Yes	No

4. Laboratory investigations

Haemoglobin	……..g%	
Urine: Albumin	Yes	No
Urine Sugar	Yes	No
Any other(Please specify)		

Name and signature of the examining doctor

5. Checklist before conducting surgery (To be filled by the operating surgeon)

Client is within eligible age	Yes	No
Client is ever married	Yes	No
Client has at least one child more than one year old	Yes	No
Lab investigations (Hb, urine) undertaken are within normal limits	Yes	No
Medical status as per clinical observation is within normal limits	Yes	No
Mental status as per clinical observation is normal	Yes	No
Local examination done is normal	Yes	No
Informed consent is given by the client	Yes	No
Explained to the client that consent form has authority as legal document	Yes	No
Abdominal/pelvic examination has been done in the female and the findings are within normal limits (WNL)	Yes	No
Infection-prevention practices followed as per laid down standards	Yes	No

6. Preoperative preparation

Fasting	Yes	No
Passed urine	Yes	No
Any other (specify)		

7. Anaesthesia/analgesia

Type of anaesthesia given	Local only Local and analgesia *General, no intubation *General, intubation *Any other (specify)
Time	
Drug name Dosage Route	

** Signature of anaesthetist in case of regional or general anaesthesia*

8. Surgical approach

Local anaesthesia	Lignocaine 2% _____cc Other _____
Technique	Conventional_____ NSV_____
Type of incision	
Conventional	Single vertical_____ Double vertical_____
NSV	Single puncture _____
Material for occlusion of vas	2-0 Silk _____ 2-0 Catgut_____
Fascial interposition	Yes _____ No _____
	If no, give reasons_____ _____ _____
Length of vas resected	_____cm
Suture of silk for conventional vasectomy	Silk _____Other _____
Surgical notes	
Any other surgery done at time of sterilization?	Yes_____ No _____
	If yes, give details
Specify details of any complications and their management	

Name and signature of the operating surgeon

Date

Instructions for discharge

Male sterilization client observed for half an hour after surgery	Yes_____	No _____
Post-operative instructions given verbally	Yes	No
Post-operative instructions given in writing	Yes	No
Patient counselled for postoperative instructions	Yes	No
Comments		

Name and signature of the discharging doctor

Annexure II

APPLICATION CUM CONSENT FORM FOR STERILIZATION OPERATION

An informed consent is to be taken from all acceptors of sterilization before the performance of the surgery as per the consent form placed below

Name of Health Facility: ……

Beneficiary Hospital Registration Number: ……

Date: ……/……./2…..…

1. Name of the Acceptor: Shri/Smt.

……..……..……

2. Name of Husband /Wife: Shri/Smt.

……..…….....

Address

……...

……..……

Contact No: ……..……

3. Names of all living, unmarried dependent Children

i) …… Age……

ii)…… Age……

iii)…… Age……

iv)…… Age……

4. Father's Name of beneficiary:

Shri……..……

Address:

……..……..

5. Religion/Nationality:

……

6. Educational Qualifications:

……

7. Business/Occupation:

……

8. Operating Centre:

……

I, Smt/Shri …… (Beneficiary) hereby give consent for my sterilization operation. I am ever married. My age is … years and my husband/wife's age is … years. I have … (Nos.) male and …. (Nos.) female living children. The age of my youngest living child is …… years.

 # I am aware that I have the option of deciding against the sterilization procedure at any time without sacrificing my rights to other reproductive health services.

a) I have decided to undergo the sterilization / re-sterilization operation on my own without any outside pressure, inducement or force. I declare that I / my spouse has not been sterilized previously (may not be applicable in case of re-sterilization). (….)

(b) I am aware that other methods of contraception are available to me. I know that for all practical purposes this operation is permanent and I also know that there are still some chances of failure of the operation for which the operating doctor and health facility will not be held responsible by me or by my relatives or any other person whomsoever (….)

(c) I am aware that I am undergoing an operation, which carries an element of risk. (….)

(d) The eligibility criteria for the operation have been explained to me, and I affirm that I am eligible to undergo the operation according to the criteria. (….)

