

THE CARE OF THE PROSTATIC CAVITY*

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The object of this short paper is not to advocate any one method of prostatectomy. I do not intend to revive the controversy of abdominal, perineal or endoscopic prostatectomy, for each of these methods has its advantages and disadvantages; each has its place and its skilled proponents. Generally speaking, there is no best method of removing the prostate gland; individual skill and experience counts for a great deal and each case of obstruction has to be considered on its merits; it is far better to fit the operation to the patient than the patient to the surgeon.

This paper will describe a method that has been used in 120 consecutive cases of prostatectomy and will deal mainly with the prostatic cavity and the methods that were employed to control the bleeding initially and in the post-operative course.

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Pre-operative Care. This important subject will not be dealt with except to emphasize that the patient with chronic retention and raised non-protein nitrogen deserves very special care. I should, however, like to mention that it is my impression that the pre-operative use of adrenochem plays a very important part in control of the post-operative ooze. In the very apprehensive type of individual Largactil was given pre-operatively, on the same lines as Evipan is used by general surgeons 'to steal the thyroid'. In most cases pre-operative cystoscopy was performed.

SURGICAL TECHNIQUE

As we are dealing with the care of the prostatic cavity, we shall not elaborate on the intricacies of surgical technique. The method of enucleation and the surgical repair of the cavity are shown in Figs. 1-7.*

The bladder is exposed extraperitoneally through a transverse abdominal incision about a finger's breadth

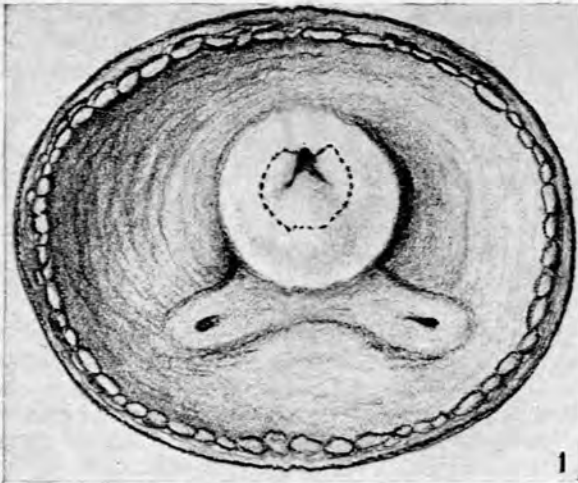


Fig. 1. Typical trilobar enlargement.

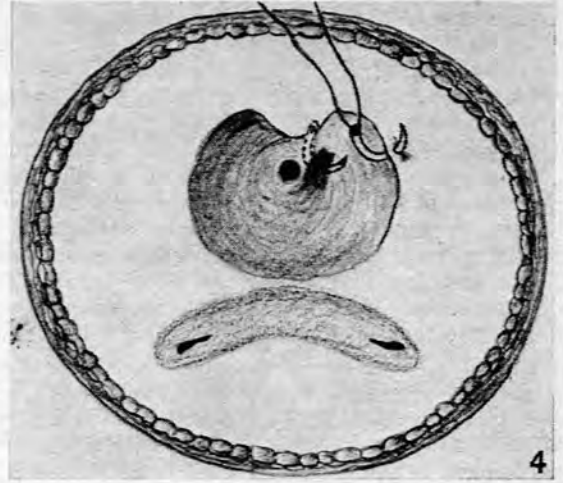


Fig. 4. Suturing of prostatic capsule to mucous membrane.

