A 87 YEARS OLD MALE WITH GIANT PROSTATIC HYPERPLASIA AND BLADDER STONES, THE LARGEST PROSTATE REPORTED IN INDONESIA

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ABSTRACT

Objective: *The aim of this article is to report a case of Giant Prostatic Hyperplasia and see the correlation between volume of prostate and benign prostate hyperplasia (BPH) symptoms. Giant BPH is defined as a prostate weight over 200 g or 500 g; the lower threshold was suggested by Japanese authors. It's extremely rare, with only 16 cases exceeding 500 g till 2013.* ***Case presentation:*** *Patient was an 87-year-old male with chief complaint of haematuria. We performed Transabdominal Ultra Sonography (USG) on the patient.* ***Discussion:*** *Transabdominal USG showed enlarged prostate with median lobe protruding into the bladder measuring 86 x 102 x 76 mm and 348 cc in volume. We performed transvesical prostatectomy. The large prostate was enucleated completely in one piece with 23 stones measuring about 1 cm in size. Grossly, the mass measured 12 x 8 cm and weighed 300 g. Histopathology evaluation revealed BPH.* ***Conclusion:*** *To our knowledge, this is the first giant BPH case being reported in Indonesia. We would like to emphasize that severity of BPH symptoms does not correlate with volume of the prostate. Unfortunately, we can not conclude that there were correlation between body mass index (BMI) and volume due to lack of BMI data from the literature.*

Keywords: *Giant, benign, prostatic hyperplasia.*

ABSTRAK

Tujuan: *Tujuan dibuatnya artikel ini adalah untuk melaporkan kasus Giant benign prostate hyperplasia (BPH) dan melihat hubungan antara volume prostat dengan gejala BPH. Giant BPH didefinisikan sebagai prostat dengan berat lebih dari 200 g atau 500 g; ambang bawah disarankan oleh peneliti dari Jepang. Kejadian ini sangat langka, hanya ada 16 kasus lebih dari 500 g sampai 2013.* ***Presentasi kasus:*** *Pasien adalah laki-laki usia 87 tahun dengan keluhan utama hematuria. Pada pasien ini dilakukan Ultrasonografi (USG) transabdominal.* ***Pembahasan:*** *USG transabdominal menunjukkan prostat membesar dengan lobus media protrusi ke dalam vesika berukuran 86 x 102 x 176 mm dan volume 348 cc. Kami melakukan prostatektomi transvesika. Prostat besar tersebut terenukleasi secara utuh dalam satu bagian dengan 23 buah batu berukuran kurang lebih 1 cm. Secara kasar, massa berukuran 12 x 8 cm dan berat 300 g. Evaluasi histopatologi menunjukkan BPH.* ***Simpulan:*** *Sepanjang pengetahuan kami, ini merupakan kasus Giant BPH pertama yang dilaporkan di Indonesia. Kami ingin menekankan bahwa beratnya gejala BPH tidak berhubungan dengan volume prostat. Sayangnya, kami tidak dapat menyimpulkan hubungan antara massa indeks tubuh (BMI) dengan volume karena kurangnya data BMI dari literatur.*

Kata kunci: *Giant, jinak, hiperplasia prostat.*

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INTRODUCTION

Benign prostate hyperplasia (BPH) is a common condition that produces progressive lower urinary tract symptoms in aging males.[1] Prostatic enlargement because of BPH rarely exceeds 100 g, which occurs only in 4% of men older than 70 years.[2,3]

Giant BPH is defined as a prostate weight over 200 g or 500 g; the lower threshold was suggested by Japanese authors. Giant BPH is extremely rare, with only 16 cases described earlier in the literature exceeding 500 g till 2013.[3-6]

CASE PRESENTATION

A 87 year old male patient presented to our hospital in Bandung with macroscopic haematuria. One month prior to hospital admittance patient complained an episode of macroscopic hematuria that stopped in two days with no specific treatment. Lower Urinary Tract Symptoms were denied. Medical co-morbidities were denied. With 50 kgs weight and 150 cm height, patient had 22.2 BMI. Digital rectal examination was remarkable: a grossly enlarged, rubbery, symmetrical, non-tender, without nodule prostate was palpable. Laboratory investigations were unremarkable, Hemoglobin level was 12.9. Urinalysis: clear urine, density 1.020, erythrocyturia.