(e) I agree to undergo the operation under any type of anaesthesia, which the doctor/health facility thinks suitable for me, and to be given other medicines as considered appropriate by the doctor/health facility concerned. (…)

(f) If, after the sterilization operation, I experience a missed menstrual cycle, then I shall report within two weeks of the missed menstrual cycle to the doctor/health facility and may avail of the facility to get an MTP done free of cost. (…)

(g) In case of complications following sterilization operation, including failure, and the unlikely event of death following sterilization, I/my spouse and dependent unmarried children will accept the compensation as per the existing provisions of the Government of India "Family Planning Indemnity Scheme" as full and final settlement and will not be entitled to claim any compensation over and above the compensation offered under the "Family Planning Indemnity Scheme" from any court of law in this regard or any other compensation for upbringing of the child. (…)

(h) I agree to come for follow-up visits to the Hospital/Institution/Doctor/health facility as instructed, failing which I shall be responsible for the consequences, if any. (…)

(i) I understand that Vasectomy does not result in immediate sterilization. *I agree to come for semen analysis 3 months after the operation to conform the success of sterilization surgery (Azoospermia) failing which I shall be responsible for the consequences, if any. (…)

(* Applicable for male sterilization cases)

I have read the above information.

#The above information has been read out and explained to me in my own language and that this form has the authority of a legal document.

Date: …… **Signature or Thumb Impression of the Acceptor**

Name of acceptor: ……

Signature of Witness (Acceptors side):

Full Name: ……

Signature of witness: ……
Full Address……..……

(Only applicable for those beneficiaries who cannot read and write)

Applicable to cases where the client cannot read and the above information is read out.

Shri/Smt …… has read/have been fully explained about the contents of the Informed Consent Form in his/her local language.

Signature of Counsellor: ……

Full Name: ……

Date: ……..…

Full Address: ……

I certify that I have satisfied myself that -

a. **Shri/Smt……is within the eligible age-group and is medically fit for the sterilization operation.**

b. **I have explained all clauses to the client and that this form has the authority of a legal document.**

c. **I have filled the Medical record–cum-checklist and followed the standards for sterilization procedures laid down by the Government of India.**

Signature of Operating Doctor	**Signature of Medical Officer in-charge of the Facility**
(Name of Operating Doctor)	**(Name of Medical Officer in-charge of the Facility)**
Date: ……	**Date: ……**
Seal	**Seal**

DENIAL OF STERILIZATION

I certify that Shri/Smt……..is not a suitable client for re-sterilization/ sterilization for the following reasons:

1. ……..…….

2. ……..…….

He/ She has been advised the following alternative methods of contraception.

1. ……..

2. ……..……

Signature of the Counsellor**

Or

Doctor making the decision

Date: …… **Name and full Address: ……**

(Counsellor can be any health personnel including doctor)**

Annexure III

Medical Eligibility Criteria for Male Sterilization

(*Source: Medical Eligibility Criteria for Contraceptive Use, Third Edition, WHO, 2011*)

There are no absolute contraindications for performing a sterilization operation. However, there are certain relative contraindications where one needs to apply the criteria of 'A', 'C', 'D', and 'S' as stated below.

A	Accept	There is no medical reason to deny sterilization to a person with this condition.
C	Caution	The procedure is normally conducted in a routine setting, but with extra preparation and precautions.
D	Delay	The procedure is delayed until the condition is evaluated and/or corrected. Alternative temporary methods of contraception should be provided.
S	Special	The procedure should be performed by an experienced surgeon and staff, in a setting where equipment for providing general anaesthesia and other back-up medical support is available. To meet these conditions, the capacity to decide on the most appropriate anaesthesia regimen is also needed. Alternative temporary methods of contraception should be provided, if referral is required or if there is otherwise any delay.

