

## *Vasectomy—a review of 100 cases*

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**SUMMARY.** A limited free vasectomy service providing for the needs of a rural area, with the counselling and operation conducted by a specially trained general practitioner is reported. The development of vasectomy as a contraceptive measure and some practical aspects of technique are reviewed and some characteristics of 100 patients operated on are recorded.

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### Introduction

Vasectomy is now an established and increasingly popular method of contraception in the United Kingdom, the United States of America, and Canada. In the United States it has been estimated that about 750,000 men are vasectomised each year (Moss, 1972). In Britain there are difficulties in getting comprehensive figures, but sources such as the Cardiff Family Planning Association Clinic (1,000 vasectomies in 1973; Rees, 1973), Simon Population Trust (Jackson, 1969), The Marie Stopes Clinic (5,500 vasectomies up to 1974; Altman, 1974) and the Family Planning Association (10,000 vasectomies per year; Smith, personal communication, 1974) suggest that the operation is probably as popular and well established here.

Hanley (1968) has stated that "the primary object of voluntary male sterilisation should be to render the man completely sterile without affecting his potency. This should preferably be done in such a way that there is a reasonable chance of successful re-anastomosis, if required. Bilateral vasectomy, carefully performed, fulfils such requirements."

Vasectomy has, of course, been known to surgeons since the turn of the century and performed occasionally for eugenic reasons to prevent transmission of hereditary diseases. It has also been done to encourage increased virility. Steinach (1910) thought that the procedure would in theory produce revitalisation by enhancing testicular hormone production. This effect was, however, never satisfactorily proved and the operation as a rejuvenating procedure fell into disuse.

It required the rapidly changing social climate of the mid 1960s and a growing awareness of the pressing need for effective control of unwanted fertility to re-awaken interest in male sterilisation as a method of contraception. By the end of that decade the law had become clarified largely through the work of the Simon Population Trust and from an operation of doubtful legality, vasectomy emerged as a fully acceptable procedure. It is interesting that about the same time the 1967 Abortion Act reached the statute book and wrought another great change in our society.

At the time that popular local interest was awakening in vasectomy the only ways in which most of my patients could obtain the operation were either by private consultation with surgical colleagues whose fees were between £25 and £50, or by attending a Family Planning Association Clinic, the nearest being at Birmingham and West Bromwich; the fees were £25 and the waiting time between six months and one year. There was also an excellent, but distant, Birmingham Nursing Home with a fee of £18.

It seemed to me that this was unsatisfactory, since many couples coming to me were neither financially well off enough to afford private fees nor sufficiently at risk in terms of physical ill health to warrant a free operation under the terms of the National Health Service Acts.

A wait of six months from decision to have a sterilisation operation is unkind to the husband, and I believe to hold a man in suspense for more than the minimum of time is to inflict unnecessary mental suffering. I therefore decided that, since minor surgery was already part of my everyday practice at Bridgnorth and South Shropshire Infirmary, it was up to me to

establish a limited free service for the benefit of those of my patients clearly needing help, yet unable to afford private surgery, or distressed at the prospect of a trip of over 30 miles to Birmingham.

The countryman often has a low income and also seems to rely more on the reassurance of a familiar doctor at times of sickness or stress. To many of our rural patients the choice was therefore between having a free vasectomy at Bridgnorth Infirmary or not having the operation at all. After a period of training provided by the Family Planning Association in London and Birmingham, I established a free vasectomy service as part of our contraception programme.

TABLE 1  
INDICATIONS FOR VASECTOMY

1. Further pregnancy contraindicated by wife's physical health	4
2. Technical failure of previously used contraceptive methods	11
3. Other contraceptive methods disliked and rejected	63
4. Unacceptable side-effects of other methods	
(a) I.U.C.D.	7
(b) "Pill"	15
	100
More than one reason	72