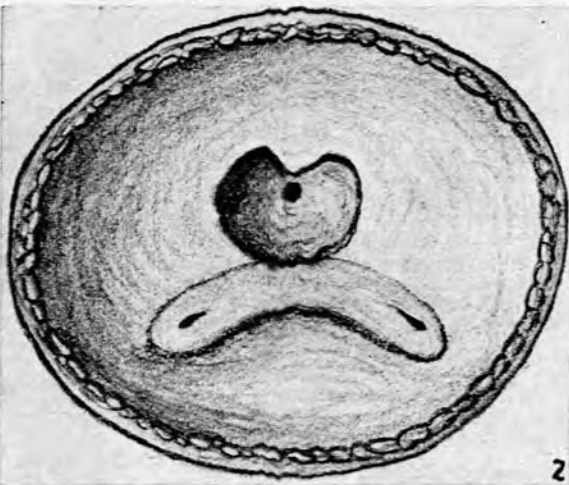


Fig. 2. Cavity after enucleation of adenoma.

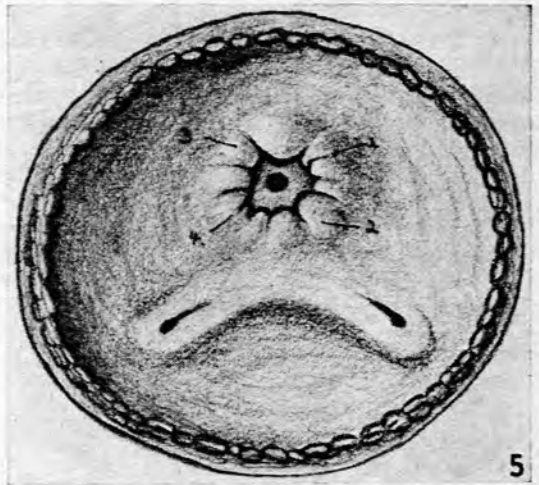


Fig. 5. Invagination of mucous membrane.

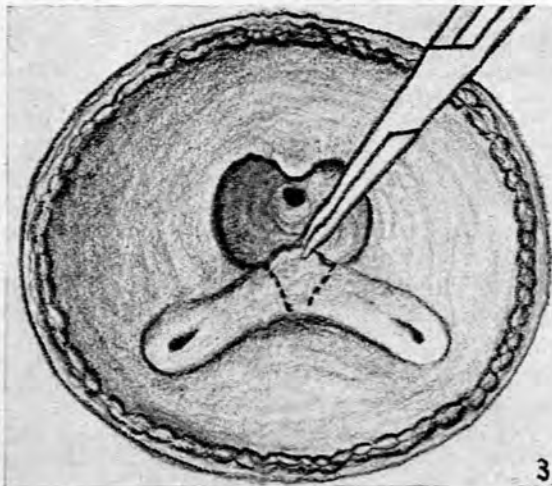


Fig. 3. Posterior wedge resection.

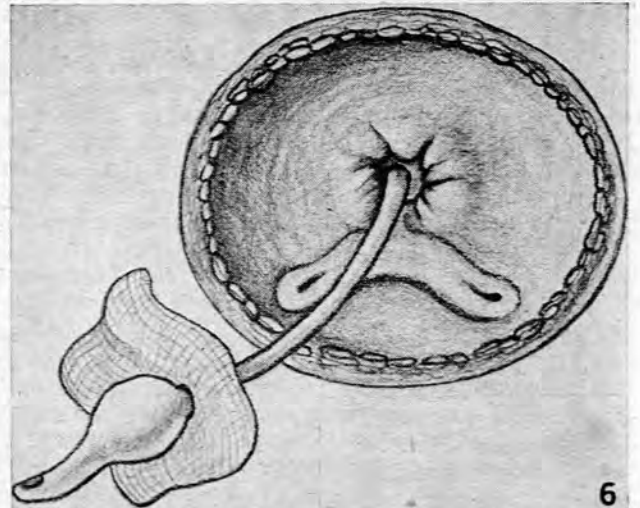


Fig. 6. Inflated Foley's catheter surrounded by Oxycel.

above the symphysis pubis. A Millin's self-retaining retractor is inserted with a posterior blade. Thus adequate visualization is obtained and stones, diverticula or papillomata can easily be seen.

