

## *Standards for Surgical Instruments used in No Scalpel Vasectomy (NSV)*

### *Introduction*

NSV is a safe minimally invasive procedure that reduces complications occurring in conventional vasectomy.. The NSV was developed in China by Dr. Shunqiang Li in 1974 and introduced to the western world by AVSC International and Dr. Marc Goldstein of the New York-Presbyterian Hospital-Cornell Medical Center in 1985. Instead of cutting the scrotal skin, the skin is punctured and the vas is delivered with two special instruments.

A no-scalpel vasectomy has the advantages of the following:

- No incision
- No stitches
- Faster procedure
- Less chance of bleeding and other complications
- Just as effective as conventional vasectomy

### *Instrument used for NSV*

Instrument and supplies: The no scalpel technique requires two instruments specifically designed by Dr Li Shunqiang.

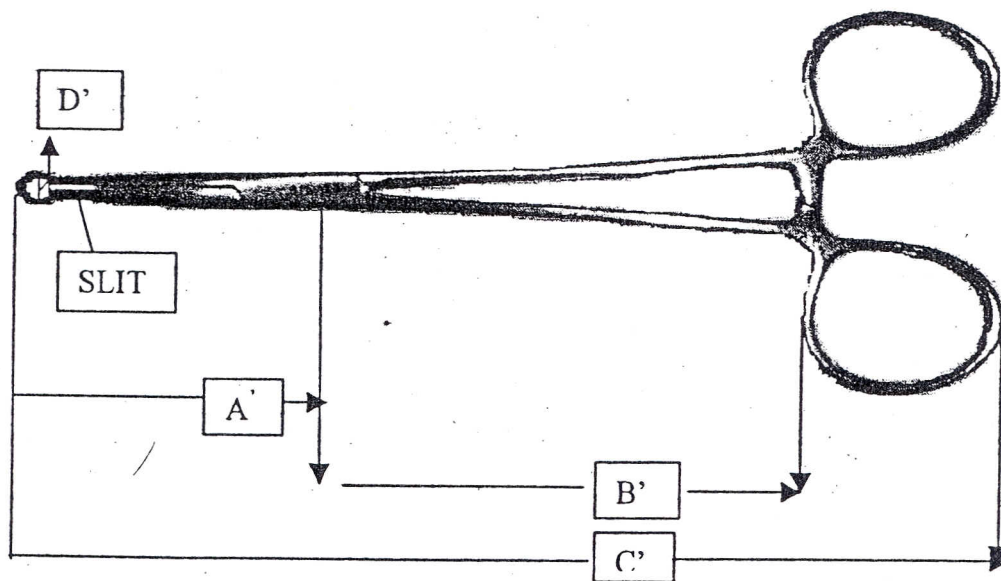
- ❖ Ring fixation Clamp
- ❖ Sharpened curved Dissecting forceps

1. The extracutaneous Ringed /Fixation Clamp: is a type of clamp used to fix the vas deferens. In the operation, the surgeon uses the ringed tip of this instrument to encircle and to grasp the vas, without injuring the skin. The prongs of the ring clamp grasp the vas deferens both extracutaneously and directly.

2. Dissecting forceps: This is similar to a curved mosquito hemostat, except that the tips are sharply pointed. It is used to: puncture the scrotal skin; spread the tissues, to dissect the sheath and to deliver the vas deferens. The dissecting forceps can also be used to grasp the vas while a ligature or cautery is applied for occlusion. Because the instrument is a modified hemostat, it can be used to control bleeding.

The specifications for Ringed Fixation Clamp\* are :

Dimension of the Ringed Fixation Clamp :



Name of specification parameter	Range
a. Weight of fixation clamp:	18 - 24g
b. Diameter of fixation ring (D'): (Inner diameter)	3.2 - 3.6 mm
c. Slit (Length)	5.9 - 6.1 mm
d. Slit (gap)	0.5 - 0.7 mm
d. Thickness of ring	0.75 - 0.85 mm
e. Tip to box joint length (A')	39 - 41 mm
f. Box joint to ratchet length (B')	69 - 73 mm
g. Tip to end of grip length 'C' Overall length)	138 - 142 mm
h. Number of grooves in ratchet (locks)	2
i. Force to engage:	
First ratchet lock	400 - 600 g
Second ratchet lock	900 - 1600 g

Joint of Box type as per IS 3642 (Part 1 Section 13.2.2.) of 1990

The ends of the prongs of the tip should be smooth and non-piercing

#### Metal Specifications

The metal should be lightweight surgical alloy, non-staining, corrosion free, non-rusting and should be able to withstand the temperature of autoclaving. It should be non light reflecting (surface should not be shiny) with a buff coating. It should not be brittle.

