

Millin's Open Prostatectomy –A Forgotten Legacy!!Is It Still A Valid Option In Today's Era Of Endourology?A Study Of 45 Patients At A District Hospital In Lucknow.

ArunChandra¹, Vishal Bulla², Srivastava S.K³, Singh H.P,⁴ Gupta Sanjay⁵

¹M.B.B.S,M.S. Sr.consultant

²M.B.B.S,JR-2DNB SURGERY

³M.B.B.S,M.S. Sr.Consultant

⁴M.B.B.S,M.S Sr.consultant

⁵M.B.B.S,M.S Sr.consultant

Department of General surgery,DR.RML COMBINED HOSPITAL,LUCKNOW.

Abstract

Objectives: To determine whether MILLIN's Open prostatectomy is still a valid option for management of symptomatic BPH in today's era of endourology.

MaterialsAndMethods: FORTY FIVE(45) patients who presented with distressing LUTS ,refractory to medical therapy, were included in a prospective, non-randomised study (during 10 months period, APRIL 2015 to JANUARY 2016).All patients planned for surgery were those admitted in Male surgical ward in Dr.RML COMBINED HOSPITAL,LUCKNOW . After taking informed consent for open procedure, clinical examination and investigations were done, the diagnosis was based on clinical history.By Digital rectal examination, and ultrasonography, prostate size, post-voidal residual urine was assessed.Bladder pathology was ruled out in all cases. All patients with good performance status (>90%) were included in the study. Those with prostate size <40gms, with raised PSA levels, clinical evidence of Carcinoma prostate, those who underwent prostate or pelvic surgery beforehand morbid obese patients were excluded from the study.

Results: The mean Operating time was 40.2(38.1-42.3) minutes and mean prostate removed weighs 82.2gms(62.2-102.2gms).2 patients(4.4%) developed wound infection and were cured with antibiotics after culture and sensitivity testing,urinary fistulae occurred in 2 patients(4.4%),relieved with extended catheterisation for 8 days. 5 patients(11.1%) developed transient incontinence and managed by reassurance and kiegel's excercises.No per or post-operative mortality occurred.

Conclusion: Higher peak flow rate improvement, better quality of life, less frequent dysuria, less need for re-operation and its short learning curve,not requiring any ultra-modern infrastructure makes MILLIN's prostatectomy , an unbiased option to be discussed to patients on equal footing to any endoprocedure.

Keywords: MILLIN's Open prostatectomy, Benign Prostate Hyperplasia

I. Introduction

The prostate has been described as the organ of the body most likely to be involved with disease of some sort in men older than 60 years. This statement characterizes any histological evidence of BPH as a disease, which is certainly debatable, but there is no argument that BPH is an extremely common clinical entity. As the hyperplastic process increases the volume of the prostate, the urethral lumen is compressed, causing outlet obstruction. An enlarged median lobe may cause relatively more severe symptoms than lateral lobe hyperplasia of similar magnitude because it can act as a valve at which increased bladder pressure may actually cause further obstruction. Intravesical extension of the lateral lobes may act in a similar fashion.It has been known for many years, however, that prostate size alone is not a reliable or accurate predictor of the presence or degree of urinary outlet obstruction. The failure of several purely obstructive therapies, such as prostatic balloon dilatation, and the obvious success of alpha-adrenergic blockers eventually led to the description of BPH as having both a dynamic (neurogenic) and a mechanical (obstructive) component.

Benign prostatic hyperplasia (BPH) is a histological diagnosis that refers to the proliferation of smooth muscle and epithelial cells within the prostatic transition zone (Lee et al. 1997, 1995)^{1,2}. The enlarged gland is thought to lead to disease manifestations via two routes: (1) the static component: direct bladder outlet obstruction (BOO) from enlarged tissue; and (2) the dynamic component: from increased smooth muscle tone and resistance within the enlarged gland. Therapy for BPH typically targets one or both of the disease components (static or dynamic) to provide relief. Surgical intervention is an appropriate treatment alternative for patients with moderate-to-severe lower urinary tract symptoms (LUTS) and for patients who have developed acute urinary retention (AUR) or other BPH-related complications. In addition, medical therapy may not be

viewed as a requirement because some patients may wish to pursue the most effective therapy as a primary treatment if their symptoms are particularly bothersome.

