

Conventional or Li vasectomy: a questionnaire study

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Objective To compare pain, discomfort, complications and convalescence during and after vasectomy performed conventionally or using the Li 'no-scalpel' method.

Patients and methods Between March 1993 and May 1995, 256 men were vasectomized at two city hospitals in Copenhagen; half of the patients underwent the conventional technique at one hospital and the remaining half the Li method at the other. The two groups were matched for the time at which they underwent surgery and therefore for the duration of follow-up. A questionnaire was sent to all patients, in which they scored pain and discomfort using a 10 cm visual analogue scale (VAS). The reproducibility of measurements was tested on 10 patients who had answered the same questions 1.5–2 years earlier.

Results Men vasectomized using the Li method experi-

enced less pain at rest after the first week ($P=0.05$) and less use of analgesics ($P<0.001$), had fewer infections ($P=0.0015$) and contacts with their physician ($P=0.0078$) than those conventionally vasectomized. There were no significant differences between the groups for pain and discomfort during surgery and in the first week after vasectomy, frequency of bleeding, haematoma, oedema, granuloma, pain at activity, absence from work, vasectomy failure by sperm analysis, sexual activity and satisfaction with the cosmetic result (all $P>0.05$).

Conclusion Vasectomy using the Li method reduced post-operative pain, the use of analgesics, the frequency of infections and contacts with a physician when compared with the conventional procedure.

Keywords Vasectomy, sterilization, convalescence

Introduction

Vasectomy is a simple procedure that ensures permanent contraception. A review of the literature shows that numerous vasectomy techniques have been used and new techniques are still sought to simplify the procedure and to reduce the rate of complications.

In 1974, Li *et al.* developed the 'no-scalpel vasectomy', a technique that requires two specialized instruments [1]. The technique has been used in China since 1974 on over 8 million men. In a follow-up study on 179 741 men, haematomas were found in 160 (0.09%) and superficial infections in 1630 (0.91%) [1]. In a North American survey of 238 men, no haematomas or infections were found and the operative duration for the last 50 procedures ranged from 5 to 11 min [1]. In a small Danish study of 19 men, no infections or haematomas were found [2].

The aim of the present study was to compare, using a questionnaire, the pain, discomfort and convalescence after vasectomy by the conventional and Li method.

Patients and methods

Between March 1993 and May 1995, 256 men were vasectomized at two city hospitals serving the population of Copenhagen; 128 patients (mean age 38 years, range 26–55) underwent a conventional vasectomy at Bispebjerg Hospital (BBH) and the remaining 128 (mean age 38 years, range 27–68) the Li vasectomy at Sundby Hospital (SH). The two groups were matched for the time at which they underwent surgery and therefore by the duration of follow-up. At each hospital, the procedures were carried out by a group of seven or eight doctors with experience in minor surgery only.

Questionnaire

In July 1995, a questionnaire was mailed to all 256 patients (2–27 months after surgery, median 14). Those who did not answer the first request were sent a reminding letter in September 1995. Pain and discomfort were assessed using a 10 cm visual analogue scale (VAS; 0 cm = no pain, 10 cm = worst possible pain). The reproducibility of the measurements was tested on 10 patients who had answered the same questions 1.5–2 years earlier. Answers were received from 109 (85%) men from SH and 115 (90%) from BBH.

Table 1 Pain and discomfort scores assessed using a 10 cm visual analogue scale (VAS) during and one week after conventional or Li vasectomy

	Median (25–75 percentile) cm		
	Li	Conventional	P
Pain during vasectomy	1.2 (0.5–2.5)	1.5 (0.4–3.3)	0.34
Discomfort during vasectomy	2.1 (0.5–4.1)	2.0 (0.6–4.6)	0.32
Pain first week after vasectomy	2.1 (0.7–4.6)	1.8 (0.4–4.2)	0.14
Discomfort first week after vasectomy	1.7 (0.6–3.2)	2.1 (0.5–4.2)	0.54

Surgical techniques

For the Li vasectomy, two specialized instruments are required; an extracutaneous fixation-ring clamp and a dissecting clamp. Each vas deferens is digitally manipulated to a superficial position under the raphe. Lidocaine is injected into the skin and along the vas deferens, and the vas grasped with the fixation-ring clamp. With the dissecting clamp, the scrotal skin is pierced and the wound dilated. The vas is then separated from surrounding structures and delivered through the puncture hole. A 1 cm segment of the vas is removed, both ends of the vas ligated and the testicular end sealed in its sheath. The opposite vas deferens is fixed through the same puncture and treated similarly. The wound is not closed.

