British Journal of Urology (1990), **66**, 211–212

0007-1331/90/0066-0211 $10.00

The Long-term Outcome following "Special Clearance" after Vasectomy

A. H. DAVIES, R. J. SHARP, D. CRANSTON and R. G. MITCHELL

Elliot Smith Clinic, Churchill Hospital, Oxford

Summary—Between 1980 and 1985, 6067 out-patient vasectomies were performed under local anaesthesia at the Elliot Smith Clinic in Oxford. During this period 151 men (2.5%) were given a "special clearance". This sanctioned the discontinuation of other forms of contraception despite the persistence of scanty (< 10,000/ml) sperm in 2 consecutively examined semen samples at least 7 months after vasectomy. These men have been reviewed and further specimens of semen requested after a minimum follow-up of 3 years (range 3–8); 50 patients supplied a specimen and all except 1 were azoospermic. No pregnancies attributable to failure of the vasectomy have been identified.

Previous reports have shown vasectomy to be a procedure which is safe, simple and has few complications and failures (Population Reports, 1983; Philp *et al.*, 1984a). It is well recognised that a few patients continue to pass low numbers of sperm in their semen for many months. The normal criterion for sterility in this clinic consists of 2 consecutive azoospermic analyses at least 4 months after vasectomy, further samples being examined until this is achieved. However, men with persistently positive semen samples are given a "special clearance" if 2 consecutively examined specimens have counts < 10,000/ml and at least 7 months have elapsed since vasectomy. The outcome in this group has been the subject of debate (Barnes *et al.*, 1973).

Patients and Methods

Between 1980 and 1985, 6067 men underwent vasectomy under local anaesthesia at the Elliot Smith Clinic. In almost all cases Hyfrecator cautery was applied to the ends of the divided vas; 151 men (2.5%) were given a "special clearance" as described above. The mean age of this group was 40 years (range 27–66). The mean age of a random group of 151 consecutive men attending the clinic for vasectomy was 36 years (range 26–59). Men who were given a special clearance received a letter which stated that in the experience of this clinic and others worldwide no pregnancies had occurred to date by adopting this policy and that other methods of family planning could now be discontinued. However, it was stressed that no guarantee could be given that a vasectomy would not fail at any point in the future.

A letter and specimen container with a request to provide a further semen sample for analysis were sent to the 151 patients. If no reply was obtained the patient's last known family doctor was contacted for information.

Results

A total of 151 men (2.5%) were given a special clearance. The minimum time at follow-up from clearance was 3 years.

Table 1 summarises the results *per annum*; 52 patients (34%) replied, of whom 50 (33%) supplied a further specimen and 2 declined to participate. All but 1 were found to be azoospermic. The exception was a man aged 50 at the time of his vasectomy 5 years previously. His semen specimen contained < 5,000 sperms/ml.

The reply rate correlated with the year of vasectomy; only 16% of the 1980 patients replied, whereas 48% of the 1985 patients replied; 14 containers (9%) were returned unopened by the Post Office.

The family doctors of the 99 who failed to reply were contacted. Table 2 shows the outcome and the reasons for no reply; only 17% were still at the same address.

Accepted for publication 29 January 1990

Table 1 Results *per annum*

Year	No. of vasectomies	Special clearance		Replies	
		No.	(%)	No.	(%)
1980	1010	38	(4)	6	(16)
1981	967	28	(3)	9	(32)
1982	888	16	(2)	6	(38)
1983	899	17	(2)	6	(35)
1984	1159	19	(2)	9	(47)
1985	1144	33	(3)	16	(48)
Total	6067	151	(2.5)	50	(33)

In this group of 151 patients no subsequent complications and no pregnancies were reported.

