OPEN PROSTATECTOMY IS STILL A VALID OPTION FOR TREATMENT OF BENIGN PROSTATIC HYPERPLASIA IN RURAL INDIA- A SINGLE CENTRE EXPERIENCE

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ABSTRACT: AIM: Suprapubic prostatectomy is frequently performed in areas with poor socio-economic condition due to nonavailability of endoscopic equipment and surgical experts. The aim of this retrospective study is to analyse and bring our experience about the open prostatectomy operation. **METHODS**: A retrospective study was done on150 consecutive patients with BPH underwent open prostatectomy operation between February 2010 and May 2013. Analyzed factors were age, complaints, comorbidities (especially cardiac and respiratory), early and late complications and mortality. **RESULTS:** The total complication rate was 37.30% while early complication rate was 24.64 % late complication rate was 12.66 %. There were no deaths. Early complications were clot retention (1.33%) severe intraoperative bleeding (3.33%), wound infection (10.66%) vesico-cutaneous leak (1.33%) and reoperation for clot retention (1.33%) late complications were urinary tract infection (5.33%) epididymo-orchitis (2.00%) prolonged incontinence (2.00%) and bladder neck or urethral stricture (3.33%). **CONCLUSION:** Our study demonstrated that open prostatectomy for benign prostatic hyperplasia (BPH) is an acceptable option with a high degree of safety and efficacy in areas where the TUR-P equipment is lacking or this operation is technically impossible.

KEY WORDS: Benign prostatic hyperplasia, Open prostatectomy, Rural area, Complication.

INTRODUCTION: Benign prostatic hyperplasia (BPH) is the most common benign tumor in men and its incidence is age-related (1). The estimated prevalence is 25% in men aged 40 to 79 years. (2)

The treatment of urinary bladder outlet obstruction secondary to BPH is pharmacologic (Medical) and surgical. Prostatectomy for patients with BPH is one of the most frequent operations performed in the world (3) Until 20-25 years ago, while open surgery was the most common approach, in the late 1970s, the development of endoscopes gradually reduced open surgical

operations (3) However, current indications mainly consist of large adenoma, especially in which there is a coexistent pathology that can be easily managed trans-vesically, such as large bladder diverticulum or bladder stones (4) The ratio of open surgery to endoscopic resection has larger variations among different countries. Endoscopic resection needs endoscopic equipment and expertise. Suprapubic prostatectomy may be safely performed in areas with poor socioeconomic condition by adequately trained surgeons who have no sufficient endoscopic equipment In rural areas of many countries and in some rural areas of our country, patients do not usually admit for treatment until they have acute urinary retention, even though they have had diminishing caliber and strength of the urinary stream for months.

The aim of this retrospective study is to analyze and bring our experience about the series of 150 patients underwent open prostatectomy operation, the open method which is preferred by both doctors and patients due to various reasons especially in rural areas and most of the public hospitals in our country, in terms of bladder catheter staying time and postoperative bleeding control.

MATERIALS AND METHODS: We report a retrospective study of 150 consecutive patients who presented with lower urinary tract obstructive symptoms and an enlarged prostate gland on digital rectal examination and suprapubic ultrasonography. Indication for Prostatectomy included all patients who had lower urinary tract obstructive symptoms. Subsequent suprapubic USG was used to measure the post-voiding residual urine volume. Patients with smaller prostate volumes were also included in the study because of associated conditions, such as inguinal hernia, large bladder diverticula or bladder stones.

Analyzed factors were; age, complaints, co-morbidities, (especially cardiac and respiratory) early and late complications and mortality. Patients with co-morbidities were treated prior to operation.

SURGICAL TECHNIQUE: Open prostatectomy was performed under general or regional anesthesia after obtaining informed consent. Suprapubic Pfannenstiel incision was made in all patients. A longitudinal incision was used to enter the bladder, and bladder cavity was controlled before the enucleation. The urethral orifices were identified and protected from injury during the procedure, followed by digital enucleation of the adenoma. After removal of the adenoma, additional wedge resection to bladder neck was performed to facilitate urethral catheterization and the places of visible bleeding at the incised edge of the bladder neck were controlled with electrocautery or a continuous haemostatic suture was placed between 3 and 9 o' clock (vicryl 2/0) and the prostatic fosse was packed with ribbon gauze. The bladder was closed in two layers with running absorbable sutures (Vicryl 2/0) over a cystostomy mallecote catheter. Extravesical drain was used. Abdominal wall and skin was closed. The patients were closely monitored. The ribbon gauze pack, suprapubic cystostomy catheter and extravesical drain were removed between second to fifth post operative day. Per urethral Foley catheter was introduced, which was removed between eighth to tenth post operative day. Histopathological evaluations of prostate specimens were done in all patients routinely. Patients were controlled at the seventh post-operative day for wound examination. For antibiotic therapy cefotaxime one gram and gentamicin five hundred milligram were administered intravenously 12 hourly for five days post operative followed by tablet cefuroxime five hundred milligram twice a day for next ten days.