TABLE 2  
SOCIOECONOMIC CLASSIFICATION

<i>Social class</i>	<i>Type of occupation</i>	<i>Number</i>	<i>Average number of children</i>
1	Professional	0	—
2	Intermediate	22	3
3	Skilled	12	2
4	Semi-skilled	47	3
5	Unskilled	19	4
<i>Duration of marriage</i>		<i>Ages of men having vasectomy</i>	
< 5 years — 0		< 30	1
6–10 years — 16		30–34	23
11–15 years — 59		35–39	46
16–20 years — 22		40–44	27
> 20 years — 3		45–49	3
		50+	0
<i>Number of children</i>			
0	—	0	
1	—	6	
2	—	34	
3	—	39	
4	—	18	
5 and over	—	3	

### Pre-operative counselling

Although many different forms of contraception are now available to enable couples to plan, space, and limit their fertility, the commonest reason for requesting sterilisation is failure of, or problems with, all the other methods (table 1). For example, the couple with a complete family who have had an unplanned pregnancy whilst using the sheath, the wife previously suffering upsetting side-effects on hormonal contraceptives, may come in some desperation to request sterilisation as the only solution to their problems. Other details about the patients are given in table 2.

Although there may sometimes be a difficulty for the couple in deciding which partner shall be sterilised, there is no doubt that at present vasectomy has the advantage of greater simplicity, less pain, and less morbidity than tubal ligation. The only advantage of female over male sterilisation is that the former is immediate whereas the latter is not until at least two negative sperm counts are achieved; this may take up to several months after operation.

Patients who request the operation are referred to me by my six partners and neighbouring general practitioners. I also encounter cases in my own practice, which includes a full morning devoted exclusively to family planning. Here, where only women are seen, it may happen that the possibility of vasectomy is discussed with the patient who is becoming hypertensive on the pill, who has troublesome menorrhagia with an intra-uterine device, or who, in the mid or late thirties, has a completed family and at least a decade of unwanted fertility ahead of her. For these patients, as for all others who ask for information, I have written an explanatory leaflet. Often the patients already have some knowledge of vasectomy through a press article or through a relative or friend who has had the operation. It is interesting and encouraging that I have never yet met a couple who have been advised against volunteering for a vasectomy by another who has already been sterilised by this procedure.

The counselling of every couple is always done at more than one consultation and a decision about the operation is never made until I have spent at least half an hour talking to the patient and his wife together. This is in addition to whatever time is spent with the partners separately. If they have not already been given the explanatory leaflet, this is presented at the joint interview with a consent form for them to take home, read together, discuss and complete if they are sure that vasectomy is really what they need and want.

In counselling, great care is taken to discover doubts and fears about the operation; if I detect any reluctance whatsoever on the part of the husband to undergo vasectomy, I always defer the final decision and tell the couple why. Similarly, they are always asked to take the permission form home with them and are advised to complete and return it only if they fully understand all the facts about vasectomy and have no doubts whatsoever. By counselling in an unhurried way and allowing the couple to discuss the matter alone before making a final decision, I hope to ensure that psychologically unsuitable people are eliminated and only appropriate patients sterilised. Some specific points in counselling include probing for marital friction or instability, emphasis that vasectomy is unable to produce sterility immediately, and that once the operation has taken full effect, reversal at a later date cannot be guaranteed.

Counselling in this way takes a long time and results in approximately ten per cent of couples being deferred or rejected as unsuited to vasectomy. It is, however, the most important phase of the procedure and cannot be hurried or omitted. Those couples who seem unsuitable are offered help in establishing another method of contraception.

### Surgical technique

Before booking the patient for surgery a physical examination with the patient both standing and lying is carried out, in order to exclude physical abnormalities such as hernia, hydrocele, varicocele, and absence of one or other of the testicles. I have encountered all of these conditions at some time in patients requesting vasectomy. With the patient lying down the scrotum is palpated to identify the two vasa and to confirm that they are mobile enough to be handled easily into a subcutaneous position. Special care is taken with short, stocky men who often have a tight muscular scrotum, short spermatic cords, and vasa that are almost impalpable. In cases of doubt I refer the patient to a consultant surgeon for his opinion.

The patient attends on a Thursday morning having shaved the genitalia, lower abdomen

and inner thighs and bathed well the night before. The minor surgery theatre of outpatients is used and the entire procedure from starting the operation to the patient leaving for home is about one hour, including a short rest after operation.

