Retropubic prostatectomy for giant benign prostatic hyperplasia

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Giant benign prostatic hyperplasia is a rare pathology of the prostate gland. Here we report the successful removal of the ninth largest prostate ever reported. This 65-year-old patient presented with acute urinary retention secondary to a bulky left prostatic mass identified on pelvic magnetic resonance imaging (MRI). His preoperative prostate-specific antigen (PSA) value was 44 ng/mL; preoperative biopsies were negative for malignancy. Open radical retropubic prostatectomy was performed and the resulting prostatic mass was measured at 13.5 cm x 11.5 cm x 5.2 cm, weighing 708 g including the prostate. The patient tolerated the procedure well. Surgical pathology showed no evidence of malignancy.

Key Words: giant benign prostatic hyperplasia, retropubic prostatectomy

Introduction

Benign prostatic hyperplasia (BPH) is a common condition that increases in prevalence with age with approximately 50% of men over 60 carrying this diagnosis.[1] The area of the prostate that is primarily involved in the hyperplastic process is the periurethral, or transition, zone. This condition causes varying degrees of symptoms in the form of both obstructive and irritative lower urinary tract symptoms (LUTS). Giant BPH (GPBH), however, is a rare pathology that has been defined as a prostate mass greater than 500 g,[2] with only 20 cases worldwide being reported to date.

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Case report

A 65-year-old male with past medical history significant only for hypertension and stroke presented to the emergency room with acute urinary retention. He denied dysuria, flank pain, and hematuria. His most recent prostate-specific antigen (PSA) test was 44 ng/mL, and he had undergone three previous

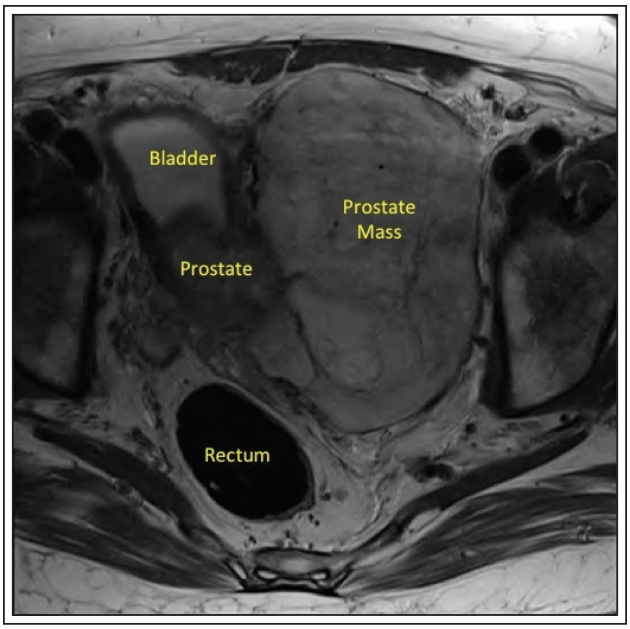

Figure 1. Magnetic resonance imaging of the pelvis showing a mass arising from the left side of the prostate and encroaching upon the bladder and left ureter.

prostate biopsies, each negative for adenocarcinoma of the prostate. Digital rectal exam revealed a moderately enlarged, smooth prostate with no discrete nodules.

Magnetic resonance imaging (MRI) of the pelvis was obtained, showing a well-circumscribed mass measuring 13.7 cm x 12.2 cm x 8 cm arising from the left side of the prostate and encroaching upon the bladder and left ureter, Figure 1. No macroscopic invasion into surrounding structures was noted. Bilateral external iliac nodes were mildly enlarged. He also underwent cystourethroscopy preoperatively that revealed bilateral lobar hypertrophy with mild coaptation but no other abnormalities.

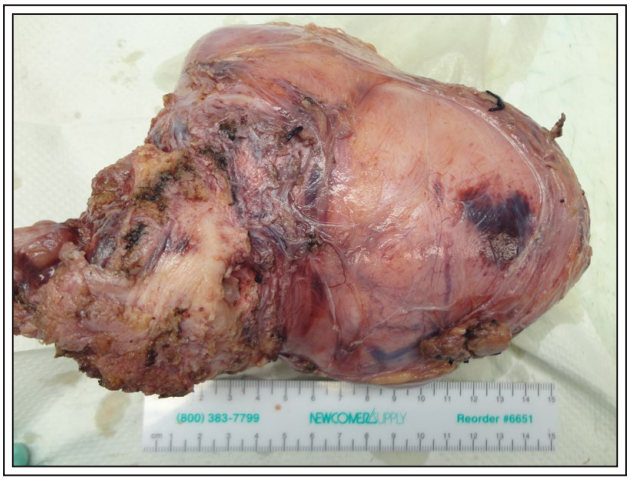

Figure 2. The prostate mass measuring 13.5 cm x 11.5 cm x 5.2 cm and weighing 708 g.