Condition	Category	Clarification/Evidence
Personal characteristics and reproductive history		
Young age	C	Clarification: young men, like all men, should be counselled about the permanency of sterilization and the availability of alternative, long- term, and highly effective methods. Evidence: Men who underwent vasectomy at young ages were more likely to have the procedure reversed than those who underwent vasectomy at older ages.
Depressive disorders		
Depressive disorders	C	
HIV/AIDS		
High risk of HIV	A	Clarification: No routine screening is needed. Appropriate infection- prevention procedures, including universal precautions, must be observed carefully with all surgical procedures. The use of condoms is recommended following sterilization.
HIV infected	A	
Personal characteristics and reproductive history		

AIDS	D	Clarification: The presence of an AIDS-related illness may require a delay in the procedure.
Endocrine conditions		
Diabetes*	C	
Anaemias		
Sickle-cell disease	A	
Other conditions relevant only for male surgical sterilization		
Local infections* a) Scrotal skin infection b)Active STI c)Balanitis d) Epididymitis or Orchitis	D D D D	
Coagulation disorders*	S	
Previous scrotal injury	C	
Systemic infection or gastroenteritis*	D	
Large varicocoele*	C	
Large hydrocoele*	C	
Filariasis; Elephantiasis*	D	
Intrascrotal mass*	D	
Cryptorchidism	C	Clarification: If the cryptorchidism is bilateral and fertility has been demonstrated, it will require extensive surgery to locate the vas, and this becomes category 'S'. If the cryptorchidism is unilateral and fertility has been demonstrated, vasectomy may be performed on the normal side and semen analysis performed as per the routine. If the man continues to have a persistent presence of sperm, more extensive surgery may be required to locate the other vas, and this becomes category 'S'.
Inguinal hernia*	S	

* See Additional Comments

Additional comments

Coagulation disorders

Bleeding disorders lead to an increased risk of post-operative haematoma formation, which, in turn, leads to an increased risk of infection.

Diabetes

Diabetics are more likely to get post-operative wound infections. If signs of infection appear, treatment with antibiotics needs to be given.

Local infections

There is an increased risk of post-operative infection.

Systemic infection or gastroenteritis

There is an increased risk of post-operative infection.

Large varicocoele

The vas may be difficult or impossible to locate; a single procedure to repair varicocele and perform a vasectomy decreases the risk of complications.

Large hydrocele

The vas may be difficult or impossible to locate; a single procedure to repair hydrocele and perform a vasectomy decreases the risk of complications.

Filariasis/elephantiasis

If elephantiasis involves the scrotum, it may be impossible to palpate the spermatic cord and the testes.

Intra scrotal mass

This may indicate an underlying disease.

Inguinal hernia

Vasectomy can be performed concurrently with hernia repair.

Annexure IV

Post-operative Instruction Card following Male Sterilization

Name and type of hospital/facility	**Outreach Camp**
	PHC/CHC
	District hospital
	Medical college hospital
	Any other (specify)
Acceptor's name	
Father's name	
Wife's name	
Address	
Contact number	
Date of operation	____/____/_____(D/M/Y)
Type of Operation	Conventional vasectomy / NSV_____

Post-operative Instructions

1. Please come for follow-up:
   - After 48 hours for check-up
   - On the 7th day for stitch removal (for conventional vasectomy)
   - After 3 months for semen analysis
   - In an emergency as and when required
2. Medication as prescribed.
3. Scrotal support or snug undergarment for 48 hours.
4. Return home and take adequate rest.
5. Resume normal work after 48 hours and return to full activity, including cycling, within one week following surgery.
6. Resume a normal diet as soon as possible.
7. Keep the operated area clean and dry, and do not disturb or open the dressing.
8. The client may bathe after 24 hours, with the operated part of the body protected. If the dressing becomes wet, it should be changed. After 48 hours, the dressing can be taken off.
9. The client may have intercourse whenever it is comfortable after the surgery but must ensure use of condom if his wife/partner is not using contraception. Vasectomy does not interfere with sexual pleasure, ability, or performance.
10. The client should use another method of contraception for at least 3 months following vasectomy or until the semen analysis shows no sperms. Client should use condom if his wife/ partner is not using contraception.
11. Report to the doctor or clinic if there is excessive pain, fainting, fever, bleeding, increase in scrotal size, or pus discharge from the operated site.
12. If there are any questions, contact the health personnel or doctor at any time.