Careful notes are made at all stages, including the counselling. No premedication has yet been required for those selected for operation under local anaesthesia since a calm approach, reassurance throughout, and gentle technique are enough to allay fears and anxiety. If one was operating on patients whom one had not counselled personally beforehand, premedication with a tranquilliser such as diazepam might be required.

In the theatre the patient removes his jacket, shoes, trousers and underpants and lies on the operating table which is covered by a disposable paper sheet. The scrotum and surrounding skin are prepared with 'Cetavlon' and sterile towels cover the patient except for the operation site and the head and neck. The vas is identified and manoeuvred into a subcutaneous position on the anterior surface of the scrotum midway between external ring and the upper pole of the testicle.

With the skin and vas stretched between thumb and finger anteriorly and the middle finger posteriorly two millilitres of one per cent prilocaine ('Citanest') are injected intradermally, subcutaneously and into the vas sheath. A wait of about a minute with the vas firmly held by the fingers then follows and anaesthesia of the skin is tested. A small transverse skin incision one centimetre long is made, carefully avoiding nearby blood vessels, and this is extended down to the vas. An Allice's forceps is then drawn across the wound, so that the vas can be rolled beneath the tip. The vas is seized with the forceps and the ratchet locked. Once secured thus the vas cannot be lost if the patient moves or the powerful musculature of the spermatic cord contracts. Careful palpation above and below the secured vas segment confirms that the correct structure has been caught by the forceps. Obviously if some other tissue has been seized in mistake for the vas, the manoeuvre is repeated and the forceps re-applied.

The vas within its sheath is separated from surrounding tissues by gentle gauze dissection and small scissors. A half centimetre incision is made along the anterior border of the sheath which exposes the vas, white and glistening inside. A second pair of small Allice forceps is applied firmly to the vas which is then lifted free of its sheath. About two centimetres of vas appear in the wound on gentle traction. Only the minimum of traction is required and this usually causes no pain. If any discomfort is experienced, a further two millilitres of prilocaine are injected into the vas sheath. Small curved mosquito forceps are then applied so that about one centimetre of vas between them can be removed easily with a knife. Both ends of the divided vas are tied twice with chromic catgut, inverting the distal stump. The ligatures on the bottom end are cut short, but one ligature on the top end is kept long until the forceps have been removed and the vas allowed to slip back into the scrotum. This allows one to search for bleeding which may not have been obvious because of the tension of the ligature or forceps. When the wound is seen to be safe and dry, the second ligature is cut short.

The incision is closed with one 'Dexon' suture using a mattress technique. This skin suture is usually removed one week later when the opportunity can be taken to examine the area and talk to the patient about his reactions to the operation. The small piece of excised vas from each side is always sent to the laboratory in separate containers, labelled 'left' and 'right', so that histological confirmation is obtained. 'Nobecutane' and a small dressing are applied on each side and a tight suspensory support applied by the patient when he is still lying down.

#### Complications

The only complications have been slight bruising, tenderness of the wounds and one case of a small haematoma that caused anxiety to the patient, but which was not serious and required no intervention. Most patients experience a sense of congestion in both testicles after the operation, but this is due to the obstructed vas causing epididymal congestion and is hardly to be classified as a complication. No cases of failure of the operation have yet been encountered.

Postoperatively the patient rests recumbent for about 15 minutes, so that he can recover from the procedure. Since all the patients live fairly near to the hospital they are allowed to drive themselves home, although most come with wife or friend to spare them the possible discomfort of driving after surgery on a very tender part.

Before leaving, the patient is instructed in the collection of semen; he is given two suitable wide necked containers and a postoperative instruction leaflet.

### Discussion

Hobbs (1972) has pointed out that although tubal ligation in the female will always remain a hospital procedure, vasectomy is easily learned and well within the competence of many general practitioners. One might go so far as to say that with this new method of contraception the general practitioner can make a major contribution to the whole spectrum of family planning services.

Many more people today are accepting the need for population limitation and recognise the existence of a national and global fertility problem. Most couples undertake some form of contraception to space their families. The great need at present is a safe long-term method for use when reproductive need is deemed to have been satisfied by the production of a completed family unit. Vasectomy seems to meet this need.