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

Name of specification part

a. Weight of forceps

Range

17  
18 - 24 g

*Signature*  
17-24g  
*Signature*  
17-24g  
*Signature*

b. Tip to box joint length

: 18 - 25 mm

(A'')

c. Box joint to ratchet length

: 69 - 73 mm

(B'')

d. Tip to end of grip length

: 120 - 125 mm

(Overall length C'')

e. Distance from tip to line tangent to the : 2.5 - 4.0 mm

box joint surface

Surface (D'')

f. Width of dissecting forceps(0.5mm from tip : 0.26 - 0.46 mm,

of forcep ( a measure of taper of tip)

Forcep tip to be smooth and rounded and inside surface of blades also to be smooth

Method of determination : of taper

Equipment required : Grid marking in mm; microscope with camera

Measurements are performed on enlarged digital photos taken on microscopic enlargement. At a point 0.5 mm from the tip towards the joint and in the midline of the blade a line perpendicular to the edges of the blade is drawn. The blade with along this perpendicular line is the width of the dissecting forcep.

*Signature*  
*Signature* - 27 -  
*Signature*





71

g. Radius of curvature of the point of dissecting forceps (J): 0.12-0.16mm

**Method of determination:**

Anshu, Kushintra, Dad, Sukumar, Pooja

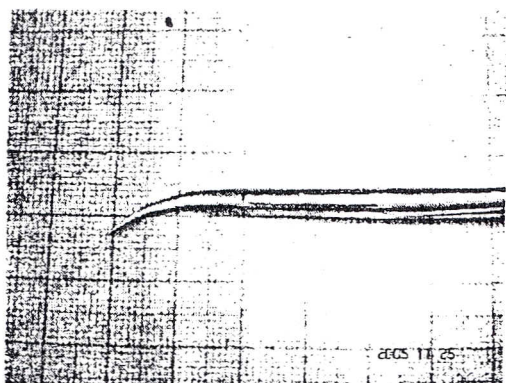
Equipment required : Grid and microscope with camera

i. Angle of dissecting forceps tip on plane(K) :  $35^{\circ} - 42^{\circ}$

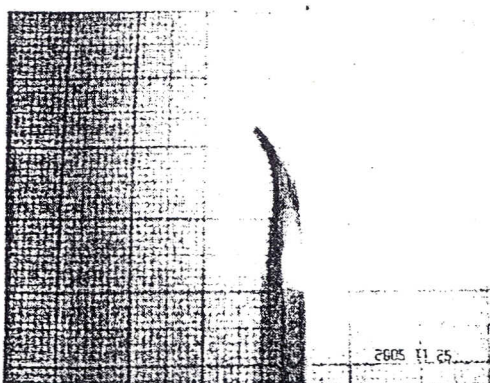
Method of determination:

Equipment required: Centimeter graph paper and digital camera

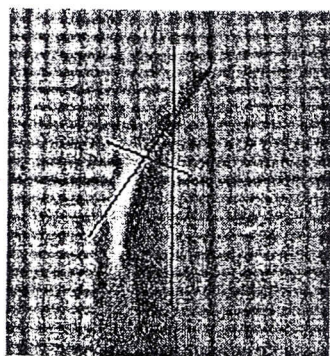
An enlarged photo of the forcep placed on graph paper is taken. From the tip a point in the midline of the blade 5 mm from the tip toward the joint is marked. A line perpendicular to the line joining the tip and the abovementioned point is marked. The bisection point of the line where it intersects with the margins of the blade is joined to the tip. The angle of this line with the tangent to the box joint surface on the face on the same side as the tip is taken as the angle of the tip.



Sample-I



Sample-II



30-

Kushinaka  
1522

MD

11.1

1.



j. Number of ratchet grooves (locks)

2

k. Force to engage grooves

: First lock groove 450 - 950 g

Second lock groove 900 - 1700 g

l. Joint

Joint of Box type as per IS 3642 (Part 1 Section 13.2.2.) of 1990

### Metal Specifications

The metal should be lightweight surgical alloy, non-staining, corrosion free, non-rusting and should be able to withstand the temperature of autoclaving. It should be non light reflecting (surface should not be shiny) with a buff coating. It should not be brittle.

Dr. RCM Kaza Prof. Deptt. Of Surgery, MAMC, N. Delhi

Prof. S. K. Guha, IIT, Kharagpur

Dr. Dinesh Bhatnagar, Head, Deptt. Of Surgery, SJH, N. Delhi

Dr. K.N. Srivastava, Consultant, Department of Surgery, RML Hospital, New Delhi

Dr. H.C. Das, State NSV Trainer, LNJP Hospital, N. Delhi.

Dr. RP Sharma, State NSV Trainer, Madhya Pradesh.

Dr. Alok Banerjee, PSS, Defence Colony, New Delhi.

Dr. N. Namshum, Assistant Commissioner, MOHFW

Dr. M.S. Jayalakshmi, Deputy Commissioner, MOHFW

Dr. R. K. Srivastava, Director General of Health Services, GOI.

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*  
9/11/06