Signature of the discharging doctor

Follow-up report

Follow-up	Time after Surgery	Date of follow-up	Complications, if any	Action taken
1st	48 hours			
2nd	7th day			
3rd	3 months after vasectomy			
Emergency				

Note: The above follow up schedule is generic for sterilization procedures. However, in NSV procedure, follow up at three months with semen analysis report is mandatory.

Comment
Result of semen analysis

Name, designation, and signature of the person filling out the report

Annexure V

Sterilization Certificate

Reg P.No

S.No

Year

This is to certify that Smt/Shri _____ (Hosp. No.) _____ S/o/W/o.Sri: _____. (He/ She is working as _____ residing at _____ has undergone Vasectomy/Tubectomy operation in _____(name of the facility/hospital) on_____

Sperm count was undertaken on _____ and on the basis thereof it is certified that the Vasectomy operation has been completely successful.

(Para 2 only in case of Vasectomy operation only)

Signature

Medical Officer

Name

Date

Seal

Annexure VI

Conventional Vasectomy Kit

ITEM	QUANTITY
Gauze pieces	8
Towel with central hole	1
Mosquito artery forceps, curved	2
Mosquito artery forceps, straight	2
Allis forceps	2
Needle holder	1
Thumb forceps, toothed	1
Metzenbaum scissors	1
Scalpel handle	1
Scalpel blade, size 15	1
Stainless-steel bowl, small	2
Sponge holder	1
Surgical tray with cover	1
Gloves, sizes 6½ , 7, and 7½	2 pairs each
Silk suture, 2–0/non-absorbable suture	1
Small round-bodied curved cutting needle	1
Syringe, 5 cc	2
Needle, 22-G, 24-G	1
Suspensory bandage	1
Iodophore solution	Q.S.

Q.S. Quantity Sufficient

Annexure VII

NSV Kit

ITEM	QUANTITY
Gauze pieces	6
Towel with central hole	1
Stainless-steel bowl, small	1
Sponge holder	1
Surgical tray with cover	1
Mayo scissors	1
Extra-cutaneous vas fixation ringed forceps	1
Vas dissecting forceps	1
Non-absorbable suture (2-0 silk)	1
Gloves, sizes 6½ , 7, and 7½	2 pairs each
Syringe, 5 cc	2
Needle, 22-G, 1.5 inch length, 24-G	2
Iodophore solution	Q.S.
Suspensory bandage	1
Dressing material	2

Q.S. Quantity Sufficient

Annexure VIII

Physical Requirements for Male Sterilization

S.No.	Item	Requirements
1	Facilities	Well-ventilated, fly-proof room with concrete/tiled floor, which can be cleaned thoroughly Running water supply through tap or bucket with tap Electricity supply with a standby generator and other light source
2	Space Required	Reception area Waiting area Counselling area that offers privacy and ensures avoidance of any interruptions Laboratory for urine and semen analysis Clinical examination room for initial assessment and follow-up Preoperative preparation room for trimming of hair, washing, changing of clothes, and premedication Hand-washing area near the OT for scrubbing Sterilization room, near the OT, for autoclaving, washing, and cleaning of equipment and for preparation of sterile packs OT should be isolated, being located away from the general thoroughfare of the clinic. It should be large enough to allow the operating staff to move about freely and to accommodate all the necessary equipment. Lighting should be adequate. Recovery room must be spacious and well ventilated. The number of beds will be determined by the space available. It should be adjacent to the OT. Sufficient number of sanitary-type toilets with running water for clients and staff Storage area Office area for keeping records
3 Equipment and Supplies		
3A	Examination Room Requirements	Examination table Foot stool Blood pressure apparatus Thermometer Stethoscope
3B	Laboratory	Haemoglobinometer and accessories Apparatus to estimate albumin and sugar in urine Reagents
3C	Sterilization Room	Autoclave