Transabdominal Ultra Sonography (USG) was perfomed, showing grossly enlarged prostate measuring 86 x 102 x 76 mm in size and 348 cc in volume with markedly enlarged median lobe protruding in to the bladder. Bladder wall appeared thickened and irregular suggestive of cystitis. Multiple internal echoes were seen within the lumen of bladder suggestive of bladder stones measuring 6 and 9 mm in diameter.

An open transvesical prostatic enucleation was carried out under spinal anesthesia. The large prostate was enucleated completely in one piece with 23 stones measuring about 1 cm in size. The removed specimen was 12 x 8 cm in diameter and weighed 300 g. The operation time was 2 hours and the blood loss was 600 cc. Patient was hospitalized for 6 days. Pathologic examination confirmed prostatic benign glands hyperplasia. In one month follow-up, patient had comfortable urination without urinary incontinence.

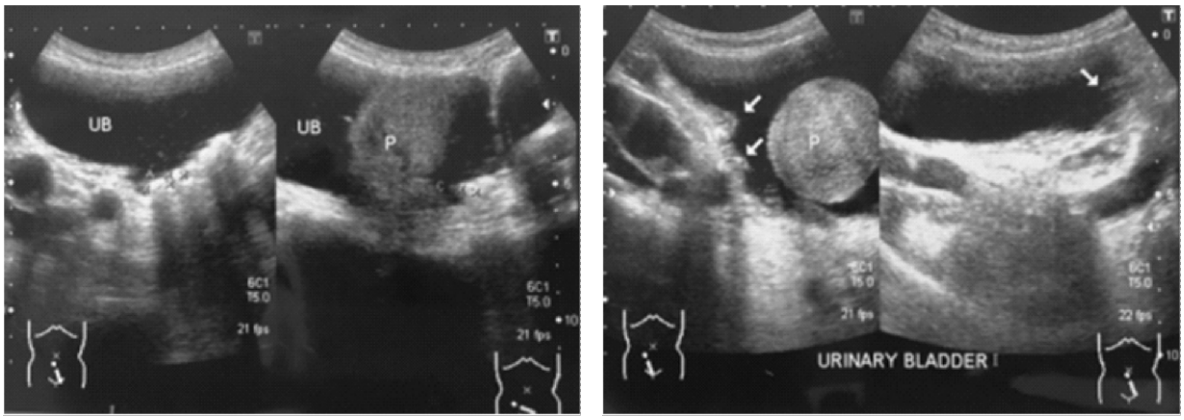

Figure 1. Transabdominal Ultra Sonography (USG) showed grossly enlarged prostate measuring 86 x 102 x 76 mm in size and 348 cc in volume with markedly enlarged median lobe protruding in to the bladder.

Figure 2. KUB shows multiple bladder calculus measuring around 35 mm and 85 mm in diameter.

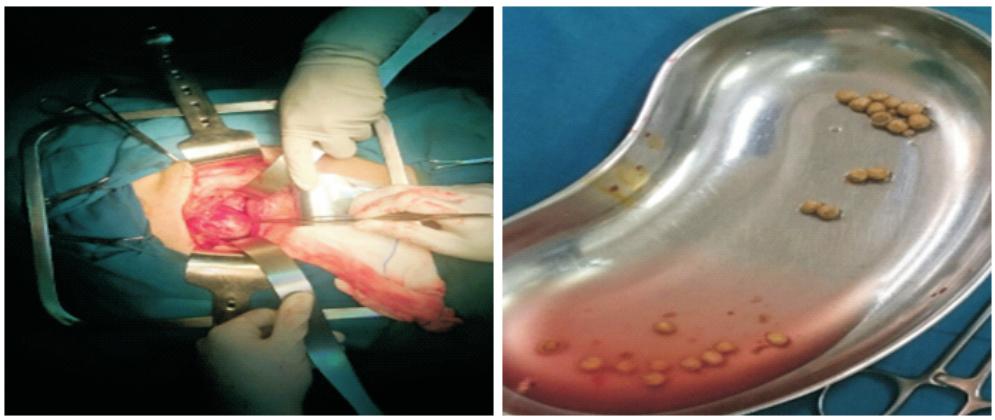

Figure 3a. Intra operative finding with an open transvesical prostatic enucleation. **3b.** 23 bladder stones were collected.