Press and television publicity has resulted in many patients coming to ask for vasectomy as a means of permanent family limitation. The factors that thwart them are a lack of knowledge of available facilities and absence of an adequate free vasectomy service in some areas. The problem of cost in areas where a free family planning service is not yet available is a daunting one to the family on a low income. There is, of course, no money to be made by the family doctor in providing this operation for patients of his own since his National Health Service terms of service preclude any charge being made. This seems unfair, especially when one considers the cost to the doctor himself of undertaking proper training for this task.

It has been estimated (Hobbs, 1972) that there is a waiting list of about 20,000 men in Britain at any one time who require vasectomy, yet the facilities provided to meet this need are undoubtedly inadequate. In some areas there is a limited free service financed by the local authority; in others, private clinics and the Family Planning Association are available. Elsewhere, consultant surgeons provide this necessary service in addition to their already heavy burden of routine and emergency surgery.

One of the most desirable features of any vasectomy service is a personal approach which provides detailed counselling by the doctor who is himself going to perform the surgical operation. In the series reported here all the counselling of couples as well as the surgical procedure was carried out by me.

It is obvious that there is a bias in the selection of patients (table 2) as that there are no professional men represented. This was because they always chose to pay for private attention from a consultant surgeon and this I encourage. My own aim has been to provide a vasectomy service for those who have strictly limited finances and yet who have a pressing need for a safe and permanent method of contraception. In this initial series I have tended to be over-cautious in selecting couples suitable for operation. This was because in a rural area where social change is always gradual, one must introduce with caution any new techniques, especially in the field of family planning, so that the confidence of the population is gained rather than shaken. For this reason rather too many couples were deferred at counselling or rejected since it was essential that no man should be vasectomised if there was the least possibility of an adverse psychological reaction, however minor. Since this series the case selection is becoming less restrictive.

It is often taught that vasectomy is not rapidly effective in making a man sterile, but this is not necessarily the case. Indeed, the only sound reason for carrying out sperm counts at 12 weeks and 16 weeks after operation is so that reunion of the divided vasa may be detected. If this is going to happen at all it will happen within three months of operation and will be demonstrated by appearance of sperm in the semen. Altman (1974) and Freund and Davis (1969) have shown that it is possible for a man to achieve sterility within four or five days after vasectomy and the result of operation is dependant not upon time alone, but rather upon the number of ejaculations that have occurred since the vasa were interrupted. In younger couples the frequency of intercourse and ejaculation is usually greater than for the older ones. It is therefore in the older men that persistently positive sperm counts may be found.

On reviewing this series, no patient has been significantly disturbed by the operation.

Discussing the matter informally with the patient and his wife after operation, I have found that no couples have been at all sorry that they elected for this method of sterilisation. Although in the first 100 cases specimens of vas were always sent for histological confirmation, I do not think that this is absolutely essential and indeed represents a waste of laboratory resources. The reason for getting histological confirmation was partly medicolegal and also as a check on my own technique. Henceforth I do not intend to send specimens of the vas and feel that one may reasonably rely upon sperm counts as a means of checking the effectiveness of the operation.

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#### Addendum

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## AMNIOTIC FLUID OR MATERNAL URINE?

Quite early in our programme of amniocentesis, which started in 1971, we recognised the risk of inadvertently tapping the maternal urine instead of amniotic fluid, especially in cases of anterior placenta requiring a transabdominal lower-segment approach. We have been using a simple spot test to differentiate maternal urine from amniotic fluid. The fluid withdrawn at the time of amniocentesis is tested with a Labstix ' reagent strip (Ames).

The manufacturers state that this strip can detect albumin in concentrations of 5-20mg/dl urine (i.e. in " trace " amounts). The test is more sensitive to albumin than to globulin, Bence-Jones protein, or mucoprotein. The sensitivity to glucose is about 0.1 per cent (100mg/dl) although it is influenced by inhibiting substances, specific gravity, temperature, and pH of the urine. In the absence of diabetes mellitus or renal disease, maternal urine contains very little, if any glucose or protein, whereas amniotic fluid has a lot of both.

We have had three instances where maternal urine was obtained at amniocentesis. The two from our centre were detected at once using the reagent strip and amniocentesis was repeated immediately.

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