S.No.	Item	Requirements
		Boiler Autoclave drums Glutaraldehyde solution
3D	Cleaning Room	Hand brushes Utility gloves Basins Detergents Chlorine solution 0.5%
3E	Operation Theatre	Operating table Step-up stool Spotlight in OT Instrument trolley Conventional vasectomy kit Non-scalpel vasectomy kit Blood pressure instruments Stethoscope Syringe with needles Emergency equipment and drugs as per list Room heater IV stand Waste basket, storage cabinet, buckets and basins for decontamination Used linen box Puncture-proof box
3F	Recovery Room	Patient's cot with mattress, sheet, pillow, pillow cover, and blankets Blood pressure instruments Stethoscope Thermometers IV stand Emergency equipment and drugs as per list
4	Emergency Equipment and Supplies	Stethoscope Blood Pressure instruments Oral airways guedel, sizes 3, 4, 5 Nasopharyngeal airways, sizes 6, 6.5, 7.0 Suction machine with tubing and two straps Ambu bag with mask, sizes 3, 4, 5 Tubing and oxygen nipple Oxygen cylinder with reducing valve and flowmeter Blanket

S.No.	Item	Requirements
		Gauze pieces Kidney tray Torch Syringes and needles, including butterfly sets, IV cannula IV stand Intravenous infusion sets and fluids Endotracheal tube, sizes 6, 6.5, 7, 7.5, 8.0 Laryngeal mask airways, sizes 3,4, 5 Combitube Cricothyroidectomy set
5	Emergency Drugs	Injection Adrenaline Injection Atropine Injection Diazepam Injection Deriphylline Injection Xylocard Injection Hydrocortisone (Dexamethasone) Injection Pheniramine Maleate Injection Promethazine Injection Pentazocine Injection Ranitidine Injection Metoclopramide Injection Calcium Gluconate/Calcium Chloride Injection Sodium Bicarbonate (7.5%) Injection Dopamine Injection Mephentermine Injection Frusemide Water-soluble jelly Electrode jelly
		IV fluids
		Ringer lactate 0.9% sodium chloride (normal saline) 5% Dextrose Glucose 25% Heta starch (HES 6%)

Annexure IX

NSV Clinical Skills Checklist

TASKS	EVALUATION		
In Rating of Tasks for Evaluation, use the following Codes. S=Satisfactory: Performs the task according to the standard guidelines U=Unsatisfactory: Does not perform the task according to the standard guidelines			
Pre-vasectomy Evaluation			
1. Greets client.			
2. Ensures that client has been appropriately Counselled about the procedure and that he has made an informed choice.			
3. Takes medical history and performs heart, lung and abdominal examination.			
4. Performs genital examination.			
Pre procedure Tasks			
5. Ensures that room is warm enough to relax client's scrotum			
6. Greets client.			
7. Reviews chart for relevant medical history.			
8. Verifies informed consent.			
9. Washes hands.			
10. Examines operative site to ensure mobile cords.			
11. Clips hair at operative site, if necessary.			
12. Ensures operative site is clean.			
13. Retracts the penis upwards on the abdomen in the12o'clock position and anchors it comfortably			
14. Performs surgical scrub. Puts on sterile gloves.			
15. Prepares a syringe to administer10cc1% or 5cc 2% lignocaine (without epinephrine). Attaches 1.5inch(or metric equivalent)small gauge needle (24-26 gauge)			
16. Adequately prepares operative site with warm antiseptic.			
17. Isolates operative site (scrotum) with sterile sheet(s) or towel(s).			
Procedure Tasks			
18. Identifies, isolates and fixes right vas deferens under the median raphe midway between the base of the penis and the top of the testicles. Traps the right vas firmly using the three-finger technique, exposing the site of puncture between the thumb and forefinger.			
19. Observes and communicates with client.			
20. Raises skin wheal using 0.5cc of 1% or 2%lignocaine (Without epinephrine). Advances the needle in the external spermatic fascial sheath towards the inguinal ring about1.5inches above the wheal, aspirates, and without withdrawing the syringe slowly injects 2 to 3cc of lignocaine into the sheath.			
21. Uses the three-finger technique to firmly trap the left vas. Re-introduces the needle through the same puncture site. Advances the needle in the external spermatic fascial sheath towards the inguinal ring about 1.5 inches above the wheal, aspirates, and injects 2 to 3 cc of lignocaine in the sheath.			