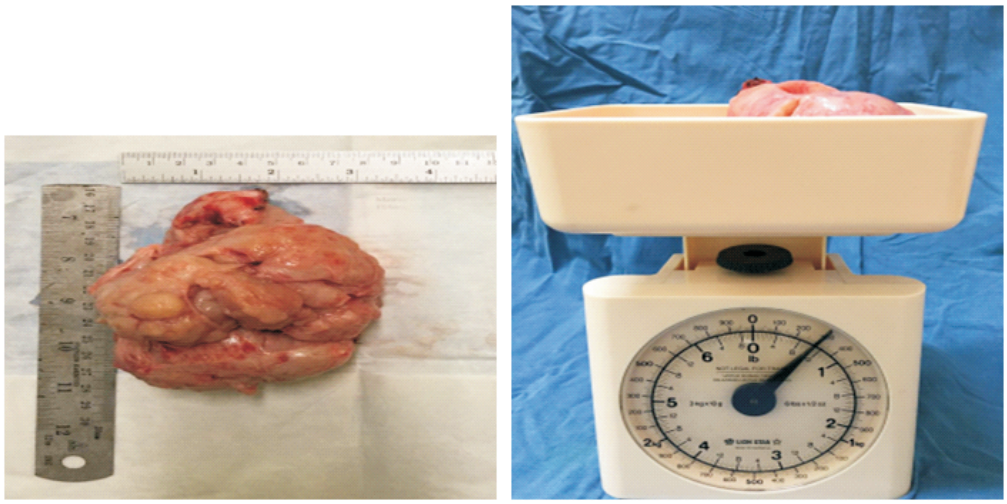

Figure 4. Post-operative resected specimen of the prostate gland. The resected specimen was 12 x 8 cm in diameter and weighed 300 g.

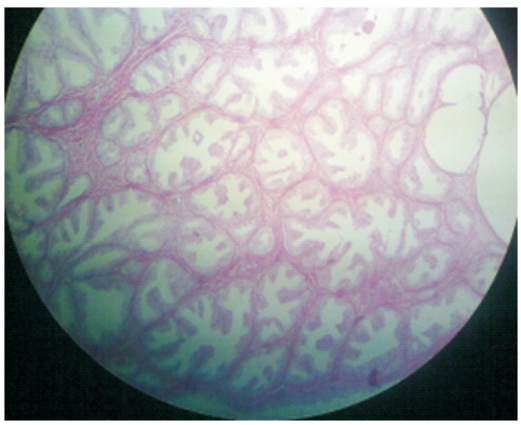

Figure 5. Microscopic examination of the prostatic specimen. Fibromuscular stroma with prostate gland acinar proliferation.

DISCUSSION

Giant BPH is an extremely rare entity that was first reported in 1908 by Freyer.[5] The largest ever prostate removed weighed 2410g and was carried out by exploratory laparotomy because it was thought to be a retroperitoneal tumor. However, the largest prostatic adenoma ever removed by suprapubic prostatectomy weighed 820 g, but the patient died after surgery from uncontrolled haemorrhage. Another study reported the successful removal of an 800 g prostatic adenoma by suprapubic transvesical prostatectomy, in three pieces, in a patient who survived the surgery.[2]

Prostatic enlargement because of BPH rarely exceeds 100 g, which occurs only in 4% of men older than 70 years.[2,3,7] Giant BPH is defined as a prostate weight over 200 or 500 g; the lower threshold was suggested by Japanese authors.[3] Whereas some authors define GBPH as any prostate weighing more than 500 g, others use 200 g as the cut off value. In Japan, 33 cases have so far been reported with prostatic size above 200 g.[2,4-6,8] Giant BPH is extremely rare, with only 16 cases described earlier in the literature exceeding 500 g till 2013.[3-6]

