Case Report

Giant Benign Prostatic Hyperplasia in a 46-Year-Old Man

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Abstract

Giant benign prostatic hyperplasia has been defined as a prostate specimen weighing 500 g and above. This pathology is not common, and only a few have been reported in the medical literature to date. It is a disease of the aging men and occurs less commonly before the age of 50 years. Our aim is to report the management of a 46-year-old African man with benign prostatic hyperplasia that weighed 610 g after enucleation. This is the largest benign prostatic hyperplasia ever reported in Nigerian literature. The patient presented with voiding and storage lower urinary tract symptoms and had open transvesical prostatectomy on account of refractory acute urinary retention and failed medical therapy. The outcome established that open simple prostatectomy remains an effective intervention for symptomatic giant benign prostatic hyperplasia in our immediate community.

Keywords: Benign prostatic hyperplasia, giant, prostatectomy

Introduction

Benign prostatic enlargement is a common cause of lower urinary tract symptoms in aging men.[1] Prevalence increases with age.[2] It is the most common disease of the prostate gland.[3] Massive enlargement of the prostate is often referred to as giant benign prostatic hyperplasia.[4] It is precisely defined as a prostate specimen weighing 500 g and above. This massive size does not, however, correlate with the severity of symptoms of the disease. We report our experience on the management of a giant benign prostatic hyperplasia in a 46-year-old man.

Case Report

A 46-year-old man presented at the surgical outpatient clinic of the General Hospital, Ogbomosho, Oyo state, with 1-year history of difficulty with micturition which was characterized by both voiding and storage lower urinary tract symptoms which culminated in acute urinary retention. He had two other episodes of acute urinary retention while he was on the combination of tamsulosin and dutasteride. The last episode of acute urinary retention necessitated the placement of a suprapubic catheter at the referral center after the failure of urethral catheterization. There was an episode of total painless hematuria. No history is suggestive of renal insufficiency, fever, flank, or scrotal pain. Past surgical and medical history was not significant. There was no history of exposure to carcinogens. He neither takes alcohol nor smokes. He had no family history symptomatic prostate enlargement. He is married with three children and was not too concerned about having more children in the future. Examination revealed a young man who was not pale and had no pedal edema. The kidneys were not ballotable on abdominal examination, and other systems were essentially normal. Digital rectal examination revealed a markedly enlarged prostate gland, upper limit of which was beyond the reach of the examining finger. It was firm in consistency and had a smooth surface. The median groove and lateral sulci were preserved. Total serum PSA was 46 ng/ml. Abdominopelvic ultrasound scan done showed an enlarged prostate gland with an estimated prostate volume of 340 ml as revealed by the complementary transrectal ultrasound [Figure 1]. The kidneys were normal in size and location, and there was no dilatation of the pelvicalyceal system. Serum electrolytes, urea, creatinine,

Access this article online

Quick Response Code:

Website: www.njmonline.org

DOI: 10.4103/NJM.NJM_175_21

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How to cite this article: Idowu NA, Ajamu O, Oguntola AS, Adeleye-Idowu S, Elijah A, Adekunle AA. Giant Benign prostatic hyperplasia in a 46-year-old man. Niger J Med 2021;30:720-3.

Submitted: 05-Oct-2021 **Revised:** 03-Nov-2021
Accepted: 08-Nov-2021 **Published:** 27-Dec-2021

and complete blood count were within normal limits. Urine culture showed no bacterial growth. Transrectal prostate biopsy revealed benign prostatic hyperplasia. He was counseled for open simple prostatectomy. Some of the likely complications of the procedure were discussed with him, including retrograde ejaculation and its attendant fertility challenges. Treatment options for these complications were also discussed. Better alternatives to open simple prostatectomy such as holmium laser enucleation of the prostate and laparoscopic simple prostatectomy were also explained to the patient. These, however, are not yet available in our center. He had open transvesical prostatectomy done under spinal anesthesia with enucleation of the adenoma. This was achieved by using Metzenbaum scissors to develop the plane between the prostatic capsule and the prostatic adenoma, the prostatic adenoma was then dissected through the plane with care, especially toward the apex of the prostate to avoid injury to the external urethral sphincter. The lobes were then removed separately. This enucleation was difficult in dissecting through the plane between the prostatic capsule and prostatic adenoma. Special care was taken to avoid tearing of the prostatic capsule. The estimated volume of the prostate specimen was 610 g, as shown in Figure 2. Figure of eight hemostatic stitches was placed at 5 and 7 o'clock, and prostatic fossa was packed with gauze for 5 min to limit excessive primary hemorrhage. Suprapubic catheter was placed along with urethral catheter to limit urinary clot retention. The surgery lasted 2 h. Estimated blood loss was 700 ml. He had two pints of blood transfused. Intraoperative and immediate postoperative were essentially unremarkable. He developed vesicocutaneous fistula after the removal of suprapubic catheter. This was managed with continuous bladder drainage through the urethral catheter for a period of 2 weeks and firm pressure-packed dressing on the fistula site. The fistula subsequently closed spontaneously. He developed retrograde ejaculation, but he was satisfied with his voiding and sexual function and he has no serious concern. The histology of the prostatic adenoma specimen revealed benign prostatic hyperplasia, as shown in the micrograph in Figure 3.