RESULTS: The mean age of 150 patients was 65 (range 50 to 80 years). Many patients were elderly men who presented to an emergency clinic with acute urinary retention and underwent emergent bladder decompression, usually with a urethral catheter (40 patients). Suprapubic cystostomy was rarely needed. Others were patients with urinary obstruction symptoms manifested by frequency, urge incontinence, nocturia greater than 3 times, hesitancy and depressed projection and calibration of urine.

Ten patients had undergone transurethral resection of the prostate previously. Prostatic enlargement had developed again in these patients. Fifteen patients with BPH had also one or multiple bladder stones. (Determined with USG preoperatively). Fifteen patients underwent simultaneous inguinal herniorrhaphy. In 130 cases with clear urine, suprapubic catheter were removed at the second post operative day, while in the remaining 20 cases with hemorrhage, catheters were removed at the fifth post operative day, in no case catheter usage was needed more than fifth post operative day. Prostate specimens of seven patients showed prostatic carcinoma, hence were excluded from study. Thirty of the 150 patients (20%) had comorbidity early complications were cardiovascular and respiratory morbidities, urine leakage, wound infection, and hemorrhage. Cardiovascular or respiratory problems developed in these patients were treated (with internal medicine consultations) and all patients did well.

Clot retention developed in 20 patients within 24 hours, after the operation. Eighteen of these responded to intermittent syringe irrigation but two required evacuation. Intra operative severe bleeding received blood transfusions (totally five patients).

Wound infections were treated topically and systemically. Ten patients were unable to void properly after removal of the urethral catheter, and urethral catheter was inserted and remained for a week. After removal of second catheter they were able to void satisfactorily. Urine fistula through the wound was developed in two patients, these patients were treated with urethral catheter placement and these fistulas were closed spontaneously within the subsequent two weeks, then catheter was removed.

Late complications include: bladder neck stenosis (n: 2) and urethral stricture (n: 3). Bleeding requiring blood transfusion (n: 0), epididymo-orchitis and urinary infections (n: 3, n: 8 respectively). Patients with bladder neck stricture and urethral strictures were treated by dilation or visual internal urethrotomy. Three patients developed temporary incontinence which improved with perineal exercises. Complications of open prostatectomy are summarized in Table 1.

DISCUSSION: For surgical management of BPH, open prostatectomy is the most efficient therapeutic option for the relief of symptoms and urine flow improvement, but it is also more invasive and morbid compared to other surgical procedures. TURP is as efficient as open prostatectomy, less invasive, less morbidity and more expansive. And it has become the gold standard for the treatment of benign prostatic hyperplasia with obstructive symptoms [5]. But open prostatectomy has been reported to have lower per operative mortality than TURP and low retreatment needs and thus reduce the long-term cost. TURP is available only in major centers with trained specialists and resectoscopic equipment [6]. Because of these reasons, we have chosen the open prostatectomy as surgical procedure, and also we especially recommend open prostatectomy to patients with benign prostate hyperplasia who come from poor socio-economic areas where resectoscope and specialists are not available.

McGill and Belfield described Suprapubic transvesical partial enucleation of the prostate in the late 1800s. However it was until Fuller and Frayer [7] who did complete enucleation of the gland gained widespread acceptance. Mortality rates in the early years were about 10%, owing primarily to pre-existing uremia, debilitation and postoperative hemorrhage. By time operative mortality rate decreased [6], but postoperative hemorrhage remained as a serious problem. The concept of control of postoperative hemorrhage by separation of the bladder neck from the prostate fossa was presented by Lower and Harris [7] Using non-absorbable bladder neck suture, Hryntschak modified and popularized this technique in 1951. Dela Pena and Alcina proposed separation of the bladder cavity from the prostate fossa using a removable purse-string suture in 1962 [7]. Malement popularized the removable partition suture, which is recommended only in cases of excessive bleeding in textbooks [8-9]. In our study, visible bleeding after adenoma removal at the incised edge of the bladder neck was controlled with electrocautery and haemostatic sutures. Additionally, ribbon gauze packing was done in the prostatic fossa. We removed the suprapubic cystostomy tube, ribbon gauze pack and extra vesical drain after second to fifth post operative day when urine was clear. When this approach was compared to traditional one such as Condie' s study there was no difference in terms of complications but only urine leakage (1%is 1.33% respectively). This complication was seen only in patients with previous urinary retention probably due to the decrease of bladder wall thickness. Closing incision of the bladder wall as three layers instead of two and /or delaying the catheter removal to tenth day may solve this problem.

