Early and late morbidity after vasectomy: a comparison of chronic scrotal pain at 1 and 10 years

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OBJECTIVE

To evaluate the incidence and timing of the onset of chronic scrotal pain after vasectomy in two populations at 1 and 10 years after surgery.

PATIENTS AND METHODS

In a retrospective questionnaire-based study two groups of men were compared; 460 who had a vasectomy in 1991–92 (group A) and another 460 who had a vasectomy in 2000–1 (group B; 10 and 1 year after surgery, respectively). Data were collected on immediate complications, and the incidence and nature of chronic scrotal pain. Pain severity was graded using a visual analogue score (VAS). Patients were also asked if they regretted having a vasectomy because of pain.

RESULTS

In all, 182 and 220 replies were received from patients in group A and B, respectively. Early complications included haematoma in five (2%) and two (0.9%) patients, respectively, and wound infection in 24 (13%) and 17 (7.7%). Eight patients who had scrotal pain even before vasectomy were excluded from the analysis (two in group A and six in group B). In group A, 25 of 180 (13.8%) had a new onset of scrotal pain of some nature, with eight (4.3%) having a VAS of >5; one patient had an epididymectomy for this. Three of the 25 regretted having a vasectomy because of pain. In group B, 36 of 214 (16.8%) reported persistent scrotal pain, with 13 (5.9%) having a VAS of >5. Six of the 36 regretted having a vasectomy because of the pain. The incidence of scrotal pain was not significantly different between the groups ($P = 0.48$, Fisher's exact test).

CONCLUSION

Chronic scrotal pain after vasectomy is more common than previously described, affecting almost one in seven patients. All patients undergoing vasectomy must receive appropriate preoperative counselling about this. The incidence of this complication does not appear to increase with time.

KEYWORDS

vasectomy, scrotal, pain, morbidity, complication

INTRODUCTION

Vasectomy is a simple and effective contraceptive method; worldwide, 42–60 million men, or 5% of married couples of reproductive age, rely on vasectomy as a contraceptive method [1]. The complication of scrotal pain after vasectomy may cause considerable distress to the patient although there are few published data on the incidence of this complication [2–4]. It may take months to years to develop and patients may not be appropriately counselled about this complication. In the present study we sought to determine the true incidence of scrotal pain and to assess whether the incidence changed with the interval since vasectomy.

PATIENTS AND METHODS

Two groups of men were assessed; those having a vasectomy from 1 April 1991 to 1 April 1992 (group A, 460) and 1 April 2000 to 1 April 2001 (group B, 460) were evaluated by a postal questionnaire about the early and late complications, type of anaesthesia and whether the men regretted having the procedure. Trainees and consultants from the urology and surgical department, using their own preferred technique, performed the vasectomies in both groups. Patients were specifically asked about scrotal pain or discomfort, the time of onset since surgery, the frequency with which it occurred, any history of scrotal pain before surgery and its relationship to sexual activity. Those who experienced pain were asked to rate it using visual analogue score (VAS). Data were recorded on a standard proforma and compared statistically.

RESULTS

For groups A and B, respectively, replies were received from 182 (39.5%) and 220 (47.8%) men; the operation was performed under local anaesthesia in 112 (61.5%) and 159 (72.3%), the remainder being under general anaesthesia. Significant early complications included haematoma in five (2%) and two (0.9%) men in group A and B, respectively; 24 (13%) and 17 (7.7%) developed wound infection requiring antibiotics. One patient (0.5%) in group A and six (2.7%) in group B had to return to theatre because of postoperative bleeding. Twenty-five men (13.8%) in group A and 36 (16.8%) in group B developed a new onset of scrotal pain of varying frequency (Table 1). Eight patients who had scrotal pain before vasectomy were excluded from the analysis (two in group A and six in group B). Of the patients who developed a wound infection five in each group developed scrotal pain after surgery. Patients who developed a wound infection had no higher risk of developing pain later ($P = 0.29$ in group A and 0.14 group B; chi squared test). None of the patients who developed a haematoma after surgery had chronic scrotal pain.

The pain was aggravated by sexual activity in six and 15 men in groups A and B,

respectively. Two patients in each group had to take time off work because of the pain. There was no significant relationship between the type of anaesthetic used for vasectomy and the incidence of scrotal pain ($P = 0.04$ in group A and 0.21 in group B; chi squared test). The difference in the incidence of scrotal pain between the groups was also not significant ($P = 0.48$, Fisher's exact test).

