

OPEN-PROSTATECTOMY: IS IT A SAFE PROCEDURE?

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ABSTRACT

Objective: To determine whether open prostatectomy by the retro-pubic technique is a safe and effective treatment modality for men with enlarged symptomatic prostates, and whether open prostatectomy has any place in contemporary urological practice.

Material and Methods: This prospective study audited the outcome of 54 males, who underwent retro pubic prostatectomies for bladder outflow obstructive symptoms caused by enlarged prostates. The study was conducted at the surgical department of Khyber Teaching Hospital, between January 1999 to January 2002, a total period of 3 years.

Results: 54 patients underwent retrospective prostatectomy. Average operation time was 74 minutes. 44 out of 54 patients have had blood transfusion. The mean hospital stay was five days.

Conclusion: The retro-pubic prostatectomy is indeed a very effective and a safe method of extirpating the prostate in a select group of men with enlarged symptomatic prostates.

Key words: Open prostatectomy, Benign prostatic hyperplasia.

INTRODUCTION

A benign enlargement of the prostate associated with voiding dysfunction has been recognized for centuries.¹ By the age of 60 years 50% of men have histological evidence of BPH and 15% have significant lower urinary tract symptoms.² It must be kept in mind that BPH is not necessarily a progressive process, and not all patients

require immediate surgery. Current evidence suggests that BPH and prostate cancer are independent entities. In recent years a number of new treatment options for BPH have been developed, investigated and used. These include not only medications, such as terazocin, doxazocin, and finasteride, but also minimally invasive procedures, such as visual laser ablation of the prostate (VLAP), electro vaporization of the prostate (EVP), and transurethral incision of the

prostate.^{3,4,5,6,7,8} Most often, these approaches are reserved for men with small to medium-sized prostate glands. The most effective method of relieving obstruction due to BPH is surgical extirpation.⁹ Today TURP has largely replaced other methods in the developed countries, 90-95% men are treated this way while the remaining 5-10% undergo open prostatectomy.¹⁰ A more proper term is "adenectomy", as in none of the operations is the entire prostate removed. Walsh et al have defined mandatory and optional indications for prostatectomy.¹¹

Mandatory indications include total outflow obstruction and chronic outflow obstruction impairing renal function or producing symptoms distressing to the patient. Chronic UTI, bladder stones, diverticulae, haematuria, and chronic urinary retention producing severe symptoms such as overflow urinary incontinence, urgency, intense frequency, or severe nocturia, interfering with the patient's quality of life. Optional indications are relative to the circumstances of the individual patient. If patients require psychotropic, anticholinergic, and or a-adrenergic drugs to control medical disorders and already have significant voiding symptoms, prostatectomy may be indicated. In addition in 1989 the American Urological Association proposed the AUA 7-Symptom Index, a scoring system, aiding the clinician in deciding management options.¹² But the question is, is open prostatectomy a safe treatment modality, and a viable option.

MATERIAL AND METHODS

This prospective study inducted 54 men with bladder outflow obstructive symptoms secondary to enlarged prostates, that underwent open prostatectomy by the retro pubic technique. The study was conducted over a period of 3 years, from January 1999 to January 2002, in the surgical department

of Khyber Teaching Hospital. All men were found to have AUA scores of greater than 20, which put them in the severe symptom category. Exclusion criteria included men with:

1. Prostate sizes less than 50 gm (assessed on DRE and ultrasound scanning, 1 gm = 1 cm³)
2. Those with raised serum PSA, and those with clinical evidence of carcinoma prostate.
3. Those having had previous prostatectomy, or previous pelvic surgery.
4. Very obese men.

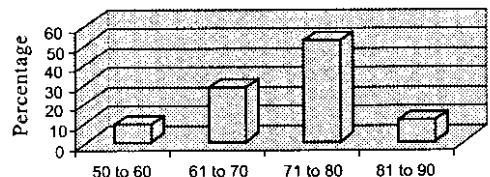
The mean age at presentation was 77 years (range, 53 to 89). Table-I, Fig-I.

AGE RANGE OF PATIENTS

S. No	Age	Number	Percentage
1.	50 to 60	5	9
2.	61 to 70	15	28
3.	71 to 80	28	52
4.	81 to 90	6	11

TABLE-I

AGE DISTRIBUTION OF PATIENTS UNDERGOING RETROPUBIC PROSTATECTOMY



Age

Fig. 1

All patients had battery of routine investigations including serum urea and creatinine, and serum PSA measurements. Ultrasound of the upper and lower urinary tract was performed in all cases including

measurement of post-void residual urine. None of the patients had transrectal ultrasounds (TRUS), or uro-flowmetries.