Fig. 1. This is the intravesical view of a typical trilobar enlargement of the prostate. The dotted line shows an incision in the mucous membrane of the bladder overlying the intravesical prostatic protrusion. Note that the incision actually begins in the prostatic urethra at about 11 o'clock and continues circumferentially to 1 o'clock—this is our line of enucleation; the anterior commissure is left intact. A finger is now inserted, a plane of cleavage is found at 11 o'clock, and the gland is enucleated. I would emphasize that the anterior commissure is left intact, for it is very rarely the site of adenomatous involvement. Surely if this, the roof, of the prostatic cavity, is left intact, i.e. with its epithelial lining, the epithelization of the cavity as a whole will be more rapid! The cavity is carefully inspected and all tags of tissue removed by sharp dissection.

Fig. 2. This is the appearance of the prostatic cavity after enucleation of the adenoma. Note that the original incision in the mucous membrane leaves us with a clear-cut margin of mucous membrane surrounding the cavity. A Millin's spreader is inserted into the cavity and all obvious bleeding points are caught and ligated by an under-running suture.

Fig. 3. This shows the performance of a trigonectomy, whereby a liberal wedge is removed from the posterior vesical lip. The advantage of trigonectomy is that the prostatic floor and base of the bladder are brought into one plane. This is important in preventing post-operative bladder-neck contraction.

Fig. 4. This shows a plastic approach to the prostatic cavity whereby a stitch is inserted in the prostatic capsule deep within the cavity and the next bite is through the rim of vesical mucous membrane. When this stitch is tied the mucous membrane is pulled into the prostatic cavity. This stitch is continued around the prostatic cavity from 11 o'clock to 1 o'clock and the result produced shows the mucous membrane well inverted into the prostatic cavity (see *Fig. 5*). The effect of this stitch is twofold: (1) It produces good haemostasis, and (2) it invaginates the mucus membrane, which will accelerate epithelization.

Fig. 5. At this stage adrenaline in $\frac{1}{2}\%$ procaine is injected into the prostatic capsule at the 4 points shown. Roughly 5 c.c. is injected at each point. The reasons for this injection are the following: (1) The resulting increase in tissue pressure aids haemostasis; (2) the adrenaline to an extent controls the bleeding; (3) post-operative spasm is relieved; and (4) there is a systemic rise in blood pressure of roughly 15 points—thus any overlooked bleeding point should become obvious.

Fig. 6. A Foley's catheter has been inserted *via* the urethra into the bladder. The bag has been partially inflated and is surrounded by a cuff of Oxycel.

Fig. 7. This shows the inflated bag of the Foley's catheter in the prostatic cavity and between the bag and the actual cavity itself is the Oxycel. It is important to remember that the prostatic capsule contracts

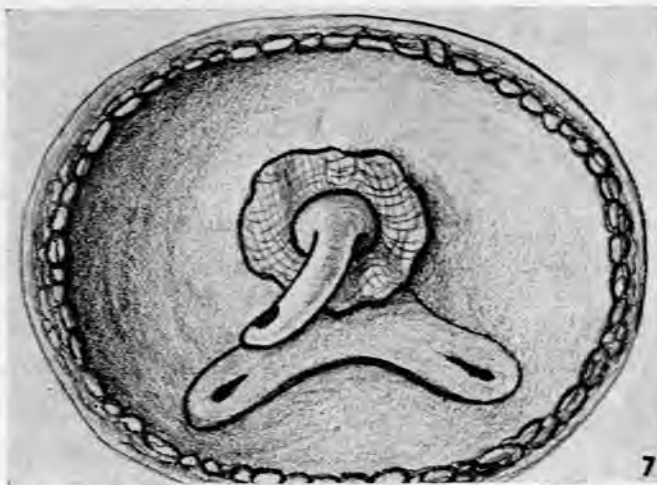


Fig. 7. Inflated Foley's catheter with Oxycel positioned in prostatic cavity.

markedly and therefore the Foley's bag should not be fully distended. Haemostasis at this stage is usually very adequate. Now through a separate stab-wound in the bladder-wall a small Malecot catheter is inserted into the bladder. The end of this is brought out through a stab-wound transversing the skin, subcutaneous tissues and rectus sheath about $\frac{1}{2}$ inch above the original incision. The bladder is now filled with thrombin and closed.