Characteristic, n (%)	Group A	Group B
Total	182	220
Mean (range) age, years	36.9 (27–50)	35.4 (25–51)
Testicular pain (new onset)	25 (13.8)	36 (16.8)
both sides	7	11
left	11	15
right	9	16
Previous testicular pain (before surgery)		
Yes	2	6
No	25	36
Onset of pain		
After surgery (a few weeks)	16	27
Other (range in months)	9 (2–60)	9 (2–10)
Occurrence of testicular pain		
Occasionally	11	9
Everyday	2	6
Every other day	4	5
Once a week	3	4
Twice a week	0	1
Once in 2 weeks	0	2
Once a month	3	8
Once in 3 months	1	0
Only with ejaculation	1	1
VAS		
mean	3.9	3.4
>5	8 (4.3)	13 (5.9)
Consultation		
GP	15	17
Consultant	8	7
None	12	25
Operative treatment*	1 Epi	1 Var
Would accept reversal of vasectomy for pain	1	3
Regret vasectomy? (all patients in study)		
Yes	10	11
No	172	209
Reason if 'Yes'		
Pain	3	6
Remarriage or new relationship	6	1
Failed operation	1	3
Other	0	1

TABLE 1
A summary of the characteristics and results in the two groups

**Epi, epididymectomy; Var, varicocelectomy.*

DISCUSSION

Vasectomy remains a common operation, both by urologists and general surgeons. Although considered a simple operation from the surgeon's perspective it remains one of the major decisions that a man makes during his lifetime. Chronic testicular or scrotal pain is a recognized complication of vasectomy [3] but the exact incidence remains unknown. Comparative data from the Health Status of American Men Study on the incidence of epididymo-orchitis in men with and without vasectomy are available [5]. The cumulative incidences were 0.9% and 0.1%, respectively, in the first 12 months, and 1.8% and 1.0% from 12 months after vasectomy to the end of the follow-up (median 7.9 years after surgery). Other studies have shown a much greater incidence of chronic pain. Ahmed *et al.* [4], in a study of 396 patients with a mean follow-up of 19 months, noted some pain in 27%, although this persisted beyond 3 months in only 19%. McMahon *et al.* [3] reported an incidence of 33% in a study of 172 patients at 4 years after vasectomy, although only 15% considered this to be troublesome. The present 10-year chronic pain rate of 13.8% supports their findings.

Scrotal pain after vasectomy has been referred to by many terms, including late postvasectomy syndrome [2], postvasectomy orchalgia [6], congestive epididymitis [7] and postvasectomy pain syndrome [8]. Its cause remains unclear although there are many theories, e.g. (i) long-standing obstruction with dilatation of the epididymal ducts; (ii) extravasation of sperm and sperm granuloma with an inflammatory reaction; and (iii) nerve entrapment at the vasectomy site. One study showed that open-ended vasectomy is less likely to cause congestive epididymitis than closed-ended vasectomy (2% vs 6%) [9]. Although the role of infection in this condition is unclear, antibiotics are usually the first line of treatment. Wound infection after vasectomy is surprisingly common, with an incidence of ≈3.4%, but some series have reported rates of 12–38% [9]. The incidence of self-reported wound infection in the two groups in the present study was 13% and 7.7%, although there was no increased risk of these patients developing chronic scrotal pain at a later stage. The role of spermatic granulomas associated with scrotal pain after vasectomy is debatable [6,10,11]. Shapiro and Silber [6] found that 97% of 433 patients had spermatic granulomas, of whom only one complained of scrotal pain. We consider that scrotal pain results from obstruction, increased pressure, induration and stagnation that may result in distension of the epididymis and possibly perineural fibrosis.

There are no specific radiological features [3] for this condition. Histological examination of the cut vasal ends in patients having a vasectomy reversal or epididymectomy for chronic testicular pain provides conflicting reports. Epididymitis nodosa (an epididymal lesion analogous to vasitis nodosa) [12], ductal dilatation, spermatic granulomas, thickening of the smooth muscle of the epididymis and areas of fibrosis enveloping nerves have been described [10]. Nangia *et al.* [13] concluded that there were no histological features identifying patients who have pain from those who do not. Treatment of scrotal pain after vasectomy is initially with

antibiotics and analgesics; surgical management is reserved for men in whom these methods are ineffective. Epididymectomy, reversal of vasectomy and denervation of the vas have been reported as the surgical options, with orchidectomy as a last resort if these procedures fail. Epididymectomy is used most commonly with reasonable results. All 19 patients in one series who had epididymectomy had more or less immediate relief of pain after surgery [2], although others have reported variable results [3,10]. The rationale behind vasovasostomy is relief of obstruction and pressure [3,13]. In a small series of 13 patients who had a vasectomy reversal, nine had complete pain relief [13]. There is little evidence about denervation of the spermatic cord, although one small series [4] reported success in 13 of 17 men. Interestingly, only 2–3% of the present patients cited pain as the reason for regretting a vasectomy, as reported elsewhere [3].

