

CASE REPORT

OPEN PROSTATECTOMY FOR BENIGN PROSTATIC HYPERPLASIA

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Background: Benign Prostatic Hyperplasia (BPH) is the most common pathological condition in many middle-aged and elderly men that causes Lower Urinary Tract Syndrome (LUTS). Several surgical options for BPH are Transurethral Resection of Prostate (TURP) and Open Prostatectomy. Prostate volume is an important factor in choosing a suitable modality. In Indonesia, the prevalence of open prostatectomy is quite rare, but this surgical option remains the first choice, especially for prostates with a large size of more than 80 grams.

Case Summary: A 74-year-old male patient complained difficulties in urination for 1 day and LUTS for 1 month. Digital rectal examination showed enlargement of the prostate but no palpable nodules. Volume of the prostate based on abdominal ultrasound was 189.89 cc. Then we performed open prostatectomy surgery.

Conclusion: Open prostatectomy is a procedure to remove all of transitional zone-prostate tissue. No complications on this patient after surgery and patient voiding was improved.

Keywords: Benign Prostatic Hyperplasia, open prostatectomy

INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is associated with lower urinary tract symptoms (LUTS). This symptoms include nocturia, urinary frequency and urgency, urinary incontinence, difficulty urinating, weak urinary stream, post-void dribbling and sensation of incomplete bladder emptying.^(1,2) BPH is a histologic diagnosis of stroma prostatic and epithelial hyperplasia involving the transition zone and periurethral glands. Involvement of the periurethral transition zone by BPH causes compression or obstruct the urethral, leading to increased urethral resistance and altered bladder function.⁽³⁾

In urological studies, BPH is the second most common disease after urinary stone

disease, in general, BPH occurs in about 70% of men over the age of 60 years. This figure will increase to 90% in men aged over 80 years. The exact incidence of BPH in Indonesia has never been studied, but as an illustration of the prevalence at Cipto Mangunkusumo Hospital (RSCM) from 1994-2013, 3,804 cases were reported with an average age of 66.61 years.^(4,5)

From the clinical symptoms of BPH, there are several disorders that shown the same symptoms of LUTS, namely obstructive and irritative symptoms. including difficulty in starting to urinate and a feeling of incomplete urination. As the prostate gland grows larger, it presses on the urethra and narrows it. This blocks the flow of urine. The bladder begins to



push harder to release urine, which causes the bladder muscles to become larger and more sensitive. This means that the bladder never completely empties, and causes a feeling of frequent need to urinate. Other symptoms include a weak urine stream.^(6,7)

Various mediators are very essentials in prostate growth. The main mediator of prostate growth is DHT (Dihydrotestosterone), a testosterone formed in prostate cells by the breakdown of testosterone. The enzyme 5-alpha reductase converts testosterone to DHT. This enzyme is the target of 5-alpha reductase inhibitor drug therapy aimed at reducing prostate size.⁽⁷⁾

Using alpha blocker drugs or 5 alpha reductase inhibitors can cause side effect in sexual dysfunction in BPH patients such as erectile dysfunction, premature ejaculation, or decreased libido. Both of these conditions often reduce the quality of life in elderly patient.^(7,8) Management of BPH can be done in various ways including watch full waiting, medication, and surgery.^(7,8)

Prostate volume was measured using transrectal ultrasound (TRUS) with the patient in the left lateral decubitus position. Volume of prostate was calculated using the prolate ellipse formula and the 3 main diameters of the gland, in which the volume equals $0.52 \times (L \times W \times H)$, where L is the maximum length (craniocaudal dimension), H is the maximum height (anteroposterior dimension) (both were obtained from the sagittal plane), and W is the maximum width (transverse dimension; obtained from the transverse plane).^(8,9)

Two commonly used method of BPH surgery in Indonesia are Transurethral Resection of Prostate (TURP) and Open Prostatectomy. Transurethral resection of the prostate (TURP) is

one of the most common surgical options and is often performed to treat an enlarged prostate. This procedure, which performed with the help of an instrument called a resectoscope, aims to reduce pressure on the bladder by removing excess prostate tissue. TURP was the first choice of surgery because way more effective for relieving symptoms quickly compared to the use of drugs.⁽⁹⁾