Before medical treatment of BPH became first line treatment, surgery of BPH in western world, particularly in US, was mainly about resection of small prostate glands (average weight of resected tissue: 21.1 gr) as patients were operated in the early stage of the disease (McConnell et al, 1994)³

A large amount of procedures were performed each year but the number gradually lowered when alpha adrenoceptor antagonists and 5-alpha reductase inhibitors were introduced (Souverein et al, 2003)⁴. Surgery was gradually applied at an increasing later stage of the disease. Although the average prostate volume of surgical series performed in western countries may be small, the situation in other countries may differ significantly. In the far east, for example, the majority of patients may be referred late in the course of the disease when acute and chronic retention develop (Wong et al, 1994).⁵

Today patients diagnosed as BENIGN PROSTATIC HYPERPLASIA have more surgical treatment options than in the past including open, laparoscopic and Endoscopic procedures. Advantages and disadvantages exist for each modality and lead to subtle differences in the technical execution of the procedure. Evidence from centers of excellence and from experienced surgeons demonstrates that both laparoscopic and Endoscopic procedures appear to be comparable to outcomes achieved with open retropubic prostatectomy series. Individual surgeon skill, experience and clinical judgment are likely the stronger predictors of outcome rather than the technique chosen. However, learning curves, outcomes and cost-efficacy remain important considerations in the dissemination of minimally-invasive prostate surgery.

II. Discussion:

The most effective method of relieving symptoms of severe LUTS due to enlarged prostate is through surgical extirpation.⁶This can be achieved by many conventional surgical techniques like, open simple prostatectomy, Transurethral resection of the prostate (TURP), transurethral incision of the prostate (TUIP). Recently, Transurethral needle ablation, thermotherapy, and laser vaporization or enucleation have also been used to treat BPH. One of the earliest and simplest open technique, is the technique of retropubic prostatectomy as devised by Terrence Millin, a member of Royal College and an insatiable vindicator of the transurethral diathermy loop developed by McCarthy in New

York. In 1946, he published a milestone paper in "The Lancet", entitled "Retropubic Prostatectomy: A New Extravesical Technique"⁷... This new procedure was embraced by a large number of surgeons. However, Surgeons' preference mostly depends on training, when one of the two techniques is mastered, it is difficult to adopt the other approach. The discussion on the pros and cons of either technique has now been ongoing for decades, retropubic prostatectomy is considered to have a lower rate of complications compared to the transvesical approach (23.8 versus 42.2%, respectively)⁸. Millin's operation contributed greatly to reducing mortality of open prostatectomy. It was rapidly exported in USA where it was first presented at the AUA meeting in Buffalo in 1947 and two years later it was first performed live in the USA by Millin (Andrea and Cosimo, 2006).⁹

This operation can be performed with standard instruments available at the level of District Hospital. Under suitable spinal or epidural anesthesia, in supine position, preliminarily any bladder pathology is ruled out. The most common approach is to make an incision in the skin between the umbilicus and the top of the pubic bone. The retropubic fat is gently separated to expose bladder and prostate, anterior surface of prostatic capsule is identified and any haemorrhage is controlled with diathermy. Two stay sutures are placed through the capsule in such a way to occlude the veins running longitudinally. Then, an incision is made in between stay sutures. Incision is deepened till white appearance of prostate is identified, blunt dissection, is done, the right and left lobes, of which right being first and dissected with scissors, each lobe is securely gripped with volsellum forceps and dislocated out of prostatic cavity, haemostasis is secured by packing with gauze swabs by direct pressure for 5-10min, after removal of swabs, a 20F Three-way Foley's catheter is passed into bladder, the capsule is closed with continuous 0 vicryl suture which arrests any bleeding and also ensures watertight closure, at last two initial stay sutures are tied, bladder is then washed out to ensure that there is free catheter drainage. The incision wound is closed in layers with a retropubic drain in-situ. The patient is encouraged to drink at an early stage and intravenous fluids are unnecessary after first 24 hours. Early ambulation is encouraged, and the retropubic drains are removed after 1-2 days after surgery. The urethral catheter is removed when there is no risk of clot retention, usually between 3rd and 5th day.

The advantages are as follows:

- 1-Exposure of prostate is excellent
- 2-Prostate adenoma is directly visualised, hence makes enucleation easy
- 3-Direct visualisation ensures complete removal of adenoma
- 4-urinary continence is preserved as transection is done beyond urethra
- 5-bleeding from prostatic fossa can be controlled immediately, another advantage of direct vision

6-minimal trauma to bladder.

