MALE STERILISATION (VASECTOMY) AND REVERSAL OF VASECTOMY*

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INTRODUCTION

'Poverty is the natural result of increased population' was the conclusion made from the famous essay of Thomas Robert Malthus on "The principle of Population" in 1798. Malthusian concepts and ideas exerted a profound influence on the postponement of marriages and decrease in the size of families. In the present century remarkable advances in the field of Reproductive Biology, supported and conducted by private foundations, industrial establishments and Governments in many parts of the world have resulted in several effective techniques the most noteworthy among them being the surgical way of permanent sterilisation of men by dividing the Vas deferens, the duct conveying products of testes from epididymis to prostatic urethra.

Vasectomy Operation was first reported by Sharp in 1898 and Vasoligature (popularly called Stamiech's ligature) was practised since the beginning of twentieth century as a method of rejuvenation. This operation was also extended to check the progeny of mentally defective or insane persons and criminals. It is also performed as pre-operative for Prostatectomy. Now today in a highly fertile community Vasectomy is a popular method of sterilisation. The improvement in operative technique for reconstructive surgery in vasectomised cases has helped in giving vasectomy a 'It's must' theme to two-to-three children size families.

ANATOMICAL CONSIDERATIONS

The easily approachable part of Vas, has a thin lumen and a relatively thick muscular wall of unstriated fibers arranged in two layers, outer longitudinal and inner circular and so it feels hard like a cord and can be grasped by finger and thumb on either side. The vas is accompanied by its own artery (a branch of inferior vesical artery) and testicular vessels, lies wrapped by three coverings of the spermatic cord, i.e. external spermatic fascia, cremasteric fascia and internal spermatic fascia. The testicular vein forms an intercommunicating plexus in this region, i.e. Pampiniform plexus.

The genitofemoral nerve (L 2) is sensory to spermatic fascia and tunica vaginalis. The cremaster muscle and coverings of the cord are supplied by cremasteric artery, a branch given by inferior epigastric artery at deep inguinal ring.

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THE OPERATIVE PROCEDURE

Vasectomy is a simple operation. It gives most satisfactory result. Various operative techniques are practised to expose the Vas.

- 1) The patient is prepared for the operation. The Vas is held by finger and thumb of the left hand at the posterior aspect of the spermatic cord. A 1% xylocaine or any other suitable local anaesthetic is infiltrated into the skin for about an inch or so. A small transverse incision is made and deepened until Vas deferens is reached. The Vas is recognised and lifted out of the wound by a dissecting forceps or Allis tissue forceps, relaxing the grip of the left hand at the same time. The Vas is then isolated by sharp and blunt dissection and about 3/4 "or 1" of Vas is excised between the clamps. Both ends are ligated by chromic catgut no. 1. Bleeders if any are ligated by suitable catgut and wound is closed by nonabsorbable silk or nylon. A similar operation is done on the other side. Haemorrhage and sepsis are the only common complications.
2. Vas is exposed by giving a longitudinal or vertical incision on the anterior aspect of spermatic cord after having the skin anaesthetised by local anaesthetic. The skin with superficial fascia on both the margins of the wound is separated and then spermatic cord as a whole is taken out by grasping with Allis tissue forceps. The covering fasciae of the spermatic cord are dissected layer-wise, the Vas is identified and isolated cleanly. After excision of about 3/4" of vas and ligation of both proximal and distal ends, the spermatic cord is returned by giving a few stitches of chromic catgut 00 on its layers for repair, and finally the skin wound is closed. Similar procedure is done on the other side.
- 3) By a single vertical incision in mid-line on the raphe at about the root of the scrotum bilateral vasectomy can be performed. The skin on the margins of the wound is separated and spermatic cord is exposed on either side. Then the spermatic cord of both sides are brought out of the wound, one after the other, and the Vas is dissected and isolated as above. Vas, on both sides, is excised in between the clamps and the clamped ends are ligated at the same time. The spermatic cord of one side is repaired followed by another. The wound is closed.

The closed wound is dressed with a tincture benzoin seal or application of Badional ointment (Bayer) which forms a thin protective layer on the skin. A light scrotal bandage may be applied for extra comfort and protection.