The prevalence of BPH increases with age, and 57% and 90% of men suffers from this pathology, by the age of 65 and 90 years respectively.[4] BPH present in up to 60% of men at age 60.[1] At 80 years of age the possibility of presenting with it is 95%.[5] Autopsy data indicate that over 90% of men older than 80 years have histological evidence of BPH.[7]

Prostatic hyperplasia is considered to be due to the proliferation of epithelial and stromal cells, impairment of programmed cell death (apoptosis) or both and is endocrine controlled.[7] These prostatic changes begin at 40 years of age and prostate volume increases around 0.6 mL per year and is associated with a reduction of the mean urinary flow at the rate of 0.2 mL per second.[5] From a histological perspective, it is characterized by glandular, muscle or stromal tissue proliferation according to the activation of the distinct cell lines in its structure in such a way that the intensity with which that cellular development is generated results in the degree of prostate growth.[5] GPH Hypotheses suggest a combination of disruption in normal stromal-epithelial paracrine signalling, an imbalance between androgenic, cytokine and peptide growth signalling, a reduction in apoptosis and a proliferation in stromal and epithelial cells which result in significant prostate enlargement. Specifically, mutations of protooncogenes such as Ras and c-erbB2, as well as the downregulation of the p53 suppressor gene, can lead to the abnormal and continuous cellular proliferation.[1,5,7] Some theory: GPH is not known; however, an exaggerated overexpression of growth factors combined with the absence or reduction of inhibitory factors have been proposed as possible mechanisms.[5,7]

GPH commonly presents with obstructive lower urinary tract symptoms and haematuria.[6] From the literature review, most of the patients present with LUTS symptoms, in which half of them had haematuria episode and 3 had urine retention. In this case, patient complained an episode of macroscopic hematuria that stopped in two days with no specific treatment. Other symptomps of BPH were denied. Therefore the severity of BPH symptoms does not correlate with volume of the prostate. Known as prostatism these clinical symptoms are characterized by the presence of irritative and obstructive lower urinary tract symptoms (LUTS) which are evaluated in a general manner through the international prostate symptom score (IPSS).[9] Gross hematuria is an uncommon complaint in men with enlarged prostate, which is rarely seen as an initial presentation. Prior series report a prevalence rate of approximately 2.5% of macroscopic hematuria in men with BPH.[9] The exact etiology of bleeding in men with enlarged prostate is unclear but may be attributable to increased microvessel density level and vascular endothelial growth factors overexpression.[9] Complications, such as acute urinary retention, refractory gross hematuria, recurrent urinary tract infections, stones and diverticula formation.[2]

A medical history should be performed to clearly establish the symptoms and their severity so as to exclude other conditions, such as prostatitis. A questionnaire such as the International Prostate Symptom Score (IPSS) can be used to evaluate and quantify a patient's symptom severity.[10] From the literature, only one case mentioned about Body Mass Index (BMI). Patient had a 25 BMI and massive prostate enlargement of 740 g. In this case, patient had a 22.2 BMI and prostate enlargement of 300 g. We can't conclude whether there were or there were no correlation between BMI and volume of the prostate since there's only one case mentioned above. GPH is diagnosed with digital rectal examination and generally sonography.[11] Size, shape, symmetry, quality, nodularity and consistency of the

prostate must all be evaluated so as to establish whether good evidence of prostate cancer exists. The DRE tends to underestimate the true size of the prostate.[10] Digital rectal examination in this patient was remarkable: a grossly enlarged, rubbery, symmetrical, non-tender, without nodule prostate was palpable.

Severe prostatic hyperplasia is confirmed by imaging studies such as US, tomography and magnetic resonance, though they can be imprecise in defining tumor origin.[5] Transabdominal Ultra Sonography (USG) was perfomed, showing grossly enlarged prostate measuring 86 x 102 x 76 mm in size and 348 cc in volume with markedly enlarged median lobe protruding in to the bladder. Bladder wall appeared thickened and irregular suggestive of cystitis. Multiple internal echoes were seen within the lumen of bladder suggestive of bladder stones measuring 6 and 9 mm in diameter.