In conclusion, scrotal pain after vasectomy is commoner than previously reported, and affects at least one in seven men undergoing the procedure. The time of onset is variable although the incidence does not appear to increase significantly with time. We acknowledge that the study has drawbacks in terms of the response rate to the questionnaire, the various techniques of vasectomy used by different surgeons and relying on the patients' memory about early morbidity, all of which could influence the outcome and results. Even if it were assumed that all those not responding had no scrotal pain, the incidence would still be 5–8%, and more than the incidence of 1 in 1000 quoted in standard textbooks [14]. The long period between the procedure and the survey meant that many would have changed their residence, especially in group A, which could partly account for the poor response. Despite its limitations, we consider that this study highlights a complication resulting from a very common procedure, and which is more prevalent than appreciated. Adequate preoperative counselling must be given about this possibility.

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APPENDIX 1

The vasectomy questionnaire

APPENDIX-1: VASECTOMY QUESTIONNAIRE

VASECTOMY SURVEY

Kindly complete this questionnaire about your vasectomy.

The questionnaire and the answers given will be treated confidentially.

Please answer the following questions as honestly as you can by ticking the appropriate box.

1. What type of anaesthetic did you have?
   General ☐ Local ☐
   [Sleep] [Injection]

2. Following your vasectomy did you initially experience any of the following:
   Tick which ones apply
   Bruising ☐ Swelling ☐
   Wound ☐ Haematoma ☐
   Infecton [Collection of blood]
   Scrotal pain ☐ None of ☐
   the above
   Other ☐
   If other specify _____
   Did you require antibiotics?
   Yes ☐ No ☐

3. Did you return to theatre due to one of the above?
   Yes ☐ No ☐

4. Were you aware of all the potential risks and benefits of surgery?
   Yes ☐ No ☐
   If no please state _____

5. How long did it take for you to resume normal activities?
   Write in the box the number that applies.
   Days ☐ Weeks ☐ Months ☐

   Do you experience any testicular pain or discomfort now?
   Yes ☐ No ☐
   If Yes go to question 6a
   If No go to question 19

6a. Does the pain or discomfort occur
Everyday ☐ Every other day ☐
Once a week ☐ Once a month ☐
Other please specify _____

6b. How long after the operation did you start experiencing pain (please ignore the pain straight after the operation)?
Please specify (in weeks) _____

Is the pain or discomfort in both testicles?
Yes ☐ No ☐

If no which testicle
Left ☐ Right ☐

How long have you been experiencing testicular pain?

Please Mark on the scale below what best describes your pain (scale runs from 0 to 10, the further you mark to your right the more severe the pain.

No pain — Worst pain ever experienced

Was the pain or discomfort related to sexual activity?
Yes ☐ No ☐
If no what starts the pain _____

Are there any relieving or aggravating factors for the pain or discomfort?
_____

Have you ever needed to take time of work owing to the testicular pain or discomfort?
Yes ☐ No ☐
If yes how long _____
How many occasions _____

Have you ever consulted any one about the testicular pain or discomfort?
Tick which ones apply
GP ☐ Consultant surgeon ☐
Pain specialist ☐ Alternative therapies [E.g. herbal, acupuncture ect] ☐
Other _____

Were you started on any treatment?
Yes ☐ No ☐
If yes please list any you have tried?

15. Was the treatment effective?
Yes ☐ No ☐
If no what are you taking now?

16. Have you required any further surgery for your testicular pain or discomfort?
Yes ☐ No ☐
If yes after how long? _____
What surgery have you had? _____

17. Did you require a reversal of vasectomy to relieve the pain or discomfort?
Yes ☐ No ☐

18. Would you have accepted a reversal of vasectomy for the pain if offered?
Yes ☐ No ☐

19. Do you regret having had your vasectomy?
Yes ☐ No ☐
If Yes Please state why?

20. What is your occupation?

Thank you for your time in completing this questionnaire.