All patients were given cefuroxime 750 mg I/V on induction, followed by 8 hourly doses for the next 48 hours. Patients with indwelling urinary catheters were given in addition to the above, gentamicin 1-mg/kg-body wt., as a single dose. The usefulness of systemic antibiotics prior to initiation of surgery has been validated by numerous trials.^{13,14} Spinal anaesthesia was given to 29 (54%) patients. The remaining 25 (46%) had general anaesthesia. Aspirin and NSAIDS if used by the patients were discontinued 5 days prior to surgery. No routine DVT prophylaxis was administered,

The surgical technique employed in performing the retro pubic prostatectomy, was the one described in standard textbooks of operative urology. Only 6 (11%) cystoscopic examinations were performed prior to open surgery to further assess the size of the prostate and to exclude suspected urethral strictures. It is now recommended that routine cystoscopic examination is unnecessary in men with obstructive voiding symptoms.¹⁶ At surgery bilateral vasectomies, were performed in all cases, after identifying the vas deferens between the bladder and the external iliac vessels, to obviate the complication of future epididymitis following the operation. Prior to proceeding with enucleation of the prostatic adenoma, it is important to achieve complete control of the dorsal vein complex as well as the lateral pedicles at the bladder neck, (the main arterial supply to the prostate gland) as recommended by some experts.¹⁷

At the conclusion of the operation an intravesicle drain was omitted, instead a silicon coated 22 or 24 French 3-way urethral catheter was employed both of drainage and irrigation. All patients were given I/V fluids over night, started on a light diet the first postoperative day and steadily progressed

to a normal diet. Extravesicle drain was removed on the 2nd postoperative day, and indwelling catheters on the 7th day. The plan was to discharge patients usually on the 4th to 5th postoperative day with their catheters. Three patients with unilateral concurrent inguinal hernia had properitoneal repairs as described by Schlegel and Walsh.¹⁹

RESULTS

Of the 54 patients who underwent the retro pubic prostatectomies, 44 (81%) patients had blood transfusion, only one requiring more than one unit. The operation time averaged 75 minutes (range, 60 to 90). Histopathology confirmed BPH in 53 cases, only one case of incidental adenocarcinoma of the prostate was reported. The following major complications were recorded:

1. Deep wound infection : 4 (7.4%)
2. Clot retention : 3 (5.5%)
3. Mild CVA : 1 (1.8%)

The mean postoperative hospital stay was 5 days (range 4 to 10). One 86 years old man, with a previous history of MI, had a cardiac arrest on the table, but was successfully revived. Postoperatively he developed a mild right-sided stroke, but recovered steadily and by the sixth day was walking. At 6 weeks follow-up 2 (3.7%) had some degree of incontinence, which settled completely with 3 weeks of recatheterization, another 6 had a UTI requiring 10 days of antibiotics, no cases of epididymo-orchitis were seen. At three months follow-up, 2 (3.7%) had voiding problems that warranted cystoscopy, both had bladder neck stenosis that responded to bladder neck incision with a Colling knife. Most patients attended follow-up at 6 months and were by and large content with the outcome of their surgery, in terms much improved voiding and control. 4(7.4%). No operative or postoperative mortality was recorded.

Of the 54 men in the study the following presentation was noted: 50 (93%) had significant residual urine, 21 (39%) presented with prostatism in acute retention, 7 (13%) had evidence of back pressure effects on the upper tracts on ultrasound scanning, 5 (9%) had some degree of renal dysfunction, 3 (5%) had associated bladder calculi (ranging in size from 1.5 cm to 5 cm), and 3 (5%) had concurrent inguinal hernia. One (1.8%) patient had significant haematuria meriting preoperative blood transfusion.

DISCUSSION

In 1968 Lytton and co-workers estimated that the chance of a 40 year old man having a prostatectomy in his life time was approximately 10%.²⁰ Glynn and co-workers in 1985 raised the estimate to 29%.²¹ BPH and prostate cancer are not sequential manifestations of the same pathologic process, but rather, are entirely different entities, each having its own specific mechanism of transformation.²¹ Armenian et al in 1974 presented data to suggest that BPH plays an important role in the pathogenesis of many prostate cancers.²² These studies have been refuted by the findings of Greenwald and associates.²³

As stated earlier the most effective method of relieving obstruction due to BPH is surgical extirpation.⁹ The surgical removal of the prostate can be accomplished by several techniques. One of the earliest, the "Tran sacral" approach to prostate, initially used by some surgeons was always considered an unorthodox procedure. "Trans-perineal" prostatectomy, popularized by Young and Belt has now been largely abandoned.²⁴ The "suprapubic" or "trans-vesicle" prostatectomy was first carried out by Eugene Fuller in 1894, and later popularized by Peter Freyer (1901).²⁵ This type of prostatectomy is the most popular among general surgeons, with urological interest

through out Pakistan. This technique was later modified by Harris (1934), Wilson Hay (1944), and Hryntschak (1970).²⁶ The "retro pubic" prostatectomy is the enucleation of the hyperplastic prostatic adenoma through a direct incision of the anterior prostatic capsule. This technique was made popular by Terence Millin in 1945, it is also known as the "Millin" prostatectomy.²⁷ Advantages are: 1. Excellent anatomic exposure of the prostate, 2. Direct visualization of the prostatic adenoma during enucleation to ensure complete removal, 3. Precise transection of the urethra distally to preserve urinary continence, 4. Clear and immediate visualization of the prostatic fossa after enucleation to control all bleeding sites, and 5. Minimal to no trauma to the bladder. Other advantages are that concomitant bladder conditions such as large bladder calculi and diverticulatae can simultaneously be treated. In addition coexisting uni or bilateral inguinal hernia can also be repaired via the same incision. Severe ankylosis of the hip joints is another consideration for open procedures. It is most suited for prostates greater than 50 gm. Contraindications are small prostates, previous prostatectomy, previous pelvic surgery preventing access to the prostate gland, and any type of prostate cancer. Other disadvantages are the need for an incision, longer hospitalization, and extended convalescence period. The mortality rate of open prostatectomy has averaged 2.1%.^{28,29,30} Some of these figures are old and recorded from a time when both surgery and anaesthesia were less safe.

