Vasectomy

Sterlisation of the Male

G. M. PHADKE, F.R.C.S. (Eng.)

Honorary Director
Family Welfare Bureau of F.P.A. India, Bombay

The rapid increase in population of India has been a matter of great concern to the Union Government. A provision of Rs. 25 crores has been made in the Third Five Year Plan to implement measures to stabilise the population, consistent with the national economy. Many family planning clinics have been opened in different parts of the country, where advice is given free of charge. Mechanical and chemical contraceptives are given free or at subsidised rates. Research is encouraged to discover inexpensive, acceptable, harmless, and effective contraceptives to be used locally or orally.

An ideal contraceptive has not yet been discovered. Those that are recommended are costly and inconvenient to use due to poverty and lack of privacy in the overcrowded dwellings of the people of the under developed countries. Under these circumstances safe, reliable and comparatively cheap method is sterilisation operation in either sex. An operation in the male is a minor procedure. It is carried out under local anaesthesia, takes only a quarter of an hour to perform and the patient is ambulatory throughout the post-operative period.

Any operation on the sex organ, however, is associated with certain misgivings among the lay public. They are under the impression that any procedure, which ensures a permanent result in the matter of preventing future pregnancies, is sure to bring about some derangement in the physiology of the organs of reproduction and especially in their sexual function. Men in particular fear that this might lead to impotence, mental derangemen or physical weakness in general.

The minor operation of vasectomy consists of closure of the small duct (Vas) through which spermatozoa pass from the testes to the seminal vesivles and the prostate, situated at the neck of the urinary bladder. The secretion of the testis. containing sperms, mixes with those of the other glands mentioned above, to constitute the semen. It has been estimated that the contribution of the testis is about 1/10 of the amount of he ejaculated semen. So, for practical purposes the amount of the semen, that comes out after the operation will be almost the same as before surgery. This must be pointed out to the patients before operation, as some of them imagine that the quantity of the semen diminishes after vasectomy.

As no gland or an organ is removed in this operation, no sexual derangement is likely to happen. Many patients were seen in whom these ducts were closed by an inflammatory disease like gonorrhoea or

tuberculosis or absent congenitally. In none of them any deterioration in the sexual function or vigour was observed. On the contrary, such patients had a normal libido (sexual desire) and were able to have normal coitus. Their only abnormality was the total absence of spermatozoa in the semen. On the basis of such findings, the meddical profession has been advocating vasectomy in the males as a sure method of preventing future pregnances.

Another fallacious belief among medical men and the lay public is that vasectomy brings about rejuvenation, a theory originally propounded by Steinach. According to him, after this operation, the seminiferous tubules of the testis get degenerated, as a result of back-pressure due to the accumulation of th sperms at the site of obstruction, and thus stop producing spermatozoa. These tubules atrophy in course of time and allow more room for the adjacent interstitial cells, the Leydig cells, to hypertrophy. As these are responsible to produce the male sex hormone (androgen), the quantity of the latter is increased due to hypertrophy, resulting in the sense of well being in general amounting to rejuvenation. There is no scientific basic for this, as will be evident from the following observation.

Many cases of congenitally absent vas as well as others in whom it was blocked as a result of previous inflammatory diseases were seen during the present study. They had one thing in common with vasectomised individuals i.e. absence of spermatozoa in their semen. The morphology of the testes in all of them by 'testicular biopsy' was studied but evidence of degeneration of the tubules or hypertrophy of the Leydig cells was not observvd in any case. On the contrary, active spermatogenesis was seen in almost all the tubules. Such sperms accumulated in the epididymis and died in course of time. Their products were removed by phagocytes. There is thus neither clinical nor histological proof that rejuvenation takes place as a result of vasectomy. Some patients, however, do get a sense of well being after this operation. This may be psychological as a result of the removal of fear of impregnating a woman in future.

INDICATIONS FOR VASECTOMY

The indications are :

1. To prevent future pregnancy because of a large number of children or due to poor health of wife.

2. To prevent spreading of infection to the epididymis after prostatic surgery.

There is a third indication, as mentioned in some text books. It is to bring about *rejuvenation* and may be condemned for reasons already stated above.

The second indication does not concern us here. The first one requires some qualification. It must be understood that this operation is not a method of spacing children, i.e., family planning but is a method

of family limitation, when no further children are desirable. Although it is possible to rejoin the vas after vasectomy we are of the opinion that for practical purposes this operation should be considered irreversible and hence great care is taken in the selection of cases suitable for this operation.

The minimum number of children in the family should be three. If it is found to be very essential to prevent future pregnancies after the birth of the second child, the age of latter should be at least three, before resort to surgery is contemplated.