22. Pinches the skin between the thumb and forefinger to reduce local oedema.			
23.Fixes the right vas again with left hand under the skin wheal using the three-finger technique.			
24. Grasps the right vas using the ringed clamp on the site of the skin wheal.			

TASKS	EVALUATION					
For steps 25–45 fill in the columns for right and left with S or U as	**R**	**L**	**R**	**L**	**R**	**L**
25. Checks with client to ensure that anaesthesia is sufficient. If not, repeats local infiltration and making sure not to exceed the maximum dose.						
26. Elevates the entrapped vas by lowering the handles of the ringed clamp.						
27. Uses a quick, sharp, single movement to pierce the skin down to the vas lumen using one blade of the dissecting forceps, introduced at a 45° angle.						
28. Withdraws the blade of the dissecting forceps, closes both blades and inserts both tips of the dissecting forceps into the puncture site to the same depth down to the vas.						
29. Gently opens the blades of the dissecting forceps and spreads the tissue to make a skin opening twice the diameter of the vas.						
30. Withdraws the dissecting forceps and uses the tip of one blade of the dissecting forceps to pierce the bare vas wall and rotates the dissecting forceps clockwise180o.						
31. Delivers the vas through the puncture hole while releasing the ringed clamp, but still keeping it in place.						
32. With the ringed clamp, grasps a partial thickness of the elevated vas.						
33. If the sheath is not completely dissected, with one tip of the dissecting forceps, gently punctures the vas sheath, withdraws the tip, closes the dissecting forceps, reinserts then open to strip the vas sheath.						
OCCLUSION- Ligation with Excision and Fascial Interposition						
34. After careful separation of fascia and blood vessels ligates the prostatic end of the vas						
35. Cuts one end of the suture leaving a single uncut end of about 5-7cms in length.						
36. Ligates the testicular end about1.5cm from the prostatic end ligature and leaves both end of the suture to about 5–7cms in length						
37. Excises up to 1cm of vas in between the two ligatures.						
38. Ensures both stumps are separated by at least 1 cm by pulling both ligatures.						
39. Ensures haemostasis						
40. Cuts both ends of the testicular suture						

41. Allows both ends of the vas to drop back into their original position in the scrotum by gently pulling on the scrotum with the thumb and index finger						
42. Very gently pulls the long suture of the prostatic end of the vas to re-expose the cut end covered with the internal spermatic fascia.						
43. Gently grasps the internal spermatic fascia with the tip of the dissecting forceps and ties the fascia around the vas 2-3mm below the previous tie of the prostatic end.						
44.Cuts both ends of the suture and allows stumps to drop back into position						
45. Pulls the prostatic end again up to the puncture wound and cuts the single long end of the suture.						
46.Using the three-finger technique, isolates the left vas under the puncture site						
47. Grasps the left vas at the lower end of the puncture site with the ringed clamp.						

TASKS	EVALUATION		
Repeats steps 25-45 for the left vas.			
48. Pinches the puncture site tightly for a minute.			
49.Inspects again for bleeding			
50.Secures sterile gauze dressing to the wound with a tape or a bandage			
POST PROCEDURE TASKS			
51. Flushes the needle and syringe and places all instruments in a 0.5% chlorine solution for decontamination.			
52. Disposes of waste materials and sharps in accordance with Infection Prevention guidelines.			
53. Immerses both gloved hands in 0.5% chlorine solution.			
54. Remove gloves by turning inside out. •If disposing of gloves, place in leak proof container or plastic bag •If reusing surgical gloves, submerge in 0.5% chlorine for 10 minutes for decontamination.			
55. Washes hands thoroughly with soap and water and dries with a clean cloth.			
56. Asks client how he feels.			
57. Provides client with written postoperative instructions.			
58. Reviews instructions orally. Asks if client has any questions.			
59. Reviews the need for backup contraception for at least 3 months. Provides client with condoms, if needed and available.			
60. Advises client to return for semen analysis (if available) after3 months.			