In the seventies and early eighties the surgical fraternity were prompted to pick TURP as the first choice for those in need of prostatectomy .after convincing evidence was presented showing advantages of TURP over Open prostatectomy^{10,11,12,13}. TURP, which is the “sine qua non” of urology still today, is considered the “gold standard” for management of BPH smoothly overtook the open prostatectomy¹⁰,as it definitely saves the patient from a displeasured abdominal incision and allows for early return to work.Mortality of 0.2-1.3 is reported^{10,11,12,13,14,15}

However,not everything in the garden of TURP is rosy,as deaths due to adverse consequences like pulmonary embolism and fluid overload are not so uncommon.urethral strictures,increased incidence of impotence,bladder neck stenosis are slightly higher for TURP.During resection ,a patient absorbs an average of 900ml of glycine through open veins in prostatic fossa¹⁶,which lands up the patient into full blown ‘‘TURP-SYNDROME’’which is characterised by hyponatremia, hypotension, confusion, bradycardia. Incidence increases with increasing size of the glands. In one study the complication rates after TURP were as high as 70%¹⁷and mortality post TURP was 6%¹⁸.In one study a rate of 28% is reported for elderly with large glands¹⁸ For an average 25gm of prostate,it takes 60minutes¹⁹for complete resection,and it is an established fact that,mortality rates and increased procedure time go hand in hand.There is no evidence of major differences in the symptomatic and urodynamic outcomes between TURP and retropubic prostatectomy.

Prostate laser vaporization has been developed in the last 15 years as an alternative to TURP. Laser resections can be performed using different kinds of energy:

Coagulative laser: neodymium: yttrium–aluminium–garnet (Nd:YAG), diode laser;

Cutting laser: holmium:YAG (Ho:YAG) and thulium:YAG (Tm:YAG);

Vaporizing laser: Nd:YAG, Ho:YAG, diode, KTP (potassium–titanyl–phosphate) and lithium triborate (LBO).

Costello and colleagues tested the Nd:YAG laser (Costello et al. 1992),²⁰demonstrating that this energy source is characterized by a major incidence of postoperative dysuria and longer catheterization [Hoffman et al. 2003].²¹Holmium enucleation suffers a long learning curve and significant capital investment which may limits its availability outside large institutions .Photo-selective vaporisation is still a nascent technique with a very short logbook.

These energy sources have been tested and compared with TURP and their outcomes proved not to be lasting and effective enough compared with the gold standard.

Open prostatectomy induces a significant reduction of symptom score and improvement of quality of life index after 1 year of treatment.In a study by Varkarakis and co-workers, Of the 151 patients, 84% described themselves as delighted with the results obtained and none had a quality of life score greater than 3 with a mean value of 0.2. In their series 60% of patients become asymptomatic after treatment and 96.9% had a flow rate greater than 15 ml/sec. A significant improvement of voidingvolume, post void residual volume and bladder wall thickness was also observed.

The WHO ,in its ranking of health-care systems of the world,placed India at a dismal 112th position out of 190 countries it studied.This is corroborated by the fact that India , which is Asia's 3rd largest economy spends only 1% of GDP on public health ,compared to china's 3 %,Brazil's 4 .1%,and 8.3% of the US²².While India has a fastest growing population,and an ambitious growth aspiration,it has always had a disproportionately small health budget.In this scenario,it is beyond dispute that, government cannot revamp all hospitals with modern infrastructure ,and handle their maintenance and operating costs and incorporate expert medical man-power.Hence,there's no way that open prostatectomieswill lose the game in the days to come,whose results are very much on-par with any endourological procedure.

III. Materials And Methods:

This prospective study (APRIL 2015, to JANUARY, 2016) was carried out in theDepartment of Surgery, Dr.Ram Manohar Lohia Combined Hospital,Lucknow.By including 45admitted patients with symptomatic benign prostatic hyperplasia. After taking informed consent for open procedure from all the patients,(Ethical committee clearance taken) they were examined and investigated. PSA measurement was done in all patients.