In the seventies and early eighties the surgical fraternity was persuaded to accept TURP as the operation of choice for patients needing prostatectomy after convincing evidence was presented showing advantages of TURP over open prostatectomy.^{31,32,33,34} TURP is today considered the "gold standard" for the surgical management of BPH, and has slowly but decisively displaced the open prostatectomy.³⁴ In the

interim urology has become a separate specialty from general surgery. It could be said that its defining operation is TURP, and that skill in the use of the resectoscope is the "sine qua non" of urological practice.³⁵ The patient is saved the dangers and discomfort of an abdominal incision and a shorter hospital stay. Mortality rates of 0.2 to 1.3 have been reported.^{31,32,33,34,35,36}

The picture of TURP is not all that rosy. A recent national confidential enquiry into perioperative deaths in the U.K. following TURP has commented adversely on increased death rates from pulmonary embolism and fluid overload particularly in elderly men admitted as an emergency in retention.³⁷ A retrospective study of 54,000 prostatectomies found a significantly increased rate of death 90 days, 1, 5, and 8 years after TURP compared with open prostatectomies.^{38,39} The same study is all the more disquieting because it followed reports from the same group that after 8 years the chance of a second TURP was triple that of open operation and that persistent urological problems were common place.⁴⁰ At first sight these reports appear to be sending a clear message perform more open prostatectomies.⁴¹ Decrease in cardiac output of about 17% and blood volume of about 12% have been reported during TURP.⁴² The CVS and kidneys of elderly patients do not tolerate the often combined physiological insults of hypovolaemia, hypoxia, sepsis, hypothermia, hypotension, glycine absorption, hyperammonia, and hyponatraemia could cause subtle metabolic disturbances leading to permanent cardiac damage.⁴¹

The most serious criticism of TURP (based on hard evidence) comes from the finding that after 8 years, 1 in 10 to 1 in 5 men after TURP undergoes repeat prostatectomy, a 3 to 5 times excess risk compared with that after open operation.^{38,39,42,43} Each subsequent procedure is likely to increase

the death rate, particularly as the patients will be older. Urethral strictures are more common after TURP than after retropubic prostatectomy; with an incidence of 3 to 16%.^{38,39,44} The reported incidence of epididymitis, impotence and bladder neck stenosis is slightly higher after TURP, than retropubic prostatectomy. There is no evidence of major differences in the symptomatic or urodynamic outcomes between TURP and open prostatectomy. Although peak urinary flow rates after open prostatectomy are slightly greater than after TURP, suggesting that an open operation is more frequently complete.⁴⁵ During resection, a patient absorbs (on an average) about 900 ml of irrigating fluid through the prostatic fossa and open veins.⁴¹ The full blown "TURP-Syndrome" of hyponatraemia, bradycardia, hypotension, and confusion is much more common after TURP than open prostatectomy. In one study a rate of 28% was found in elderly men undergoing TURP for a large gland.⁴⁶ In another study, general complication rates after TURP for large glands in elderly men, was reported to be as high as 70%.⁴⁷ In the same study for resected prostate weight of 80 gm or more the mortality post-TURP was 6%.⁴⁶ For 25 gm of tissue resected the average operating time is one hour.⁴⁸ It is now known that increased resection time increases postoperative mortality.

Only 20% of men with bladder outflow obstruction have prostates greater than 60 gm and fewer than 4% have glands greater than 100 gm.^{49,50} Thus few urologists will argue that 25% of men with symptomatic prostatomegaly are ideally suited for open prostatectomy. Observers in the west now disagree with the statement by Marsh and Whitaker that "virtually nobody is too frail to withstand TURP."⁵ It may hold true for a patient with a small prostate but in the very old, unfit, and those with large prostate glands, TURP is dangerous.⁴⁷

Studies have shown that the intraoperative blood loss is less and the frequency of postoperative deep vein thrombosis and pulmonary embolus is reduced if spinal anaesthesia is used.¹⁵

Blood loss has traditionally been a major concern in open prostatectomy. Reports from the West suggest that less than 15% patients undergoing open prostatectomy need a blood transfusion.¹⁸

CONCLUSION

The effectiveness of TURP in the management of the vast majority of men requiring prostatectomy is beyond dispute, but open prostatectomy in light of the above discussion, is the preferred treatment option in a certain subset of men. It is thus concluded from the clear results of this study, that the retro pubic prostatectomy is a definitive, the preferred, and a viable treatment modality in the management of men with bladder outflow obstructive symptoms secondary to enlarged prostates that are in excess of 50 gm.

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