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An evaluation of the no-scalpel vasectomy technique

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Objective To evaluate the magnitude and range of complications encountered during no-scalpel vasectomy (NSV) and to identify any limiting factor or contraindication to NSV.

Subjects and methods A total of 4255 men visiting a family welfare clinic of a city hospital in Delhi, India, or outpatients of the surgery department, opted for NSV; 4253 procedures were performed from September 1989 to December 1997, with two not performed because of technical difficulties. The success and complication rates were recorded.

Results The complication rates with NSV were surprisingly low; seven complications were encountered, comprising two small haematomas (0.047%), three painful nodules (0.07%), three wound infections (0.07%) and two vasal fistulae, a complication not previously described. A meticulous procedure should avoid this last complication. The mean duration of NSV was 9.5 min.

Conclusion NSV is a refined and rapid technique of vasectomy with an extremely low complication rate. Being a minimally invasive procedure, it allays the fear of incision commonly encountered in men choosing vasectomy.

Keywords No-scalpel vasectomy, vasal fistula, complications

Introduction

Vasectomy is accepted as a safe, effective, simple and inexpensive method of permanent contraception for men. This study evaluated the no-scalpel vasectomy (NSV) [1], a technique introduced from China in 1976 and used in other countries since 1986. Clinical reports from practitioners attest that the NSV is less invasive than conventional techniques, causes fewer complications and can take less time as the surgeon's skill develops. Also because there is no incision, it is believed to decrease the fear of vasectomy in men electing for this method of contraception.

Subjects and methods

We introduced the NSV at our centre in 1989 and have since performed all vasectomies using this technique. A total of 4253 men visiting the family welfare wing of Lok Nayak Hospital, Delhi, India, opted for this procedure. After due counselling and obtaining informed consent as required by the National Standards of Sterilization of the government of India, the clients underwent NSV. The clients' characteristics, technical difficulties, operative duration and complications encountered were noted. Complications analysed were: scrotal haematoma, further classified as large (more than twice the size of the normal scrotum and requiring surgical drainage), small (less than twice the size of the normal scrotum and managed conservatively) and external bleeding (sufficient to soak a small piece of gauze and requiring a change); wound infection, i.e. purulent discharge from the wound of any dimension; painful nodule, a tender nodule at the vasectomy site during the postoperative phase, persisting as such after one week; epi-orchitis, congestive or infective; failure, as shown by semen analysis after 3 months from surgery.

The operation was performed as described below; the vas is brought to the subcutaneous plane in the median raphae at the junction of its upper third and lower two-thirds. Lignocaine 1% is then infiltrated first as a small subdermal 'wheel' and subsequently into the perivasal sheath. The opposite vas is also similarly infiltrated. The vas is brought to this area and fixed with the extracutaneous vas fixation forceps. The scrotal skin is punctured and dilated, and the vas dissected out with the vas dissection forceps. A 1 cm piece of vas is excised, the ends ligated with silk and the distal end of the vas covered by the perivasal sheath. The ligated ends are replaced into the scrotum and a small dressing applied.

Results

Over the 8 years from September 1989 to December 1997, 4253 men underwent NSV. The mean (range)

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duration of the procedure, starting from cleaning and draping to the end of surgery, was 9.5 (6–15) min. The complication rates were surprisingly low; there were two cases of wound infection, both of which were superficial and responded to conservative management. One of these required admission and observation, and the man was discharged after 2 days. There were two cases of painful nodule at the vasectomy site; in one the attack subsided spontaneously and the other man failed to report. There was one case of a small scrotal haematoma, which was treated conservatively. Two further cases were not treated because of the thickened filiarial scrotum and funiculitis. No case of epididymitis was recorded.

A complication occurred which had not previously been described, i.e. a vasal fistula formed because the vasal ends were not returned correctly into the scrotum after ligation. Two such fistulae were recorded and were surgically corrected under local anaesthesia; this was the only complication which required a surgical correction.

Discussion

Very few complications were encountered in these subjects, i.e. only 10, all minor. Haematoma is the most common complication of conventional vasectomy with a mean incidence of 2% and a range of 1–29% [1,2]. The present exceptionally small haematoma rate probably resulted from the minimal dissection required by this procedure. Infection after incisional vasectomy is very common, with a mean rate of 3.4% [2] and a range in several series from 12 to 38% [3]. Infection after NSV was very rare (0.07%) and mild, again probably because dissection is minimal and there are fewer haematoma. Kendrick *et al.* [2] reported a sperm granuloma formation rate of 2.5%, and Appel and Evans [3] reported it to be 2% with the standard incisional method. Open-ended vasectomy causes far fewer incidences of painful nodule and congestive epididymitis [4] but is associated with a higher rate of failure [5].

In the present series, there were two cases of vasal fistula which could have been caused by a smaller skin puncture than recommended, entrapment of the dartos muscle in the tie used for vasal occlusion or improper placement of the vas back into the scrotum. A careful procedure should avoid this complication.

The fascial interposition of the distal end of the vas has a role in reducing the failure rate of vasectomy [6]. It is a safe practice to gently pull the testicular end of the vas occlusive suture and note the testis being raised. This avoids the same vas being ligated twice, thereby increasing the reliability of this procedure (a step routinely practised by the authors).

The NSV was significantly quicker than the standard incisional method [7] because the vas is approached directly, the perivasal tissues are handled little, and there is no need for a second puncture or sutures. The postoperative recovery is also significantly better with NSV than standard methods [8]. Thus, if vasectomy is a safe, simple and effective contraceptive method, NSV is safer, simpler and equally effective.

References

1 Huber D. No-scalpel vasectomy — the transfer of a refined surgical technique from China to other countries. *Adv Concept* 1989; **5**: 217–8
2 Kendrick JS, Gonzales B, Huber DH *et al.* Complications of vasectomy in the United States. *J Family Prac* 1987; **25**: 245
3 Appel RA, Evans PR. Vasectomy: etiology of infectious complications. *Fertil Steril* 1980; **33**: 52
4 Temmermen M, Cammu H, Devroey P *et al.* Evaluation of one hundred open-ended vasectomies. *Contraception* 1986; **33**: 529–32
5 Goldstein M. Vasectomy failure using an open-ended technique. *Fertil Steril* 1983; **40**: 699–700
6 Esho JO, Cass AS. Recanalization rate following methods of vasectomy using interposition of fascial sheath of vas deferens. *J Urol* 1978; **120**: 178–9
7 Nirapathpongporn A, Huber DM, Krieger JN. No scalpel vasectomy at the King's birthday vasectomy Festival. *Lancet* 1990; **335**: 894
8 Holt BA, Higgins AF. Minimally invasive vasectomy. *Br J Urol* 1996; **77**: 585–6

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