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Vasectomy by section, luminal fulguration and fascial interposition: results from 6248 cases

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Objective To determine the incidence of complications, including recanalization, in a series of 6248 consecutive vasectomies performed with a section-fulguration-fascial interposition technique.

Patients and methods Over a 38-year period, 6248 vasectomies were performed by one surgeon (S.S.S.) as a clinic procedure under local anaesthesia with no resection of a vasal segment. The mucosa of the cut ends of the vas was destroyed by cauterization and the fascial sheath of the vas was interposed as a barrier. Semen specimens were examined until two specimens, one month apart, showed no sperm.

Results Complications were minimal, with few cases of haematoma or wound infection. Spermatic granulomas were uncommon. No post-vasectomy pregnancies were reported and no patient showed a persistence of sperm.

Conclusion The section-fulguration-fascial interposition technique of vasectomy was uniformly effective, with few post-operative problems.

Introduction

Vasectomy, the most common operation in the adult male, is used as a means of permanent contraception and, to a lesser degree, as a means of preventing the ascending infection that can cause epididymitis. It is commonly performed as an out-patient clinic procedure under local anaesthesia. Disability is usually minimal, and most patients do not require post-operative analgesia. Often done by family practitioners, the principles of the operation are often poorly understood and thus a variety of techniques is employed. Failures, defined as fertility or the persistence of sperm in the semen, continue to occur [1–8]. This report presents a series of 6248 consecutive vasectomies performed by one surgeon with one technique. Few complications occurred and there was no persistence of sperm in the semen.

With the classic vasoligation technique, a reported failure rate of 3% occurs because the vas remains patent up to the ligature [9]. When the ligated ends slough off, sperm may leak from the open lumina and either recanalization or the formation of a spermatic granuloma may follow.

Division of the vas and fulguration of the mucosal lumen of the cut ends with a heated wire can seal the cut vas because the destroyed mucosa is replaced by a plug of scar tissue [9]. The second barrier is the interposition of fascia with the sheath of the vas to prevent any sperm that escape from reaching the urethral end.

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The 'no-scalpel vasectomy' is currently being advocated [10], particularly in developing countries where limited access to trained surgeons and a large population make speed important and failures (and malpractice) of minor concern. Sufficient reports of success rates and complications with that method are not available for evaluation.

Patients and methods

The 6248 men ranged in age from 18 years (with three children) to 65 years, with the majority between 26 and 35 years.

The operation was performed in the clinic operating room using a sterile technique. No sedation was given, as the men usually drove themselves home afterwards.

Small bilateral incisions (unilateral in patients with unilateral absence of the vas; in this series, 20 patients, or 0.3%, had unilateral absence of the vas) were made in the upper scrotum after the skin and perivasal tissues had been infiltrated with plain 1% lidocaine. As the operation proceeded, additional anaesthetic was injected around the vas where the spermatic nerve runs. After the skin was opened the vas was grasped with an Allis clamp. The fascial sheath was incised and the vas freed from its surrounding tissues, cut, and the epithelium of the lumen on both sides cauterized by inserting a heated wire to a depth of 3–4 mm, leaving the muscularis viable as a source of the scar tissue that would form a plug. A segment of the vas was not excised and ligatures and clips were not used. The sheath was closed over the

urethral end with a single suture. This directs the testicular end of the vas away from the spermatic nerve and vessels, protecting them should a spermatic granuloma develop. The skin was closed after inspection had shown haemostasis to be complete, and a suspensory scrotal support was applied.

The first semen sample was requested after at least 15 ejaculations. If the first showed no sperm, a second was examined 1 month later to confirm absence; half the patients complied.

Results

Complications

Small haematomas that subsided uneventfully developed in 17 (0.3%) of the 6248 men. An antibiotic, usually tetracycline, was given to 181 men (2.9%) of whom 2.14% had definite and 0.76% had possible infections. No patient required hospitalization and no disability resulted from infection. No cases of bacterial epididymitis occurred.

Congestive epididymitis (a self-limiting engorgement of the epididymal tubule [11]) occurred in 300 men (4.8%) and recurred in a few. In all cases, the disorder subsided uneventfully.

Spermatic granuloma of the epididymis was diagnosed in 56 men (0.9%), of whom six (10%) required epididymectomy because of pain.

The body handles leakage of sperm from the testicular end of the vas in one of three ways (alone or combined): patency may be restored, as when the vasectomy fails (spontaneous anastomosis); ductules may develop, orientated to reach the urethral end of the vas and to restore patency (vasitis nodosa); or tissue reaction may surround the sperm with a wall containing phagocytes that will ingest it (a lesion called a granuloma). When the wall of the granuloma contains a nerve filament, the result can be exquisitely painful and surgery is indicated. This spermatic granuloma of the vas need not be excised. It will cease to exist when sperm no longer enter it; thus, the fluid content should be evacuated and the vas sealed again on the testicular side. Spermatic granulomas of the vas were diagnosed in 1.36% (90) of the men and corrective surgery was carried out in half. Several were bilateral (not concurrently), several recurred and one developed into a vasocutaneous fistula. The time of occurrence varied, from a few months to 5 years after vasectomy.

The spermatic cord may become painfully swollen up to the point of the vasectomy and not beyond. This funiculitis is not a complication of the operation but a consequence of a urinary infection. Eight such cases occurred (0.13%).

In this series, 39 men complained of sexual dysfunction, usually years after the vasectomy and at an incidence comparable to that in the general male population.

Every patient was directed to apply an icebag to the scrotum after the operation to alleviate post-operative pain. Two patients requested codeine for post-operative pain but most men did not need to take any analgesics.

Failure, defined as either a pregnancy or the persistence of sperm in the semen, was not detected during follow-up.

Conclusion

A technique involving vasal section, luminal fulguration and fascial interposition applied in 6248 consecutive patients resulted in few complications and uniform elimination of sperm in the ejaculate.

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Commentary

This impressive series of vasectomies, performed by one surgeon, is the second largest individual series in the world literature. Dr Schmidt describes his technique and has apparently had no failures, although only 50% of his patients produce follow-up semen specimens.

He comments on spermatic granuloma of the vas, saying that the patency may be restored (spontaneous anastomosis) or ductules may develop (vasitis nodosa). These seem to me to be the same thing.

This impressive series makes a powerful argument for using his technique of luminal fulguration and fascial interposition.

I think it is inadvisable to allow patients to drive themselves home after a vasectomy under local anaesthesia, for in the UK it may be difficult to defend the doctor, as the third party, in a case brought by an automobile insurance company.

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