Observational research at RSUP Dr. Kariadi Semarang shows a comparison of patients undergoing TURP with prostatectomy. From the 65 BPH patients, 50 patients (76.92%) underwent TURP and the remaining 15 (23.07%) underwent prostatectomy.⁽¹⁰⁾

The indications for open prostatectomy is acute urinary retention, recurrent or persistent urinary tract infections, significant symptoms from bladder outlet obstruction not responsive to medical therapy, recurrent gross hematuria of prostatic origin, pathophysiologic changes of the kidneys and ureters secondary to prostatic obstruction. Another conditions should be done with open prostatectomy if the patiens have bladder stones or a condition called bladder diverticulum.⁽¹¹⁾

Although no upper size limit has been documented for TURP resection, current international guidelines suggest using from 80 to 100 cc as the volume at which consideration should be given to TURP alternatives, such as open prostatectomy or endoscopic laser enucleation. The European Association of Urology (EAU), American Urological Association (AUA) and National Institute for Health and Care Excellence (NICE) recommend for patients with prostate volume 30–80 cm³ as an alternative to TURP.^(10,11)

The most common complication in both surgical method is bleeding. Observational study



in RSUD Dr. Soetomo shows there was no significant difference in bleeding complications between TURP and Open Prostatectomy in patients with BPH. However, the study at RSUD Kariadi, Semarang, the decrease in hemoglobin levels was statistically greater in prostatectomy surgery than TURP. Prostate volume correlates with the amount of post open prostatectomy bleeding. Therefore, it is important to consider the patient's surgery based on prostate volume and the patient's condition.⁽¹⁰⁻¹²⁾

CASE REPORT

A 74 year old male patient came to the emergency room at the NTB Province Hospital with complaints of difficulty urinating since 1 day before entering the hospital. Complaints accompanied by intermittent urination since approximately 1 month before entering the hospital. Intermittent urination been experienced every day while the patient is urinating and the urine is dark yellow with no blood. The patient had to force his urine to come out and the patient feels dissatisfied when urinate and sometimes when the patient urinates his urine drips onto the patient's feet. The patient also complained that about 1 week ago the patient often woke up in the middle of the night to urinate more than 3 times and in a day the patient had urinate more than 10 times and the patient complained of pain in the lower middle abdomen. Previous medical history of the patient has never experienced anything similar and the patient also has a history of high blood pressure. Diabetes and heart disease were denied. Work and social economic history, the patient is a retired and married. None of the family members had a previous history of the same disease.

On physical examination, the general status was found to be in moderate illness. Vital

signs within normal limits. On physical examination in the abdominal area distention was found in the suprapubic region, auscultation heard normal peristaltic sounds, percussion of tympanic sound in all parts of the abdomen and palpation of minimal tenderness in the suprapubic region. The patient then placed a catheter to remove the remaining urine. From the results of the history and physical examination, a working diagnosis was obtained, namely urethral obstruction suspected BPH. Then another examination was carried out, digital rectum (Rectal Toucher). The results obtained were that the anal sphincter was clamped on the anterior mucosa, a mass measuring 3-4 cm in size, rubbery consistency, flat surface, firm boundaries, the peak was difficult to reach. There were no palpable nodules and on the gloves no blood and feces were found.

In laboratory examination, Hgb 14.4 gr/dl, Wbc 7.09 103/ul, Ureum 24 mg/dl, Creatinine 1.0 mg/dl. Prostate Specific Antigen (PSA) examination showed an increase of more than the normal value of 18.85 ng/mL. On radiological examination using transabdominal Ultrasonography (USG). Transabdominal ultrasound results showed an enlarged prostate with a prostate volume of 189.89 cc. (Image 1)

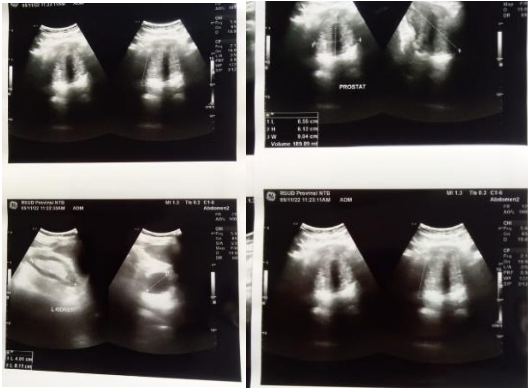


Figure 1 : Ultrasonography of the prostate showing an enlarged prostate with prostate volume of 189.89 cc

