

A Study of Male Sterilization with No Scalpel Vasectomy

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Abstract

No scalpel vasectomy (NSV), a minimal invasive technique for vasectomy is simple, safe, fast, more effective and less expensive operation for male sterilization with better patient compliance. In this study 280 patients were operated for NSV in sub district hospital of J&K State w.e.f. January 2009 to December 2010. Mean age of patients was 35.95 years. Mean time taken for surgery was 23 minutes. Complications were recorded and included bleeding during surgery 4 cases (1.43%), scrotal hematoma 3 cases (1.07%), wound infection 3 cases (1.07%) and minor scrotal pain 4 cases (1.43%). One patient in our study had chronic testicular pain. There was no decrease in sexual desire and satisfaction in any patient followed up and no case of failure of vasectomy was detected. NSV is becoming standard method of vasectomy around the world with less complications and discomfort, smaller scar and fast recovery time with positive post operative psychological state. India, where population control is major concern, this technique should be popularized to increase its acceptance among general population.

Key Words

Male sterilization, Vasectomy, NSV, Contraception.

Introduction

India launched a nation-wide family planning programme in 1952, making it the first country in the world to do so and first vasectomy programme on a national scale was launched in India in 1954. In 1976, the country framed its first 'National Population Policy'. No scalpel vasectomy also known as "Key-Hole" vasectomy (1) is a modern method of permanent sterilization for males in which a sharp hemostat is used to puncture the scrotum to gain access to vas deferens and the surgical wound after the procedure does not require stitches. No scalpel vasectomy was developed and first performed in China in 1974 by Dr. Li Shunqiang (2) and over 10 million Chinese men have undergone vasectomy by this method (3). It was introduced to United States in 1985 (4). In India the elegant method was introduced in 1998. This method is offered to men who have completed their family and desiring NSV for birth control under national family welfare programme in collaboration with United Nations Population Fund (UNFPA). It is simpler, safe, fast, more effective and less expensive operation than tubectomy. As compared to conventional incisional vasectomy it is simpler, cost effective, less painful with minimal complications like hematoma, bleeding, wound infection and leaves much smaller wound with greater patient

compliance (5). Moreover, it eliminates the fear of pain as no knife is used. It can be performed even in rural hospitals and primary health centres by trained doctors under local anesthesia.

Widespread publicity is required to remove the socio-cultural, health and psychological misconceptions for this simple method of birth control to have a greater acceptance. If properly performed vasectomies are almost 100% effective.

Material and Methods

The study was conducted on patients who were operated for NSV in Sub District Hospital Akhnoor of J&K State from January 2009 to December 2010. A total 280 patients were operated in two years. All the married males who had completed their family and desiring of contraception/birth control were included in study. The patients were motivated for NSV by basic health workers, health educators and ASHA workers in their respective localities. A brief history including history of active disease at present, history of allergy to any drug, past history of diabetes, hypertension, scrotal injury or past surgical history was taken. A quick general physical examination and local examination of inguinoscrotal region was performed. Patients having inguinoscrotal swelling

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including hernia, hydrocele, varicocele, injury, scrotal infection and surgical scar over scrotum were excluded from study. The patients along with their spouse were counseled about procedure and its possible complications and were made aware that the procedure is practically permanent method of birth control. The patients were operated under local anaesthesia using 2% xylocaine and "Dr. Li's three finger technique" (2) was applied to perform NSV. In this technique the vas deferens is separated from spermatic cord vessels and manipulated to a superficial position under the scrotal skin in midline raphae. The right vas is firmly trapped between the middle finger, the index finger and the thumb of the left hand. (Fig 1)

A 1 cm. diameter superficial skin wheal is raised at the junction of upper one third and lower two third of midline raphae using a 1.5 inch 25-gauge needle with 2% xylocaine. The needle is advanced within the perivasal sheath towards the external inguinal ring and 4 ml. of xylocaine is injected around the vas. This procedure of vasal nerve block is then repeated for the left vas deferens after fixing the vas with three finger technique of left hand and exploiting the same skin wheal site used previously for introduction of needle. After giving the anaesthesia the right vas deferens is fixed under median raphae by surgeon's left hand using three finger techniques. The ring forceps is grasped with the right hand and opened while pressing downwards, stretching the scrotal skin tightly over the vas and locking the vas within the ring. A sharp pointed curved dissection forceps is used to puncture the scrotal skin, vas sheath and vas wall with one blade of forceps. The single blade of forceps is then withdrawn and closed tip of instrument is introduced through the same puncture hole. The blades of dissection forceps are gently opened, spreading all layers, until the bare vas can be visualized. By using the right blade of the dissection forceps the vas wall is

skewered from inside the lumen out and the dissection forceps is rotated laterally. The vas is delivered through the puncture hole while ring forceps is released and used to secure the delivered vas. The dissection forceps is used to clear the vasal vessels away from the vas, yielding a clean segment at least 2 cms. in length. The vas is ligated followed by excision of 1-2 cm. of its segment and fascial interposition of testicular end of vas is done. (Fig 2).

After checking the bleeding the ends of right vas are returned to scrotum. The procedure is then repeated for the remaining left vas using same puncture. The puncture hole is sealed with medicated adhesive tape after surgery.

Complications were recorded during and after surgery. The patients were observed for 2 hours after surgery and then discharged with the advice to take rest for 24 hours, wear scrotal support, avoid exertion for one week and inform doctor for pain, scrotal swelling or fever. Also patients were advised to use temporary contraceptive methods by either of the partner during intercourse for three months or at least for twenty ejaculations. The patients were given analgesics (diclofenac sodium and serratiopeptidase) and antibiotics (cefixime and cloxacillin) for five days after discharge and followed up at three months and six months for report of semen analysis, complications and effectiveness of procedure.

