

Fatherhood without apparent spermatozoa after vasectomy

J C Smith, D Cranston, T O'Brien, J Guillebaud, J Hindmarsh, A G Turner

Fatherhood after vasectomy is rare. We describe 6 cases of DNA-proven fatherhood after vasectomy in association with persistently negative semen examination. All vasectomy patients and their partners should be counselled about the small possibility of late failure, and warning of failure should be recorded.

Lancet 1994; **344**: 30

Vasectomy is a common, worldwide, and effective method of permanent contraception. A single negative examination of semen after vasectomy indicates that the operation has been successful. By convention, in the UK, 2 specimens of semen are examined although the timing of these samples varies. Twenty years ago it was suggested that 3 specimens should be examined,¹ although this could be seen as illogical.²

Early failure of vasectomy (spermatozoa fail to disappear from the ejaculate) was brought to general notice in 1969³ and may be due to re-canalisation of the vas deferens. Late failure (spermatozoa reappear after 2 negative specimens) occurred in 1 case without comment³ but became generally recognised after 6 such failures were reported in over 14 000 vasectomies.⁴ In all 6 cases spermatozoa were seen in the post-conception semen analysis. Bunge⁵ graphically described the scene: "Such spontaneity of mother nature engenders marital discord and wild spousal conjectures, both of which are abated by a semen analysis. However, the full fury now turns on the vasectomist". Pregnancy with proven paternity and persistently negative sperm counts has not been reported, although fatherhood with very small numbers of immotile spermatozoa has been confirmed.⁶

We describe 6 cases in which fatherhood was proved by DNA analysis but was associated with persistently negative semen analyses. In each case, 2 negative sperm counts were obtained and the patients were advised that they could discontinue contraception (table). Pregnancy was followed by delivery of a normal child and blood samples of the child and father were subjected to DNA analysis. In each case the odds against any third party being the true father were astronomical.

Failure of vasectomy is a common cause of legal action, and our cases show that fertilisation can occur without a positive semen analysis. Our patients must have been intermittently producing small numbers of viable spermatozoa. Semen analysis long after vasectomy in the absence of a pregnancy is rare. Esho et al⁷ examined 215 specimens a year after vasectomy and found 3 positive. At the Churchill Hospital, Oxford, we have so far examined the semen from 1000 men a year after 2 negative specimens. No pregnancies had occurred but 6 men (0.6%) had positive results. In all 6 the sperm counts were less than 10 000 per millilitre and repeat specimens a month later showed azoospermia. The pathological findings in case 6 (table)

Case	Vasectomy	Post-vasectomy sperm counts	Birth of child	Post-conception sperm counts
1	March 84	Aug 84, pos Sept 84, neg Oct 84, neg	Nov 85	May 85, neg
2	April 84	Aug 84, neg × 2	Oct 85	8, all neg
3	Nov 85	Jan 86, neg Feb 86, neg	Nov 88	Dec 88, neg × 2
4	April 89	July 89, pos then neg × 2	Dec 90	Oct 90, neg Nov 90, neg
5	1985	Neg at 6 and 12 weeks (1985)	March 90	Aug 89, neg Sept 89, neg
6	July 91	Nov 91, pos Feb 92, neg Mar 92, neg	July 93	Mar 93, neg × 2 June 93, neg

pos = positive; neg = negative.

Table: **Pregnancy with DNA-proven paternity and negative sperm counts**

suggest that late re-canalisation occurred with intermittent positive sperm counts, because a further vasectomy had shown histological evidence of re-canalisation.

Our cases are clearly extremely rare and have occurred between 1984 and 1991 when about 500 000 vasectomies were done in the UK. However, the implication is that when pregnancy occurs in the partner of a vasectomised man, even the absence of spermatozoa in 1 or more post-conception semen specimens does not rule out paternity. Besides DNA analysis, it may be helpful to arrange a series of samples out of which 1 may show some spermatozoa and settle the issue. However, in case 2, as many as 8 specimens were negative after the conception for which he was nevertheless definitely responsible.

All vasectomy patients, and their partners, should be warned of the small possibility of late failure of the operation, which is at least 1 in 2000,⁷ and this warning should be recorded. Vasectomy is the surest method of permanent contraception and we have never come across a patient who refused operation on the grounds of its unreliability or regularly used additional methods of contraception.

References

- 1 Temple JG, Jameson RM. Semen examinations after vasectomy. *Lancet* 1970; ii: 1258.
- 2 Smith JC. Semen examination after vasectomy. *Lancet* 1971; i: 38.
- 3 Pugh RCB, Hanley HG. Spontaneous re-canalization of the divided vas deferens. *Br J Urol* 1969; 41: 340-47.
- 4 Philp T, Guillebaud J, Budd D. Late failure of vasectomy after two documented analyses showing azoospermic semen. *BMJ* 1984; 289: 77-79.
- 5 Bunge RG. Bilateral spontaneous re-anastomosis of the ductus deferens. *J Urol* 1968; 100: 762.
- 6 Thompson JA, Lincoln PJ, Mortimer P. Paternity by a seemingly infertile vasectomized man. *BMJ* 1993; 307: 299-300.
- 7 Esho JO, Ireland GW, Cass AS. Re-canalization after vasectomy. *Urology* 1974; 3: 211-14.

Department of Urology and Elliot Smith Clinic, Churchill Hospital, Oxford (J C Smith FRCS, D Cranston FRCS, T O'Brien FRCS); **Margaret Pyke Centre, London** (Prof J Guillebaud FRCOG); **South Cleveland Hospital, Middlesbrough, Cleveland** (J Hindmarsh FRCS); and **Peterborough and Stamford Hospitals, Peterborough, Lincolnshire** (A G Turner FRCS)

Correspondence to: Mr J C Smith, Department of Urology, Churchill Hospital, Headington, Oxford OX3 7LJ, UK