The patient was diagnosed with Prostatic Hyperplasia grade 4 and was planned to have an Open Prostatectomy. The operation was carried out on November, 24th 2022 in the operating room of the NTB Province Hospital. After being anesthetized with Spinal Anesthesia, the patient is placed in a recumbent position and begins with aseptic and antiseptic procedures followed by installation of a sterile drape, followed by a suprapubic mid line incision and deepening of the incision into the fascia then identification of the bladder then incision and fixation with a hook. Next, enucleate the prostate mass with a finger and then lift the prostate mass (figure 2). Then send the sample for Anatomical Pathology (PA) examination. Then sew the bladder and fix it with a catheter, then control bleeding and wash the surgical wound. The surgical wound was sutured layer by layer and the operation was completed. The patient was then carried out postoperative care for 3 days in the hospital. Drain removal was carried out on the 7th day without any complaints.



Figure 2: Prostate mass had been removed

DISCUSSION

The diagnosis in this case was made through anamnesis and physical examination to collect subjective and objective information from the patient so that it can guide us in determining a definite diagnosis and providing appropriate disease management. Based on the anamnesis of this patient, he is 74 years old with complaints of difficulty urinating, and his urine is intermittent and the patient had to force his urine, the urine is dark yellow or like tea water with no blood. According to Sampekalo et al, in his research around 40% were experienced by men aged 40 years, it would increase to 50% in men aged 50-60 years and would reach 90% in men aged over 70 years. It is estimated that as many as 60% of men aged over 80 years will experience the risk of benign prostate enlargement. BPH symptoms are commonly referred to as "lower urinary tract symptoms" (LUTS), and these can be further divided into obstructive symptoms and irritative symptoms. Obstructive symptoms include hesitancy, intermittent urination, weak urine stream, straining, and sensation of incomplete emptying. Irritative symptoms include urinate more often, urgency, and nocturia^(11,12)



On physical examination, there was tenderness in the lower middle abdomen and on rectal examination, a protrusion of the prostate was found to be spongy measuring 3-4 cm with the upper pole difficult to reach. According to the theory to determine the criteria for an enlarged prostate can be done one by rectal grading. Based on the protrusion of the prostate in the rectum. Grade 1: protrusion 0-1 cm into the rectum, degree 2: protrusion 1-2 cm into the rectum, degree 3: protrusion 2-3 cm into the rectum, degree 4: protrusion 3-4 cm into the rectum. According to Tatt Foo, the size of the shape of the prostate can be assessed according to grading: grade 1: 5 mm; grade 2: > 5-10 mm; and grade 3: > 10 mm.⁽¹³⁾

Radiological investigations carried out in this patient, namely transabdominal ultrasound (USG). Obtained an enlarged prostate with a prostate volume of 189.89 cc. According to Zulfikar Ali, transabdominal ultrasound examination is one of the non-invasive examination modalities in the urology, especially in BPH, besides that this examination is comfortable for patients. On a transabdominal ultrasound examination, it can be seen how much the volume of the prostate is and the amount of prostate protrusion into the bladder, which can be used to predict the degree of blockage, and can be used as a consideration for carrying out invasive measures in the management of BPH.⁽¹⁴⁾

The management in this case was surgery because this patient was referred to as Grade 4 BPH, so an open prostatectomy was required. According to the EAU that surgery, Transurethral Resection of the Prostate (TURP) is one of the most common surgical options and is often performed to treat an enlarged prostate. In this case, TURP was not performed

because the prostate volume in this patient was > 80 cc or 189.89 cc.^(10,11)

This case is a rare case where open prostatectomy complications often occur. So that a proper education needed for this patients, namely with bleeding and urine leakage, related to malpositioned or malfunctioning indwelling catheters. However, in this case these complications were not found. It is also important to know whether this is a malignancy with anatomic pathology results.

CONCLUSION

TURP (Transurethral Resection Prostate) surgery only remove the excess prostate tissue but does not rule out the possibility that prostate tissue will grow back. Whereas in open prostatectomy surgery, which is an operation by removing all prostate tissue so that there is no prostate tissue that blocks the flow when urinating. In this operation, an open prostatectomy is performed by removing all prostate tissue. Results after surgery the patient's condition improved, it was not difficult to urinate and there were no postoperative complications.

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