Results

A total 280 no-scalpel vasectomies were performed in 2 years w.e.f. January 2009 to December 2010. The mean age all the patients was 35.95 years with a range of 23 to 52 years. Mean time taken for surgery was 23 minutes including time for local anaesthesia to act. Complications were minor bleeding during surgery 4 cases (1.42%), scrotal hematoma 3 cases (1.07%), wound infection 3 cases (1.07%) and minor scrotal pain 4 cases (1.43%) during the first week. The minor intra-operative bleeding responded to pressure only whereas scrotal



Fig. 1 Three-finger Technique of Fixing the Right Vas Deferens with left Hand



Fig. 2 2 cms of Clean vas Delivered, Secured & two ends Ligated before Excision of Intervening Segment

Table 1. Various Studies of Incisional and no Scalpel Vasectomies with Reference to their Complications

Type of Vasectomy	Study	No. of vasectomies	% with infection	% with bleeding/hematoma
Incisional Vasectomy	Philip, Guilleband and Budd, 1984 (14)	534	1.3	4.5
	Kendrick et al. 1987 (9)	65,155	3.5	2.0
	Nirapathpongporn, Huber and Krieger 1990 (8)	523	1.3	1.7
NSV	Aldermann 1991 (15)	1,244	4.0	0.3
	Sokal et al. 1999 (5)	627	1.3	10.07
	Nirapathpongporn, Huber D.H. and Krieger 1990 (8)	680	0.2	0.3
	Li et al. 1991 (4)	79,741	0.9	0.1
	Li et al. 1991 (4)	238	0.0	0.0
	Arellano Lera et al. 1997 (6)	1000	0.0	2.1
	Kumar et al., 1999 (17)	4253	0.047	0.07
	Sokal et al., 1999 (5)	606	0.2	1.7
	Our study	280	1.07	1.25

hematoma, wound infection and minor pain were treated conservatively with analgesics and antibiotics. One case in study had past history of inguinal hernia (not disclosed by patient preoperatively) and required little more time and dissection for procedure. He had scrotal hematoma and pain in post operative period. One patient in study had chronic testicular pain for four months which however responded to combination of tramadol + paracetamol and gabapentin. There was no decrease in sexual desire and satisfaction in any patient followed up. 44% of patients came to follow up at 3 months and only 10% of patients came at 6 months. Semen analysis of these patients revealed azospermia. No case of failure was detected or reported in our study.

Discussion

The mean age in our study was 35.95 years which is almost similar to the previous studies (6, 7).

Mean time taken for NSV in our study was 23 minutes including local anaesthesia time which is less than conventional vasectomy as no incision made and no incision closure required. Neither conventional nor NSV are time consuming. However, there are reports of decreased operating time when skilled providers used NSV (4, 8). In United States, a forty percent reduction in time has been reported with no scalpel vasectomy (4). There are few complications and less pain in NSV than

in conventional vasectomy, with an average incidence of 2% (9). Infection is surprisingly common, with an average rate of 3.4% but several series report rate from 12 to 38% (10, 11). In our study, the overall rate of complications was 2.8%. Bleeding during surgery occurred in 4 cases (1.43%), scrotal hematoma 3 cases (1.07%), wound infection 3 cases (1.07%) and scrotal pain 4 cases (1.43%).

One patient in our study had chronic testicular pain which however responded to conservative management with tramadol and gabapentin. Chronic orchalgia and epididymal pain after vasectomy occurs in perhaps 1 in 1000 patients (12). One survey cites studies that estimate incidence of one case every ten to thirty vasectomies (13). In some cases vasectomy reversal or sperm granuloma excision might be considered to relieve pain. Table-1 shows various studies of incisional and no scalpel vasectomies with reference to their complications i.e. infection, bleeding or hematoma.

Other complications of vasectomy are sperm granuloma, spontaneous recanalization of vas, autoimmune response and psychological.

There was no decrease in sexual desire and satisfaction in any patient who were followed up in our study. Most surveys following vasectomy show sexual desire and satisfaction levels remaining at the same level

or greater (without risk of pregnancy) and overall most men being content with their decision to have a vasectomy (18). Approximately 90% are generally reported in reviews as being satisfied with having had a vasectomy (19). However, in another study, sexual desire after vasectomy was diminished in 6% of vasectomized men (20). Psychologically some men may complaint of diminution of sexual vigour, impotence, headache, fatigue etc. Such adverse effects are seen in men who have undergone vasectomy under emotional pressure and that is why patient should be given sufficient time to make up his mind voluntarily and seriously to have the operation done.

No case of failure of vasectomy was detected in our study. The Royal College of Obstetricians and Gynaecologists states that there is a generally agreed upon rate of failure of about 1 in 2000 vasectomies which is considerably better than tubal ligation for which there is one failure in every 200-300 cases (21). The failure rate of vasectomy is generally low, 0.15 per 100 person year (22). The most common cause of failure is due to the mistaken identification of the vas. In some cases failure may be due to spontaneous recanalization of vas, more than one vas on one side or pregnancy may result from sexual intercourse before disappearance of sperms from the reproductive tract.

Conclusion

NSV is a simpler, safe, fast, more effective and less expensive operation for male sterilization with better patient compliance. India where population control is major concern needs this technique to be popularized. Widespread publicity through mass media campaign, community participation, health care workers like ASHAs, health educators, para-medicals and doctors is required to remove many misconceptions for this simple, safe and elegant method of birth control to increase its acceptability among general population. Also this breakthrough advance in vasectomy practice should be made at primary care level providing ongoing supervision and technical support at service delivery sites.

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