Clinical Problems

Non-Catheter Technique Prostatectomies

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Summary

An analysis is presented of 247 retropubic prostatectomies performed under hypotensive anaesthesia using a non-catheter technique wherever possible. The mortality rate was 2% which compares favourably with other series. A catheter was not used postoperatively in 67% of the patients operated on by the consultant in charge. Even when those operated on by the registrars in training are considered well over half did not require a catheter. It is suggested that this procedure should be adopted more widely in view of its safety, lack of complications, and increased patient comfort.

Introduction

The main complications of prostatectomy are haemorrhage, infection, and interference with normal micturition. Over the past few years it has been the practice in this unit to overcome these complications by making prostatectomy a virtually bloodless and thus more precise operation.

Uncontrolled hypotension due to blood loss can be dangerous, especially in the elderly, therefore hypotensive anaesthesia has never been popular. Sheppard,¹ however, showed quite clearly that planned hypotension is, in fact, a safe procedure.

Methods

Over the four-year period June 1966 to June 1970 385 patients were admitted to the hospital with prostatic symptoms due to benign adenoma. Of these, 273 were regarded as suitable for retropubic prostatectomy. Hypotension was obtained in 199 cases by the use of a technique modified from that described by Debenham and Ward,² while in 48 cases halothane anaesthesia was used. The remaining 26 cases had normotensive anaesthesia.

OPERATION

A routine retropubic prostatectomy is performed through a transverse incision of skin and rectus sheath. The prostatic capsule is opened with the cutting diathermy after clearing its surface and coagulating the superficial veins. Enucleation is performed in the normal manner and the minimal bleeding that occurs can easily be controlled. We do not excise a wedge of bladder neck, as this is used in producing a smooth reconstruction of the posterior wall of the prostatic cavity to which it is sutured. At this stage a catheter is passed to ensure easy entry

into the bladder. If this is not possible the prostatic bed is resutured and if difficulty is still obtained the catheter is left in situ. The capsule is closed and the bladder filled to test the suture line. A bilateral vasectomy is performed from within the pelvis, identification being made near the internal inguinal ring. The wound is closed and a stab drain to the retropubic space is inserted. The catheter is then removed.

Postoperatively the patients are given benzylpenicillin and streptomycin (Crystamycin) 1 phial twice a day for five days then sulphadimidine 0.5 g four times daily. Two months postoperatively sounds are passed under local anaesthesia.

Results

In the series of 247 cases there were five deaths, giving a mortality of 2%. Two deaths were due to coronary thrombosis. One of these patients had previously had a coronary attack and the other patient was hypertensive. One patient died from pulmonary embolism and another from a cerebral vascular accident. A chest infection claimed the other patient. Three of the deaths occurred in patients over the age of 70 years. The mortality rate compares favourably with those in series where normotensive anaesthesia has been used for prostatectomy. McAlister³ reported a mortality of 2.6% in 372 cases, while Lee⁴ reviewed the overall picture of prostatectomies in teaching and non-teaching hospitals and found mortality rates of 4.1% and 7.6% respectively. Mortality rates in series where hypotensive techniques have been used are shown in the Table.

Mortality Rates in Various Series where Hypotension was used

Author	Year	No. of Cases	% Mortality
Bodman ⁵	1959	50	8.0
Debenham and Ward ²	1960	104	3.8
Grace ¹⁰	1961	731	6.8
Sheppard ¹	1961	720	7.2
Bodman ¹¹	1964	506	3.6
Spencer ¹²	1967	132	6.1

CATHETERS

In this series 144 patients (58%) did not require a catheter at any stage postoperatively. This is a lower percentage than previously reported from the unit, but if the consultant's personal series only is reviewed the figure rises to 67%. In 168 cases (68%) a catheter was not left inserted at operation. In 67 cases (27%) a catheter was left inserted at operation either because of failure in reconstruction of the bladder neck or because a watertight closure of the bladder was not obtained. Other reasons for leaving a catheter were a high preoperative blood urea, long-standing chronic retention, and severe cystitis or diabetes.

In 36 cases (15%) the catheter had to be replaced postoperatively due to either a suprapubic leak or retention. In no case was there any difficulty in passing a catheter.