For the conventional vasectomy, the vas deferens is identified on each side of the scrotum. Lidocaine is injected into the skin above the vas and a 1–2 cm incision made on each side, the vas dissected and isolated, and a 1 cm segment removed. Both ends of the vas are ligated and the testicular end is sealed in its sheath.

Each wound is closed with two or three absorbable sutures.

All results were analysed using the Mann–Whitney rank-sum test and chi-square test; $P < 0.05$ was chosen to indicate significant differences.

Results

The reproducibility test showed no significant differences (both $P < 0.05$) between pain and discomfort scores immediately after operation (median 0.3 cm and 0.8 cm) and 1.5–2 years after (median 0.7 cm and 1 cm), respectively.

There were no significant differences between the techniques for pain and discomfort during the procedure and in the first week thereafter (Table 1). Slightly more than half of all men experienced one or more complications after the vasectomy. The proportion of patients who experienced pain at rest after the first week or used analgesics after the Li vasectomy was half that after conventional vasectomy and the number of infections

Table 2 Self-reported results after conventional or Li vasectomy

	Li (%)	Conventional (%)	P
Bleeding	17	14	0.57
Haematoma	13	18	0.37
Infection	4	18	0.002
Oedema	20	30	0.15
Granuloma	15	18	0.61
Pain at rest	11	22	0.05
Pain at activity	34	34	0.93
Pain at coitus	18	16	0.69
Use of analgesics	29	53	<0.001
Physician contacts	8	22	0.009
Normal activity resumed the same day	17	23	0.39
Normal activity resumed within a week	98	94	0.20
Sexual activity resumed within a week	49	50	0.94
Vasectomy failure by sperm analysis	2	1	0.97
Increased libido	3	5	0.83
Reduced libido	3	2	0.91
Increased potency	3	3	0.74
Reduced potency	4	2	0.62
Satisfactory cosmetic result	96	96	0.74
Regret of vasectomy	2	3	0.82

and contacts with a physician were reduced to a quarter, while there were no differences for the other self-reported variables (Table 2).

Discussion

In agreement with other studies [3–5], the results of the present study show that vasectomy can be performed under local anaesthesia and be highly satisfactory. Nearly all patients had resumed normal physical activity within a week, and half of the patients had resumed sexual activity within the same period; sexual function was unaffected by vasectomy.

Compared with conventional vasectomy, the patients undergoing Li vasectomy did not experience less intra-operative pain or discomfort. However, pain at rest during convalescence was only experienced half as often, self-reported infections four times less, analgesics were used half as often and the contacts with a physician reduced by three times. The outcome was more favourable because the Li procedure is less invasive and the wound is not closed.

A comparison of two operative techniques should ideally be randomized and prospective. Possible selection bias was reduced by allocating patients to either arm by the catchment area of the two hospitals serving the population of Copenhagen. Furthermore, the follow-up intervals were matched at both hospitals and the answers given after vasectomy were reliable for up to 2 years.

The Li vasectomy is not only less costly in instruments, sutures and operative duration than is conventional

vasectomy [1,2,6], but also saves the patients some complications and reduces the social expense of post-operative medical care.

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References

- 1 Li S, Goldstein M, Huber D. The no-scalpel vasectomy. *J Urol* 1991; **115**: 341–4
- 2 Harvald TB, Miskowiak J. Vasectomia a.m. Li. *Ugeskr Laeger* 1994; **156**: 2383–5
- 3 Ehn BE, Liljestrand J. A long-term follow-up of 108 vasectomized men. *Scand J Urol Nephrol* 1995; **29**: 477–81
- 4 Rose M, Kay L, Windfeld M. Rekonvalescens efter ambulant vasktomi. *Ugeskr Laeger* 1991; **153**: 1941–3
- 5 Wethelund J, Nielsen KW. Vasektomi. *Ugeskr Laeger* 1985; **147**: 1195–6
- 6 Nirapathpongporn A, Huber DH, Krieger JN. No-scalpel vasectomy at the King's birthday vasectomy festival. *Lancet* 1990; **335**: 1195–6

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