The age of the man should be 35 or over. At a younger age he may decide to marry again and may disappoint his second wife. There are no physiological disturbances after this operation and it can safely be undertaken at any age, but the uncertainty of reunion of the vas, in case it is indicated, is the only contraindication for this operation to be done at an earlier age.

The person should be mentally stable. Some patients are very introspective and attribute all sorts of symptoms to this operation. At the time of the first interview before the operation, everything should be explained to him and his doubt should be removed. If there is any suggestion that the person is wavering in his mind and does not know what to do, it is far better to leave him alone and not carry out any survery against his conviction. These are the types of people, who bring this operation into disrepute and will do a great deal of harm to our cause.

Apart from the facts stated above, it is possible that the economic status of the family as well as the health of the mother may suggest an operation at an earlier period in occasional cases. The scope of this operation may be extended to those cases with definite history of hereditary diseases such as epilepsy or diseases like leprosy in one or the other partner, in the interest of future generation.

A written declaration should be obtained from both husband and wife, that they do not desire to have any more children in order to bring up their living children properly and that they have been fully informed that this is a permanent method. They should declare that they are happily accepting it and are responsible for their decision.

TECHNIQUE OF VASECTOMY

A sterilisation operation in the male is a simple procedure. The essential steps of the operation can be mastered by a family physician in a short time, so that he will be able to carry this out in his clinic.

Appliances necessary are:—(For one operation)

1. Sterile towels—2.
2. Towel clips—2.
3. One per cent (Sterilised) procaine hydrochloride solution—10 c.c.

4. A 10 c.c. B.D. syringe, with very fine needle No. 26.
5. Artery forceps of small curved mosquito type—4.
6. A pair of small dissecting forceps.
7. Fine Allis's forceps—2.
8. A small bladed knife or a Bard-Perker with blade number 15.
9. A fine pair of scissors.
10. Fine straight cutting needle for the skin.
11. Cotton thread No. 50 and 100 for ligature and suture.
12. Sterilised rubber gloves, two pair of suitable sizes.
13. Sterile dressings.
14. "T" bandage or a triangular shaped suspenders used by wrestlers.

The skin of the scrotum is shaved and cleaned in the usual way and some antiseptic is applied. The area is draped with sterile towels, secured in place with clips. The cord is carefully grasped between the fingers of both the hands, and the vas is identified. It is a cord like firm structure and can easily be detected and separated from other components of the spermatic cord. It is a very slippery structure and unless the spermatic cord is stretched down and kept taut by the assistant, the vas can easily slip away from the fingers. While the assistant pulls the cord and keeps it stretched, the surgeon grasps the vas between the thumb and the middle finger of the left hand. The index finger stretches the skin over the vas which can be palpated with ease, but can with the same ease slip out if any deliberate palpation is used to feel the vas. The latter can still be held more firmly by a simple manoeuvre of pushing the tip of the middle finger, towards the surgeon, so that the structures over it are made more prominent, and a ridge made by the vas can occasionally be very easily seen.

While the vas is thus held between the fingers of the left hand, 2 to 5 c.c. of the procaine solution are injected into and under the skin over the vas. Additional quantity is injected into the deeper tissues around the vas still held between the fingers.

A tiny incision, quarter of an inch long, is made in the skin transversely over the vas. It is deepened so as to cut the Dartos muscle and some areolar tissue over the vas. Having appreciated the approximate position of the vas deep in the centre of the would, point of a curved mosquito forceps (closed) is thrust into the tissues on one side of the vas, and the bladec of the forceps are opened. A similar manoeuvre is carried out on the other side of the vas. This step makes the vas more prominent so much so that it is now easily grasped by the Allis's forceps. The fingers of the left hand are now released. An attempt is made to pull the vas out of the tiny wound with the Allis's forceps. A longitudinal incision over the most prominent portion of the vas in the grasp of the forceps, will separate some of the adherent tissue and the pearl-white structure of

the vas will come into view. This is grasped with the second Allis's forceps when an appreciable look of the vas will come out of the wound. With a few strokes by the tip of the small knife, the vas can be cleared of adherent structures. The artery to the vas will be seened in this. An attempt should be made to clear it, but in case it tears and bleeds, it can be removed along with the portion of the vas. I have never wasted too much time in separating this structure. It ruptures invariably and requires ligaturing. No harm can arise even if this artery to the vas is cut and tied.

Two artery forceps are now applied to the loop of the vas, at a distance of one inch or so. The vas between is cut away and the ends are tied with No. 50 cotton thread. The ends of the latter are kept long and held in the artery forceps. No attempt is made to bring the cut ends of the vas together. The ends of the vas are now allowed to retract into the wound. If blood wells up, the threads are pulled out to expose the cut ends of the vas. Bleeding points are seen and tied. In most cases the blood comes from the edges of the wound in the skin. After the bleeding is controlled, the long threads are cut and the ends of the vas are allowed to retract into the wound. The small incision in the skin is closed with one stitch of cotton thread. Similar procedure is carried out on the other side.