The diagnosis was made on the basis of history, and ultrasonography to assess the size of the prostate and Post-void residual urine. Bladder pathology was ruled out in all cases. All patients who were included in this study had prostate size more than 45 grams (assessed by ultrasonography) and presented with severe LUTS,Patients with past history of prostatic surgery (TURP or open prostatectomy), patients with smaller prostate size (ideal for TURP), uraemia or with associated bladder pathology andpatients not willing for open prostatectomy were excluded from the study. Patients who gave history of trauma to lower renal tract specially urethra and urinary bladder, history of surgery on lower renal tract, and those patients in whom U/S did not reveal prostatic hypertrophy though they presented with symptom of bladder outlet obstruction were excluded from the study.Hemoglobin (Hb) level, blood ureaand serum creatinine level were also done in all cases. Urine

routine examination as well as x-ray chest and KUB were done. Other relevant investigations were carried out to assess suitability for General anaesthesia. All the patients were operated in the general surgical operation theatre on elective basis. All the operated patients were on regular basis. Inj. TAXIM 1gm/iv/8th hourly and Inj. Gentamycin 1mg/kg bodyweight were given in post-operative period till in-dwelling catheter was removed. 1 patient was on Tab. ECOSPRIN 75 mg, and it was stopped 1 day prior to operation. No routine DVT prophylaxis was administered. All patients were given I.V fluids overnight, started on soft diet a day after and gradually to a normal diet. All patients were observed in the ward for any post operative complication. Extra vesical drain was removed on 2nd post operative day and urethral catheter on 5th post operative day. After removing the catheter, all the patients were retained in the ward for 24 hours, to see whether they can easily pass urine or otherwise. This was recorded by interviewing the patients about incontinence and stream. Follow up visits are at 1 month and 3 months.

IV. Results:

Of the 45 patients, the mean age at surgery was 68.2 years. The indications for surgery were, 1) frequent UTI in 12 patients (26.6%), 2- urinary retention with failed trial of voiding (n=5) in 13 patients (28.8%) .3- Severe LUTS refractory to medical therapy 20 patients (44.4%). The mean operation time was 40.2 minutes (38.1-42.3 minutes). The duration of continuous bladder irrigation and in-dwelling urinary catheterisation was 3.2 days and 5.5 days respectively. Wound infection occurred in 2 patients (4.4%), thanks to improved antibiotic efficacy and urinary fistulae developed in 2 patients (4.4%) and resolved with extended catheterisation for 8 days (7-9 days). Mean hospital stay was 6.2±0.5 days. Peak flow improvement rate at the time of discharge, 1 month and 3 months were 14.8ml/sec, 15.4ml/sec, 15.8ml/sec respectively. Significant improvement in post-voidal residual urine mean 52.6ml was observed. Dysuria occurred in 2 patients, None of the patients required re-operation. No mortality was recorded. 38 patients (84.4%) turned up for 8 months follow-up and expressed extreme level of satisfaction in view of their improved quality of life.

V. Conclusion

The effectiveness of TURP in the management of BPH is beyond dispute, but in the view of above discussion, and acceptable results, Millin's open prostatectomy can still be considered an amicable option in this era of Endourology for the management of high volume prostates (>75gms), especially in Indian sub-continent for district hospitals and to certain subset of population for whom still modern technology is not their cup of tea..

Table :1 AGE DISTRIBUTION OF PATIENTS
Age distribution of patients

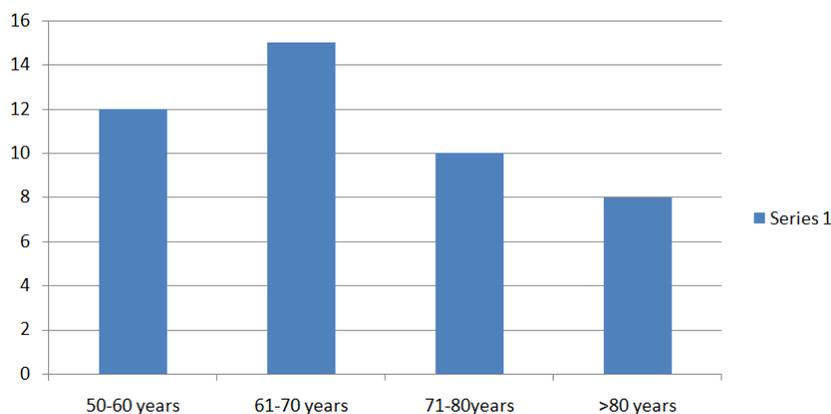


Table:2 Pre-operative patient data

Age (years)	62.8±6.0
USG prostate volume(cm ³)	62.8±42.6
Uroflow	
<10ml/sec	26(57.7%)
10-15ml/sec	19(42.2%)
IPSS scale	
Mild	09(20.0%)
Moderate	24(53.3%)
Severe	12(26.6%)
Post-void residual urine	
<50ml	05(11.1%)
50-100ml	11(24.4%)
>100ml	29(64.4%)

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