At the conclusion of the operation, besides the small retropubic drain, the suprapubic Malecot emerges through a separate stab-wound. At this stage a bilateral vasectomy is performed.

Many urologists favour the prevention of clot formation in the bladder. Many employ continuous bladder wash-outs, which I am rather against for two reasons, viz. (1) I believe that continuous lavage tends to maintain the ooze from the prostatic cavity and the bladder incision, and (2) it makes it rather difficult to know how much bleeding is taking place because the washout greatly dilutes any blood.

My own method is, after ensuring maximum haemostasis, to employ every known means of ensuring that clotting shall occur, viz. the use of (1) Oxycel, (2) adrenaline with procaine locally into prostatic capsule, (3) Adrenosem systemically, and (4) thrombin locally; and (5) to use no bladder washouts (though an occasional bladder wash-through may be used).

There is no known substance which can be injected locally into the tissues to promote clotting. Adrenaline is primarily a vaso-constrictor and when injected locally will act as such to stop bleeding. On the other hand, adrenaline has a tendency to increase capillary permeability. Adrenaline will not contract capillaries. Thus adrenaline locally will contract the arterioles but has a tendency to increase capillary oozing. Adrenosem will take care of the latter. I have tried Adrenosem locally with inconclusive results.

I feel that we have employed every known method of ensuring haemostasis and maintaining this haemostasis by promoting post-operative clotting and the methods

used are the best available in the light of our present knowledge.

RESULTS

In the 120 consecutive cases there were 5 deaths, which are analysed in Table I. All the deaths were of persons

TABLE I. ANALYSIS OF DEATHS

Case	Age	Condition on Admission	Time of Death	Cause of Death
1	82	Gross haematuria	14th Post-operative day	Coronary thrombosis
2	80	Retention	Day of operation	Anaesthetic death
3	70	Retention	5th Post-operative day	Unknown cause
4	74	Pneumonia	15th Post-operative day	Pulmonary embolus
5	72	Retention	20th Post-operative day	Carcinoma of liver

over 70 years old, and all were in cases admitted in emergency. In case 5 the patient was passing urine on the 8th post-operative day. He then developed jaundice and died 12 days later, when carcinoma of the liver was found at post-mortem examination.

The complications were as follows:

Deaths	..	..	..	..	4.2%
Haemorrhage	..	..	..	..	10.0%
Stricture	..	..	..	..	2.5%
Incontinence	..	..	..	..	nil
Stone in the bladder	..	..	..	..	1 case
Sinus	..	..	..	..	nil

There were no complications attributable to Oxycel. Of the 10% of cases with secondary haemorrhage only one was taken back to the theatre to control the bleeding. There were no cases of primary haemorrhage. The post-operative strictures were of slight degree and were adequately treated by intermittent dilatation.

Among the series were 4 patients over the age of 90 years, the oldest being 96.

SUMMARY

1. A simple method of prostatectomy has been described based on:

- (i) adequate exposure and clear visualisation,
- (ii) clean anatomical enucleation instead of an avulsion,
- (iii) haemostasis under direct vision.

Once haemostasis has been secured, the following methods are used to ensure maintenance of the haemostasis and intravesical clotting, viz.:

- (a) Use of procaine and adrenaline as an intracapsular prostatic injection.
- (b) Use of a blown-up Foley's catheter surrounded by a cuff of Oxycel.
- (c) Use of systemic Adrenosem pre-operatively and post-operatively.
- (d) Use of intravesical thrombin.
- (e) The avoidance of bladder wash-outs.

I would like to thank Miss P. Trezona for the excellent artistic illustrations; Mr. Cronin of Westdene Products for the liberal supplies of Adrenosem, and Sister van der Merwe of the Far East Rand Hospital, Springs, for her skilled care and constant attention to these prostatectomy cases.