COMPLICATIONS

Postoperatively there were very few serious complications. In view of the fact that the patients were of the older age group chest infections were surprisingly rare. The most common complication was wound infection, which occurred in 7% of the cases. This was never serious and in all cases cleared within four or five days.

Although two cases of secondary haemorrhage occurred neither needed re-exploration, and no patient was returned to the theatre for evacuation of a clot. One patient developed jaundice and haemolytic anaemia. This was thoroughly investigated and was finally regarded as being due to sulphonamide therapy. Medical treatment was instituted and the patient improved dramatically within three days. He eventually left hospital with a haemoglobin level of 89%.

Mild congestive heart failure occurred in several of the elderly patients. All recovered well and in no case did this prolong the patient's stay in hospital. One patient developed a massive haematemesis, which responded to medical measures. Full investigations did not determine any causative factors. He was subsequently seen several times as an outpatient and never had any recurrence or new symptoms. All investigations remained negative.

At the routine follow-up three patients were found to have developed a stricture, but as these take some years to develop this is probably a low figure.

Discussion

Debenham and Ward² described their anaesthetic and operative procedure in which hypotension was used to reduce haemorrhage in retropubic prostatectomies. Many of their patients did not require a catheter, and this was associated with a lower incidence of postoperative urinary infection. Since then several series have been published to confirm the results, but the technique is still not widely used.

Salvaries⁵ showed that more than 80% of deaths occurring after prostatectomy followed some pronounced degree of hypotension during the operation. Sheppard,¹ however, clearly showed that controlled hypotension was a safe procedure, and of the series published the mortality of hypotensive prostatectomies compared favourably with that of prostatectomies performed with a normotensive technique.

The main advantage to the patient of this technique is the freedom from a postoperative catheter, which enables easier

nursing⁶ and is a psychological advantage. Bruce and Quirk⁷ stated that recatheterization in these patients is uncomfortable, but in 36 patients in the present series in whom this procedure was performed this was not so. Blood loss was never excessive. In fact, most of the patients who had transfusions had them for preoperative anaemia.

Stricture formation cannot be truly commented on at such an early stage in this series. Only three patients had a slight stricture when seen at follow-up for their routine passage of sounds. The indications are, however, that the number of strictures will be low. Postmeatal stricture is the commonest site for a urethral stricture and is aggravated by the presence of a urethral catheter. When no postoperative catheter is used this will be an obvious advantage in lowering the incidence, which has been quoted as 6% by Caine.⁸

The other site of stricture formation is the bladder neck. An excision of a wedge of bladder neck has been recommended to overcome this complication. We do not perform this manoeuvre, as the thickened bladder neck is sutured down to the prostatic cavity to give a smooth posterior wall. Under these circumstances we have yet to see any complication. In our view there are no contraindications to performing a non-catheter prostatectomy under hypotension. In fact this procedure is used as the method of choice in teaching registrars the technique of retropubic prostatectomy. It is the only method whereby the operator is able to see the structures in their true state instead of performing a blind operation.

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New Appliances

New Electronic Metal Locator

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Dr. J. Watson, department of electronic engineering, University of Wales, Swansea, and Mr. H. J. HAMBURY, consultant orthopaedic and traumatic surgeon, Morrison and Singleton Hospitals, Swansea, write: The search for and removal of small penetrating metallic foreign bodies is one of the most time-consuming and indeed occasionally dangerous procedures that has to be carried out in busy casualty departments or operating theatres of accident units. In a few departments large and cumbersome electronic instruments are used to help detect such foreign bodies but their use has not become more widespread because of their difficult tuning characteristics, their clumsiness, and their cost.

A new, small metal locator (Fig. 1) has been developed

which is powered by two 9-volt dry batteries. It has a pencil-sized transducer probe which can be immersed in sterilizing liquid. When the tip of the probe is within a short distance of a metal object an audible alarm operates so that the surgeon can concentrate his attention on the position of the probe rather than on a visual indicator. The instrument has been used successfully in eight cases of metallic foreign bodies embedded in soft tissue, four of which are shown in Fig. 2. It is now in use in three different hospitals.

Range and Sensitivity

The range of the instrument is the maximum distance from the metal object to the probe at which the alarm will operate.