Differential diagnosis at this point included adenocarcinoma of the prostate, stromal sarcoma, stromal tumor of uncertain malignant potential, squamous cell carcinoma, and GBPH. After discussing treatment options with relative risks and benefits, informed consent was obtained for radical retropubic prostatectomy with possible cystoprostatectomy with ileal conduit urinary diversion. Intraoperatively, the mass appeared to be emanating from one lobe of the prostate and caused significant distortion of normal anatomy as the bladder was displaced anteriorly and to the right. However, successful resection was performed without need for cystectomy, though bladder neck reconstruction was required.

The resected mass measured 13.5 cm x 11.5 cm x 5.2 cm and weighed 708 g, including the prostate, Figure 2. Surgical pathology showed only fibromuscular and glandular hyperplasia with no evidence of malignancy within the mass and 0/14 pelvic lymph nodes (LNs). At a 2 week follow up, PSA level was 1.15 ng/dL and cystogram confirmed no extraluminal contrast extravasation. The patient was voiding well.

Discussion

Left untreated, BPH can result in complications such as urinary retention, urinary tract infections, bladder or kidney stones, and renal dysfunction. BPH is characterized by the over-proliferation of epithelial and stromal cells largely in response to aberrant androgen-androgen receptor signaling.[3-5] As a result, medical therapy for symptomatic BPH often requires the use of 5α-reductase inhibitors to achieve long term control of LUTS. Surgical treatment is indicated for moderate or severe LUTS in patients who refuse or are refractory to medical therapy.[6] TURP is the standard of care for these patients;[7] however, open reduction remains an important option for prostate volumes < 75 g that may be too large for safe and effective resection via transurethral resection of the prostate (TURP).[8] In this patient, a retropubic approach was used to remove the prostate and attached mass in one piece; no complications resulted from this procedure. Currently, there have only been 12 reports in the literature, including the current case, of a prostate weighing over 700 g; Table 1. This case appears to be the largest prostate ever removed using the retropubic approach as the vast majority of urologists appear to have chosen a suprapubic approach for prostates over 700 g. The retropubic approach offers superior visualization of prostate anatomy and minimal

TABLE 1. **Reports of prostates > 700 g**

Publication	Weight (g)	Procedure	Postoperative complications	Patient outcome
Medina Perez M et al *Arch Esp Urol* 1997;50(7):795-797	2410	Exploratory laparotomy	Not recorded	Not recorded
Tolley DA et al *J R Soc Med* 1987;80(12):777-778	1058	Exploratory laparotomy	Urinary fistula on d 11 that closed spontaneously in 8 weeks	Lived
Ockerblad NF *J Urol* 1946;56:81	820	Suprapubic prostatectomy	N/A	Died
Appiah AA et al *J Medical Biomed Sci* 2014;3(2):14-17	800	Suprapubic prostatectomy	None	Lived
Maliakal J et al *Sultan Qaboos Univ Med J* 2014;14(2):253-256	740	Suprapubic prostatectomy	None	Lived
Üçer O et al *Dicle Med J* 2011;38:489-491	734	Suprapubic prostatectomy	None	Lived
Nelson OA *Urol Cutan Rev* 1940;44:454-455	720	Suprapubic prostatectomy	Nonhealing wound; subsequent infection and dehiscence	Lived
Gilbert JB *Urol Cutan Rev* 1939;43:309-310	713	Suprapubic prostatectomy	None	Lived
Current case	708	Retropubic prostatectomy	None	Lived
Wadstein T *JAMA* 1938;110(7):509	705	Suprapubic prostatectomy	Suprapubic fistula	Lived
Lantzius-Beninga F *J Urol Nephrol* 1966;59:77-79	705	Suprapubic prostatectomy	None	Lived
Khan Z et al *Urol Case Report* 2014;2(1):33-34	700	Retropubic prostatectomy	Postoperative myocardial infarction	Lived

trauma to the bladder. On the other hand, suprapubic prostatectomy is excellent for visualization of the bladder neck and mucosa, which is especially useful when a lobe of the prostate encroaches into the bladder. We show that retropubic prostatectomy can be done successfully and without complication in a case of GPBH with significant distortion of the bladder. Open prostatectomy appears to still be the safest option for treating patients with GBPH; however, this case suggests that either retropubic or suprapubic approach may be used for similar outcomes regardless of size. □

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