The scrotum is supported over sterile dressings with the help of a suspender or a "T" bandage and the patient is sent home. It is surprising how little inconvenience is produced by this technique. In case some pain is felt, a tablet of aspirin along with tightening of the support will bring about relief. The patients are asked to take complete physical rest for the next two days at home.

The stitches are removed at the end of 48 hours, after which the patient is allowed to take a bath. No special care of the skin of the scrotum is necessary, except to wipe it clean with spirit and keep it dry with some talc powder. The scrotal support is worn for a fortnight, after which it may be discarded. In case the patient gets some dragging sensation, the suspender may be worn again for the next few days. In my opinion early removal of the stitches in the skin, of a constatnly moist area, has been responsible in preventing stitch abscesses and deeper infections. The skin of the scrotum is quite lax and there is no danger of the wound breaking down after two days.

If a small hydrocele is present, it may be ignored, provided there is enough space above it, to grasp the cord, otherwise it may be tapped with a needle, same as the one used for intravenous therapy.

At times a firm cord-like structure is felt in the pampiniform plexus as a result of old thrombosis, which may be mistaken for a vas. A little careful the structures of the cord, like the vas. However, if this is mistaken for a vas, the operation will be a failure. The presence of such a cord like structure gives an impression of a second vas. I have not come across

a single case of a double vas so far. In order to avoid the unpleasantnes of tying some other structure instead of the vas, it is better to insist on getting the semen examined at the end of two months or so, in each case.

Complications—The only local complications met with after the operation are haematoma formation and sepsis. Rest in bed with a support will help in resolving the clot. If temperature accompanies the swelling some infection is to be suspected. It can be treated on usual lines with rest and antibiotics. If temperature still persists it may require incision and drainage. The frequency of these complications is so small (1.4 per cent in 655 cases) that it should not frighten the doctor. Complete rest at home should be insisted upon for the first two days and the stitches removed at the end of 48 hours.

Special post-operative care—Only precaution to be taken during the few weeks after the vasectomy operation is that the patient must not indulge in sexual inter-course until the spermatozoa in the seminal vesicles are out of the system. If this is not effected through nocturnal emissions or by masturbation, coitus with some contraceptive like a condom, will have to be resorted to. It takes about 8 weeks before the ejaculate is free from any trace of spermatozoa. We studied the semen every 15 days after the vasectomy in our earlier series and found that the number of spermatozoa decreases first, followed by diminution in their motility. An occassional non-motile sperm is seen at the end of the second month. Such a specimen cannot fertilise an ovum. However, to be on the safe side, patients are advised to observe continence for an additional period of 4 weeks or use some contraceptives. Real test of safety is the microscopical examination of the semen. Those patients who stay up-country and have no facilities to get the semen examined, are advised to observe continence for a period of three months.

RESULTS FOLLOW-UP OF CASES AFTER VASECTOMY

In order to assess the late results of this operation, a questionnaire was prepared and sent to those whose addresses were known, or sent to the medical practitioners to be distributed among their vasectomised patients. Out of 2,000 such papers sent, we have received 655 replies. Of the rest a large majority did not want to disclose their identity. Many of them saw their family physicians and told them verbally about the benefits of this operation in every way. It is gratifying to note that no permanent harmful effects on the physical, mental or sexual set-up of those patients were reported. However, we have not taken such verbal information into consideration for our study, which is based only on the documentary evidence furnished by 655 patients.

The motive for sterilisation was family limitation. In this series, no case is included, who has had the operation done within a period of one year. The replies are very interesting and encouraging.

TABLE 1 SHOWING NUMBER OF CHILDREN BEBORE OPERATION

No. of children	No. of patients
1	13
2	62
3	144
4	176
5	113
Over 5	147
Total	655

TABLE 2—SHOWING MONTHLY INCOME OF PATIENTS

Income groups	No. of cases
Below 100 Rs.	117
101 to 200	168
201 to 300	130
301 to 500	113
Over 500	79
Not stated	48
Total	655

TABLE 3—SHOWING THE AGE-GROUPS OF HUSBANDS OPERATED

Under 30	36
31—35	161
36—40	215
41—50	19
over 50	224
Total	655

TABLE 4—SHOWING THE EFFECT OF VASECTOMY ON THE GENERAL HEALTH OF THE HUSBAND AND OF THE WIFE, AS WELL AS ON THE SEX ACT

	No change	Improved	Deteriorated
General health of husband	494 (75.4%)	151 (24.5%)	10 (1.5%)
Sex act of husband	526 (80.3%)	77 (11.7%)	52 (7.9%)
General health of wife	605 (92.4%)	30 (4.6%)	20 (3%)

1. *General health of the husband*--There was no change in 494, while 151 showed improvement in their health. This was due to the removal of fear of future pregnancies as stated by them. Seventeen patients had become stouter which was attributed by them to mental relief and better appetite. These cases constituted 99.9 per cent of the total number.