PSA is also helpful in deciding upon the most appropriate therapy. PSA is a more accurate reflection of prostate volume than DRE and correlates with the risk of symptom progression. A serum PSA value of 1.5 ng/mL or greater is indicative of a prostate volume of at least 30 cc. It is recommended that PSA testing begin at the age of 50. However, if there is a family history ofprostate cancer (first-degree relative) or if the patient belongs to a high-risk group, such as African-American/ Canadian males, it is recommended that testing start at age 40.[10] In this patient, we didn't do PSA testing as the patient already 87 years old. Only half of patients from the literature performed PSA testing. Only half of the patients from literature went for PSA testing.

Surgical intervention is indicated in BPH when patients have acute or chronic urinary retention, recurrent gross haematuria, urinary tract infections, renal insufficiency, bladder stones or severe lower urinary tract symptoms refractory to medical treatment.[1] Owing to the size of the gland, definitive treatment usually requires suprapubic prostatectomy, although a case of successful management via 3 separate transurethral resections has been described.[6] The only validated alternative for large prostates (greater than 75 grams) is the old classic open prostatectomy. Suprapubic prostatectomy is the enucleation of the hyperplastic prostatic adenoma through an extraperitoneal incision of the lower anterior bladder wall.[12] The surgical procedures that have been recommended previously to remove the giant prostates are simple suprapubic and retropubic prostatectomy.[12] Most surgeons prefer suprapubic prostatectomy. Rapid removal of the enlarged gland with immediate effective haemostatic techniques is essential to decrease blood loss. The measures suggested to stop bleeding include applying pressure in the prostatic fossa with gauze pads; applying one or two plicating sutures to reduce both the bleeding and the prostatic fossa volume; suturing of the bladder neck at the 5 and 7 o'clock positions; taping both internal iliac arteries before surgery; ligation during surgery if bleeding is excessive; compressing the bladder neck with a catheter balloon to control rebleeding, and a purse-string partition closure.[7]

Transvesical prostatectomy is the enucleation of the prostatic adenoma through an extra-peritoneal incision of the anterior urinary bladder wall. This operation is best suited for patients who have a large median lobe protruding into the bladder as in our case. In this case, two stay sutures using Vicryl 1 were placed at the 5 and 7 o'clock positions and loosely tied behind an inflated balloon of the 22ch 3-way Foley catheter which was then put on traction. G-BPH treatment is open surgery employing either transcapsular retropubic approachor transvesical suprapubic approach.[5] Surgical treatment for men with BPH is reserved for those who do not respond well to medical therapy or who have complications such as urinary retention. Rocco et al stated that 100 g is regarded as the limit of weight for those minimally invasive procedures. European Association of Urology guidelines also show that open prostatectomy is the treatment of choice for large prostatic glands more than 80-100 mL^5 in size.[13] Most of the patients from the literature went for transvesica prostatectomy, only 2 denied surgery. Others went for retropubic prostatectomy or serial TURP. In this case, suprapubic prostatectomy was performed. The large prostate was enucleated completely in one piece with 23 stones measuring about 1 cm in size. The removed specimen was 12 x 8 cm in diameter and weighed 300 g. The operation time was 2 hours and the blood loss was 600 cc. However, generally, a definitive diagnosis of BPH demands a histopathological evaluation. Pathologic examination confirmed prostatic benign glands hyperplasia.

Giant BPH is a rare and under recognized pathology of the prostate gland. It should be considered in the differential diagnosis of pelvic cavity tumors in men regardless of their age.[4]

CONCLUSION

To our knowledge, the case report presented here constitutes the largest benign prostate hyperplasia reported in Indonesian medical literature to date. Although it is uncommon, haematuria can be the initial and only presentation. We would like to emphasize that the severity of BPH symptoms doesn't correlate with volume of the prostate. Unfortunately, we can't conclude that there were correlation between BMI and volume of the prostate due to lack of BMI data from the literature. Preoperatively, the diagnosis can be established by digital rectal examination and USG. Definitive diagnosis is made histologically. The definitive treatment for these Giant BPH is surgical resection, with transvesical prostatectomy being the first technique of choice.

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