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Giant Benign Prostatic Hyperplasia – An Enigma of Largest Recorded Prostate in Malaysia

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Introduction

Benign prostate hyperplasia (BPH) starts develop in male more than 40 years old, cause bothersome lower tract urinary symptoms (LUTS) [1]. BPH is histopatology diagnosis, which is increased number of epithelial and stromal cells in the periurethral area of the prostate [1]. Giant BPH is prostate glands exceeding 500g [2]. Prostatic enlargement due to BPH rarely exceeding 100g, which occur only 4% of men older than 70 years old [3]. Classical BPH symptoms are voiding and storange symptoms and measured with International Prostate Symptom Score (IPSS) [4]. A case of 62 years old male with giant BPH and bladder stones was referred to HTAA complaining of haematuria and catheter dependent since 2014.

Case Presentation

62 years old male with visible haematuria, associated with suprapubic pain. He had long standing LUTS, however did not seek and defaulted his medical appointment. Patient had history of open vesicolithotomy in 2014, subsequently defaulted treatment and catheter dependent. He was pink and afebrile, haemodynamically not supported. There was palpable bladder with hard consistency. Digital rectal examination enlarged prostate, unable to palpate upper border, firm with no nodules. The blood investigation parameters, he was slightly anaemic with haemoglobin 11, as well as impaired renal function, eGFR of 54. Urine FEME was suggestive of urinary tract infection (UTI). X-ray KUB was done and revealed multiple bladder stone. Cystoscopy examination findings there was huge occlusive prostate with large intravesical prostatic protrusion (IPP) with multiple bladder stones. No bladder tumour seen. On table cystogram revealed no diverticulum.

During admission, patient was treated with IV antibiotics (broad spectrum, third generation cephalosporin) and adequate hydration. Once stabilised, he underwent open vesicolithotomy and transvesical prostatectomy. Multiple bladder stone ranging 1-4 cm, more than 200 stones. Huge prostate with left lobe larger than right lobe, with significant intravesical prostatic protrusion (IPP), occupying 2/3 bladder capacity. Enucleation done separately for each lobe. No obvious bleeding from prostatic capsule, continuous bladder drainage (CBD) and suprapubic catheterisation (SPC) was inserted. Post operatively, patient recovered well with no complications and discharged well Day 5 post operation with SPC and CBD. All specimens were sent to histopathology laboratory. The specimens histopathological examination (HPE) was consistent with benign prostate hyperplasia. The weight recorded 550g. Patient was reviewed 2 weeks post op. Cystogram was done, well bladder outline with no contrast extravasation. SPC and CBD was removed. Patient was able to urinate per urethra, with urgency and frequency. On 3rd month post op, patient was reviewed. He satisfied with his micrturation, with mild IPSS (7/35). However he was complained of anejaculation, despite of having orgasm during sexual intercourse. He was generally happy with his current condition (Figures 1-4).

Figure 1. X-ray KUB revealed multiple bladder stones.

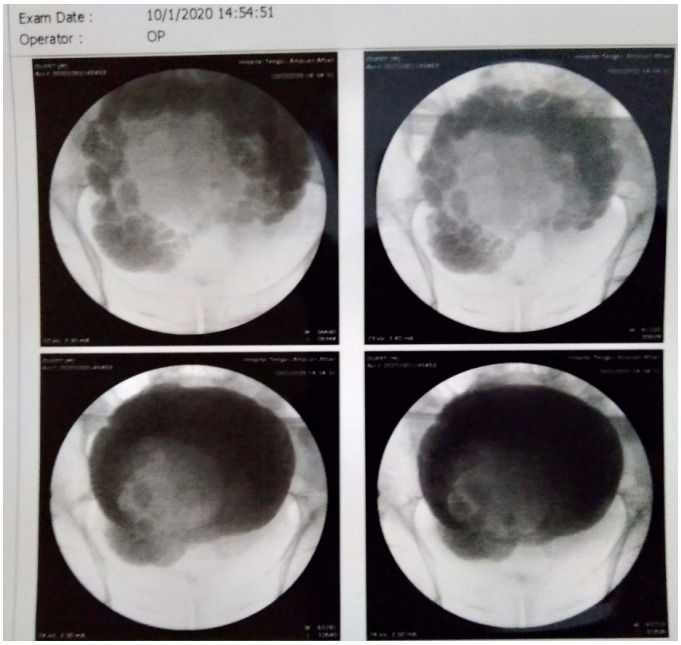

Figure 2. Cytogram on table shown no diverticulum.