Annexure X

NSV Score Sheet

ITEMS	TRAINEE 1	TRAINEE 2	TRAINEE 3	TRAINEE 4
Local Anaesthesia ▪ Three finger ▪ Skin wheal ▪ Needle passage				
Vas fixation ▪ Three finger ▪ Vertical fixation ▪ Palm up fixation				
Puncture ▪ Placement of forceps ▪ Angle of approach ▪ Entry into vas				
Elevation ▪ Separation of tissues ▪ Supination of fore arm ▪ Elevation out of wound				
Ligation Excision ▪ Separation of tissues in loop ▪ Length of segment ▪ Tightness of ligature				
Fascial Interposition ▪ Yes/No				
Fixation of opposite vas ▪ Body posture ▪ Three finger ▪ Position of ringed forceps				
Scrotal Handling Gentle/Acceptable/Rough				
Counseling				
Post-operative Instructions				
TOTAL				

Service Provider must score 50/100.

Trainer must score 80/100.

Each Item should be scored out of 10.

Name & Signature of Trainer

Date

Annexure XI

Guidelines for training of MOs on Male Sterilization

Designation of the Training Centres- The states should aim at developing at least 1 Clinical Training Centre (based in District/ Sub-district facilities providing RCH services) per district based on the following:

1. Adequate number of NSV clients
2. The centres should have a training room and audio-visual learning aids

Designation of the trainers- Medical officer (MBBS or with PG degree) providing regular NSV service and placed at the district

Training Duration- 5 working days

Number of Trainees- 1-4 trainees per training batch according to the case load in the training centre.

The districts should plan for intensive IEC activities for a week prior to the training to increase the number of clients.

Qualification of Trainees- MBBS and above

Key Contents of the training-

- ✓ Overview of family planning services under Public Health Care system
- ✓ Pre and Post procedure counselling
- ✓ Eligibility/ Clinical assessment and selection of prospective beneficiaries
- ✓ Clinical Procedures as per standards: Infection Prevention, Surgical procedure, Post-surgical case management including early recognition and management of complications
- ✓ Post procedure follow-up
- ✓ Issuing NSV Certificate to client
- ✓ Other program management components like IEC / BCC activities, Compensation scheme, Family Planning Indemnity Scheme, Quality Assurance and Audit
- ✓ Management/maintenance of equipment and Health Management Information System (HMIS)

Number of Cases to be performed by the trainee-

- ✓ Assist at least 5 cases
- ✓ Perform at least 5 cases under supervision

Competency Certification- Trainer must evaluate the trainee using a checklist and by inspecting the diary maintained by the trainee. Competency certificate should be issued by the trainer only after assessing the trainee skills.

Preparing the training plan

S. No.	ACTIVITIES	RESPONSIBLE AGENCY / PERSON
1	**Identification and designation of Training Centers**	
	State Training Centre/s	State Quality Assurance Committee (SQAC)/ Director, Family Welfare (DFW)
	District Training Centre/s	District Quality Assurance Committee (DQAC) / District Chief Medical Officer (CMO)
2	**Identification and designation of Trainer/s**	
	State Trainer/s	SQAC/DFW
	District Trainer/s	DQAC/CMO
3	**Assessing training load**	DFW / DCMO / District Training Coordinator
4	**Drawing up training calendar**	DFW / CMO / District Training Coordinator
5	**Selection and nomination of trainees for training**	CMO / District Training Coordinator
6	**Organization and management of trainings**	District Training Coordinator
7	**Certification of successful trainees**	District Trainer/s
8	**Quality assurance of trainings**	District Training Coordinator and Trainer/s
9	**Post training support and follow-up**	District Training Coordinator/ CMO
10	**Empanelment of trained & certified trainees**	DQAC/CMO

Annexure XI

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Government of India

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