2. *General health of the wife*—No adverse effect on the health of the wife was observed. Majority were glad as the operation was done which removed a great deal of their anxiety. Thirty of them (4.6 per cent) enjoyed the coitus better, while 20 (3 per cent) were less enthusiastic about sexual intercourse.

3. *Effect on the sexual act of the husband*—They were asked to comment separately on the changes noticed by them in (i) sexual desire (ii) sexual act and (iii) frequency of intercourse after the operation.

In 80.3 per cent there was no change, while 11.7 per cent had increased vigour and enjoyed the coitus better. In 3 cases the erections were so intense that they had to resort to perverse practices for complete satisfaction. These together comprise 603 cases out of 655 i.e. 92 per cent of the vasectomised individuals. In 52 cases there was some deterioration. A careful scrutiny of the answers given by them, showed that there was diminution either in desire or in erection or in frequency of the act, but not in all the three together in any one case. Such deterioration was not so annoying as to disrupt the relations between the wife and the husband.

Out of these 655 cases, 319 had the operation within the last 5 years, while 336 had it done 5 to 25 years before. In order to see if there has been any significant change in the health or in the sex act of the partners years later, these 336 cases were analysed.

TABLE 5—SHOWING EFFECT OF VASECTOMY DONE 5-25 YEARS BEFORE ON THE GENERAL HEALTH OF HUSBAND AND WIFE AND THE SEX ACT OF THE HUSBAND

	No change	Improved	Deteriorated
General health of husband	253 (75%)	82 (24.3%)	2 (0.6%)
Sex act of husband	288 (85.4%)	32 (9.3%)	17 (5%)
General health of wife	312 (92.8%)	17 (5%)	8 (2.3%)

IRREVERSIBILITY OF THE VASECTOMY OPERATION

Although this operation is supposed to be irreversible, I have rejoined the vas in 21 cases so far. Either remarriage or death of children were the indications for recorrection. A testicle in man can produce spermatozoa to a very advanced age. Therefore there is no time limit beyond which the vas cannot be joined again. As testicle is much more likely to undergo degeneration as a result of some toxic condition, a preliminary testicular biopsy study to establish the normal functioning of the organ should be done before the rejoining procedure is undertaken. Seven patients out of the small series of twenty, have had the vasectomy done 8 to 12 years previously.

TABLE 6—SHOWING RESULTS OF RE-ANASTOMOSIS OF THE VAS

	No. of cases
Operated	21
Operation unsuccessful	1
Could not be followed up	2
Sperms reappeared in semen after re-anastomosis	18*

* Of these 11 impregnated their wives.

COMMENT

Taking the physiology of the sexual organs into consideration, I am of the opinion that vasectomy cannot bring about impotence. This is the result of psychological disturbance as is evident in many other cases who seek our advice for impotence, and none of them are operated upon nor have they had any surgical interference done to their genital organs. I am firmly convinced that symptoms of impotency in its varied manifestations are met with some time or other during the married life of each man. Some of the vasectomised individuals have offered some explanations for the slight deterioration in the sexual function, such as advancing age, financial worries etc. It is very significant to note, however, that in spite of some minor changes in the sexual behaviour, all of them recommend this operation very strongly as the only safe and reliable method of contraception. Many of them were sorry that they did not know nor were told about this method before. They were dissatisfied with other methods of contraception, and have advised their friends to get it done. Some have categorically stated that no harmful effects take place bodily, mentally and generally after vasectomy and strongly recommend this operation rather than its counterpart in the female, as a measure which should be given a prior place in the field of family planning.

The highly satisfactory results of the anastomotic operation of the vas in a small series of cases of the present study are very encouraging. With additional experience the percentage of success will improve. This will go a long way to persuade patients to get the operation of vasectomy done.

A word of warning to those medical men and social workers who will be engaged in this campaign, is very necessary. Although this is a minor operation, greatest care must be taken to be very sympathetic with the patients. Only experienced men should undertake this kind of survery. Painful complications or any mishap, howsoever small, must be attended to at once. A slight neglect in this field will drive the patients away, who may even start a propaganda against this form of sterilisation, which will do a great deal of harm to our cause.—*Adapted from the original article issued by the Central Health Education Bureau, Ministry of Health, Government of India.*