Discussion

Our policy of special clearance resulted in azoospermia at long-term follow-up in 98% of patients and the single exception had only a "few scanty sperms" present. No evidence was obtained from either patients or family doctors of the occurrence of pregnancies or morbidity. Persistence of sperm after vasectomy may result from inadequate vasectomy, early recanalisation (Barnes *et al.*, 1973; Rees, 1973; Philp *et al.*, 1984a), late recanalisation (Philp *et al.*, 1984b) or residual sperm stored distal to the site of the vasectomy. The 34% reply rate appears low, but it represents 60% of the men who had not moved house and was inversely related to the number of years since vasectomy. We considered that non-response should be regarded as a decision not to participate on the part of the 17% of patients known to be at the same address. In the study group 98% became azoospermic. Freund and Davies (1969) stated that 10 ejaculates were necessary for clearance, whereas Marshall and Lyon (1972) showed that 36 ejaculates would be necessary for 100% clearance. Our findings suggest that delayed clearance represents exceptionally slow distal emptying. The study group was rather older than a consecutive group of men undergoing vasectomy. Marshall and Lyon (1972) showed that younger patients had more ejaculates and postulated that ejaculatory peristalsis is more vigorous in the young, while Spencer and Charlesworth (1976) showed a decreased rate of clearance with age irrespective of coital frequency. We consider that our retrospective data support the view of Edwards and Farlow (1979) who advocated that clearance on the basis of scanty sperms did not lead to a risk of pregnancy. However, this is contrary to the view of Jackson (1973) that repeated tests should be performed until azoospermia is complete. Our one case of a few scanty non-motile sperm 5 years after vasectomy does not suggest late recanalisation (Philp *et al.*, 1984b). An alternative explanation is that the vasectomy nodule in special clearance cases permits a few sperms to pass through its channels; these are non-motile and incapable of causing conception.

Table 2 Results of Attempted Telephone Contact with Family Doctors

	No.	(%)
Unable to trace doctor	17	(17)
Moved and changed doctor	65	(66)
Same address	17	(17)

These results are reassuring for patients issued with a special clearance. They may be told that their chance of being fertile is minimal rather than zero and made aware that any vasectomy may fail at a future date.

Acknowledgements

We thank Messrs J. Guillebaud and I. MacKenzie, Clinic Surgeons, Sisters E. Turner and P. Ashcroft and the other staff of the Elliot Smith Clinic for their help.

References

Barnes, M. N., Blandy, J. P., England, H. R. *et al.* (1973). One thousand vasectomies. *Br. Med. J.*, **4**, 216–221.

Edwards, I. S. and Farlow, J. L. (1979). Non-motile sperms persisting after vasectomy: do they matter? *Br. Med. J.*, **1**, 87–88.

Freund, M. and Davis, J. E. (1969). Disappearance rate of spermatozoa from the ejaculate following vasectomy. *Fertil. Steril.*, **20**, 163–170.

Jackson, L. N. (1973). Sperm counts after vasectomy. *Lancet*, **1**, 770.

Marshall, S. and Lyon, R. P. (1972). Variability of sperm disappearance from the ejaculate after vasectomy. *J. Urol.*, **107**, 815–817.

Philp, T., Guillebaud, J. and Budd, D. (1984a). Complications of vasectomy: review of 16,000 patients. *Br. J. Urol.*, **56**, 745–748.

Philp, T., Guillebaud, J. and Budd, D. (1984b). Late failure of vasectomy after two documented analyses showing azoospermic semen. *Br. Med. J.*, **289**, 77–79.

Population Reports (D) (1983). *Vasectomy—Safe and Simple*. No 4. Pp. 61–100.

Rees, R. W. M. (1973). Vasectomy: problems of follow-up. *Proc. R. Soc. Med.*, **66**, 52–54.

Spencer, B. and Charlesworth, D. (1976). Factors determining the rate of disappearance of sperm from the ejaculate after vasectomy. *Br. J. Surg.*, **63**, 477–478.

The Authors

A. H. Davies, FRCS, Registrar in Urology.
R. J. Sharp, BA, Medical Student.
D. Cranston, FRCS, Clinic Surgeon.
R. G. Mitchell, FRCPath, Consultant Microbiologist.

Requests for reprints to: A. H. Davies, Department of Urology, Churchill Hospital, Headington, Oxford OX3 7LJ.