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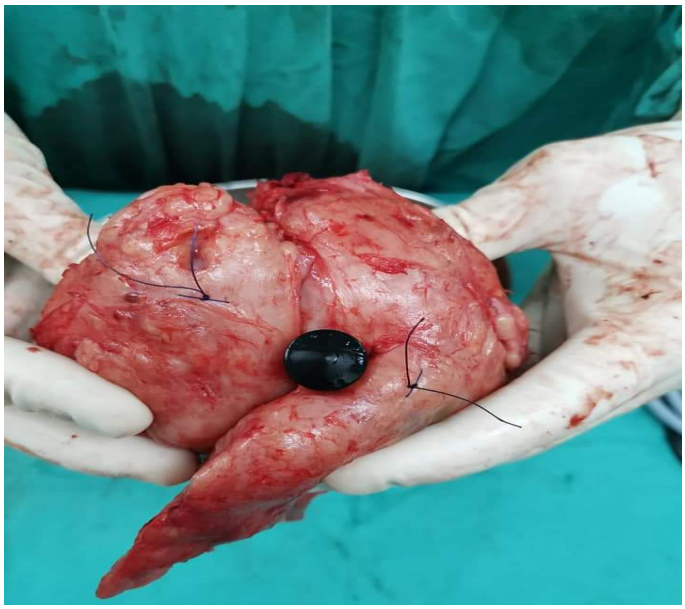

Figure 3. Prostate specimen post enucleation.

Figure 4. Prostate specimen (Left lobe > Right lobe) and multiple bladder stone with varying sizes.

Discussion

Male lower urinary tract symptoms (LUTS) can be divided into 3 categories, storage, voiding and post voiding symptoms [5] There are multiples etiology for male LUTS. Benign Prostate Enlargement (BPE) is a clinical diagnosis of prostate enlargement causing the male LUTS [4]. Benign Prostatic Obstruction (BPO) is defined as bladder outlet obstruction secondary to BPE [4] Benign Prostatic Hyperplasia (BPH) is used and reserved for histopathology diagnosis [4]. Male LUTS is covering BPH is present in 50% of men aged more than 60 years old, with 15%-30% will have LUTS [5]. The pathophysiology of BPH is not well known. BPH nodules originated near the urethral sphincter above the veromontenum. BPH evolved through 3 processes: early diffuse gland growth, small nodule proliferation and later nodule enlargement [6].

Complications that may arise from BPH are recurrent or refractory urinary retentions, overflow incontinence, recurrent UTIs, bladder diverticulum or diverticula, treatment-resistant macroscopic haematuria secondary to BPH / BPO, dilatation of upper urinary tract with or without renal insufficiency [4]. In this case report, the bladder stone was the complication of BPH / BPE. Bladder stone accounts of 5% of urinary calculi and occur due to obstruction, infection and foreign bodies [7]. Bladder stone is categorized into 3 categories; primary, secondary and migratory. This was secondary bladder stone; Bladder stone secondary to BPH [8]. Surgical management for BPE/BPO/BPH divided into 5 sections; resection, enucleation, vaporization, alternative ablative techniques and non – ablative techniques [4]. Surgical management for bladder stone are cystolithotripsy, percutaneous cystolithotripsy and open cystolithotomy [8].

In the era of minimally invasive surgery, transurethral resection of prostate (TURP) would be the treatment of choice for BPH However it ideally suitable for prostate size around 30 to 80g. According to European Association of Urology 2022 guidelines, open prostatectomy is the first choice treatment for prostate size more than 80g [4]. Other standard treatments would be Holmium laser enucleation (HoLEP) and bipolar enucleation. Open cystolithotomy is indicated in cases of larger stones or stone burden greater than 6cm; hard stones; failure of an endoscopic approach; or the need for concomitant open surgery including open prostatectomy [9].

Giant BPH is defined as a prostate weighing more than 500g [2]. In the current literature, giant BPH ranging 508g to 2140g (1997). There were 16 cases of giant BPH exceeding 500g till 2013 [10]. There is no case report or medical literature mentioning regarding giant BPH in Malaysia. This case represents the largest prostate in Malaysia, ever reported in literature. The pathophysiology of giant BPH is not well known. Hypothesis stated the unopposed expression of growth factors with reduction of inhibitory factors specifically mutations of proto oncogenes RAS and c-erbB-2 and tumour suppressor p53 gene [11,12].

Indication for surgical management of giant BPH is similar to non giant BPH. As for the case, surgical management was indicated as patient developed macroscopic haematuria, with recurrent UTIs and formation secondary bladder stones. Due to high stone burden, the transvesical prostatectomy as to enucleate the prostate and remove the multiple bladder stones. Surgical intervention for giant BPH is open prostatectomy including few approaches; retropubic, Millin procedure and transvesical. Our approach has been transvesical. As transvesical approach chosen, the high stone burden (>200, size ranging 1 to 4 cm each) could be removed and tackled without difficulty. Transvesical prostatectomy is treatment of choice as the huge prostate with increase vascularity would impose serious bleeding complication intra-operatively or post-operatively. Thus the need for rapid removal of prostate and effective haemostasis would be the paramount objectives. There were reported cases of giant BPH died as consequence of haemorrhage [13].

Conclusion

In this study, the largest prostate ever recorded in Malaysia has been removed successfully *via* transvesical prostatectomy without significant complications. Giant benign prostate hyperplasia (Giant BPH) is a very rare condition, with coexistent pathology such as bladder stones.

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