The patient is advised to avoid the sexual pleasure for 3 months, or to adopt the accepted method of Birth Control for 3 months, if he lacks self-control. A repeated Spermatozoa- Nil semen examination report should be considered a genuine permit for sexual intercourse.

GENERAL EFFECTS OF VASECTOMY

Vasectomy does not diminish the potency or sexual pleasure. In fact, it removes the inhibitory factor e.g. the risk of Pregnancy, and therefore it appears to increase the sexual spirit and enthusiasm. Of course some people complain of loss of desire which is entirely based on their psychological make up and rumours and misinformations. Vasectomy has

achieved a pivotal position in Family Planning programme in Nepal offering a permanent sterility by a simple operation.

REVERSAL OF VASECTOMY OR RECONSTRUCTION OF VAS.

The sterility in vasectomised men can be reversed by reconstructing the Vas deferens. Reconstruction is a comparatively difficult operation and it has posed a challenge to modern surgery. The success rate in properly selected cases is between 50% to 60%. Phadke et al (1967) found sperms even in 63 out of 73 men who under-went the reconstructive operation.

The suitable patients for reconstructive operation are selected on the following lines:—

- A) Age:— The reconstructive procedure may offer best results in patients who are below 45. In those above that age group a testicular biopsy before under-taking the operation will save the patient from disappointment.
- B) The time interval:— The shorter the time interval between the vasectomy and reconstructive procedure the better the result. If the time interval is more than four years a testicular biopsy should be done as to see whether an active spermatogenesis still persists or not.
- C) The length of Vas:— For reconstruction, it matters a lot that what length of Vas has been removed or in other words what is the length of the stumps of the Vas left after Vasectomy. In an ideal case atleast 3/4" of proximal and distal stumps of Vas should be easily felt. for proper approximation of both ends by standard procedure of Vaso-Vasostomy. For shorter stumps more difficult procedure may be considered. If the proximal and distal ends can not be negotiated easily the operative problems will be even more and consequently the chances of success very little.
- D) The condition of testes:— Chronic infections and neoplasms of the testes if suspected or diagnosed clinically must be confirmed by investigations and special examinations before making a decision for reconstructive operation.

The standard procedure for reconstruction i. e Vaso-Vasostomy, demands a careful and as far as possible an atraumatic procedure to protect the tender tissues around the Vas and to achieve an end-to-end anastomosis without tension.

A spinal or general anaesthesia is required. Initially the cut ends of Vas are palpated, brought underneath the skin and held steady in the grip of Allis tissue forceps. A vertical incision is made. If there is a vertical scar of previous vasectomy the incision should include the previous scar. The incision is deepened to visualize the Vas. Both ends of Vas are cut to find the lumen. A small amount of semen may be seen in the distal end. Both ends are approximated and held nearly by a pair of mosquito forceps applied on the adventitia of Vas. Through a small opening in the distal stump of Vas about 1/2 inch from its cut end a nylon filament is passed into the lumen which is advanced thereafter through lumen of distal end to that of the proximal and then for atleast 3" into the proximal lumen. The ends are now brought together on the nylon splint and stitched by 4 stitches of chromic catgut 0000.

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on an atraumatic needle. The end of the nylon is brought out on the scrotal skin and is stitched in place. The skin incisions are closed and scrotal bandage is given. The nylon is withdrawn on sixth or seventh day by the time skin stitches are ready for removal.

Different materials have been recommended for splintage purpose, for example a wire splint which is unfortunately not available in Nepal. A plain catgut of suitable size has been used as splint with success in some of my cases and my colleagues in Kathmandu.

In those cases where distal end of Vas is short or stenosed, and a standard Vaso-vasostomy is not practical, the proximal Vas is mobilised, its patency tested by passing a nylon filament and then it is implanted into the epididymis. It is Vaso-epididymal Anastomosis. When sufficient length of Vas is not available, the Vas could be mobilised by opening the inguinal canal upto the deep inguinal ring as in cases of undescended testes.

The reconstructive procedure should be undertaken only on one side at first sitting and after three months a seminal test is done to look for motile spermatozoa. If they are absent the operation could be planned for the other side.

R E F E R E N C E (quoted in article)

Phadke and Phadke (1967) J. of Urology, 97, 888.