Complications of open prostatectomy ranged from 9.5% to 47.5% [10]. It has been reported that complication rates in large series of TUR-P are as high as 18%. Most of these complications are related to hemorrhage or infection [6] However, Meier et al. compared their suprapubic prostatectomy series with the large series of TUR-P reported by Mebust and associates. The overall early complication rate in the Mebust's series is 25% and in Meier's series 19%. Mortality rates were similarly low, 0.2% in the Mebust's and 0% in the Meier's, and blood transfusion rates were 6.4% and 4.6% respectively. The clot retention rate was higher (6.7%) in the Meier's series than Mebust's series (3.3%) [6-10-11].

In our study, early complication rate is 24.64 % and late complication rate is 12.66%, and total complication rate is 37.30 %. Our total complication rate is not so different from the literature data (Tubaro et al. reported 31.2 % and Condie et al. reported 14 % complication rates). Over all complication rates for open prostatectomy was 37.30%, but our data contained more detailed parameters. Our early and late complications are shown in Table 1.

The mortality rates for both transurethral and open prostatectomies have decreased significantly in the past three decades [8-5] In most series the early mortality rate for TUR-P was 0.02% to 2.5% and 0.3% to 5.8% for open prostatectomy [9-12] The ultimate goal of 0% mortality rate was achieved in our study. This low mortality rate was due to well patient care both preoperatively (especially in terms of respiratory and cardiac) and postoperatively (in terms of hemorrhage and co-morbidity) also due to patient selection criteria. i.e. patients with serious cardiac problems were not accepted but transferred to another developed center.

Preperitoneal inguinal hernia repair combined with urologic procedures have been reported with good success. [13-14] Simultaneous hernia repair appears as a safe procedure and may avoid a second surgical procedure. A total of 30 patients with inguinal hernia (n: 15) and vesical calculus (n:

15) with BPH required only one access route. Although operating times were slightly increased, both problems were resolved at the same time.

The blood transfusion rate in various series was between 1 % and 35 %. Condie et al. reported 1% blood transfusion rate, however, AHCPR revealed 35 % rate by a combined analysis of open prostatectomy series and approximately 15% of patients required blood transfusion [6-7-15]. Transfusion rate was 3.3% in our series, (5 of 150 patients).

The mean probability of developing urethral or bladder neck stricture is 7.7% (1.0-24.9%) [16]. While in some cases no treatment was required, some patients have to undergo either dilation of the urethral stricture or bladder neck contracture, internal urethrotomy for a bladder neck contracture resection, under anesthesia [12-14]. Three patients required dilatation and two patients required visual internal urethrotomy, in our cases.

Urinary incontinence is defined as the involuntary leakage of urine. The review of the literature revealed 2.6 %(0.5-7.2). Stress incontinence and 0.3% (0.1-0.8) total incontinence following open surgical treatment for BPH [16]. Our three patients had temporary incontinence, however the condition resolved completely within three months postoperatively.

In conclusion, open prostatectomy for benign prostatic hyperplasia (BPH) is an acceptable option with a high degree of safety and efficacy in areas where the TURP equipment is lacking or this operation is technically impossible.

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TABLE 1: Early and late Post operative complications of open prostatectomy

Early complications	No.	%	Late complications	No.	%
Haemorrhage requiring transfusion	5	3.33	U.T.I.	8	5.33
Wound infection	16	10.66	Bladder neck stenosis	2	1.33
Clot retention	2	1.33	Urethral stricture	3	2.00
U.T.I.	4	2.66	Epididymo-orchitis	3	2.00
Spontaneous voiding delay > 1 week	5	3.33	Incontinence	3	2.00
Temporary incontinence	3	2.00	Bleeding requiring transfusion	Nil	
Vesico cutaneous fistula	2	1.33			
Total	**37**	**24.64**		**19**	**12.66**
Grand Total	**56**	**37.30**			