Discussion

Benign prostatic hyperplasia is a histological diagnosis associated with unregulated proliferation of connective tissues, smooth muscles, and glandular epithelium within the prostatic transition zone. It is a common cause of lower urinary tract symptoms. Increasing age, male hormone, inflammation, metabolic syndrome, and genetics among others have been consistently linked with the development of benign prostatic hyperplasia. Considering the age of our patient, he might have some genetic predisposition which we were not able to establish due to our limited resources; however, the histology of the prostatic tissues revealed benign prostatic hyperplasia. The normal prostate weight is 18–26 g,[5] but with aging, the organ enlarges but rarely reaches 500 g which is termed as giant benign prostatic hyperplasia. About thirty cases of giant benign hyperplasia have been reported in the medical literature.[6,7] The world's largest size of the prostate ever reported was 3987 ml. This was determined on an MRI of the abdomen and pelvis.[8] The patient had mild lower urinary tract symptoms and had no indication for surgical intervention, so it was not removed. The largest-ever giant benign prostatic hyperplasia ever removed was 2410 g, as reported by Medinal Pe'rex *et al*. in 1997.

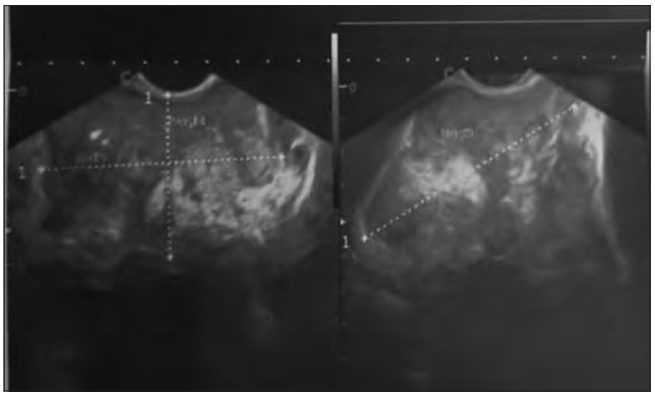

Figure 1: Sonographic imaging of the giant prostatic tissues. (transabdominal and transrectal)

Figure 2: Enucleated prostate specimen weighing 0.61kg (after excluding the weight of the container)

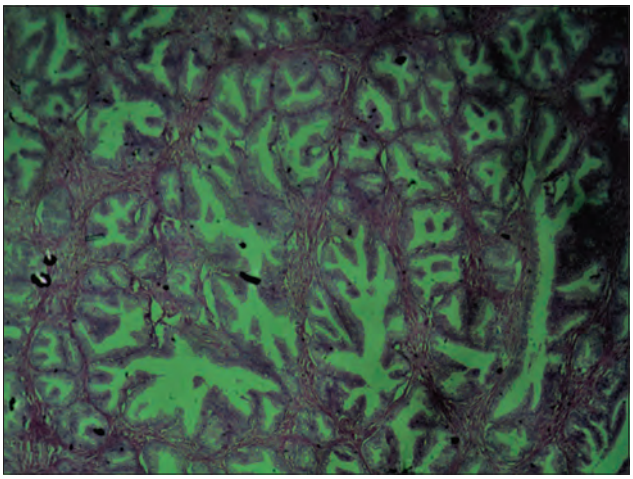

Figure 3: Photomicrography showing hyperplastic prostatic nodules with characteristic intraluminal tufting ×10

All the reported cases of giant benign prostatic hyperplasia involved men above the age of 50 years, which is in keeping with the natural history of the disease.[4] The only exception apart from the current case was a 47-year-old man with a prostate volume of 508 g, as reported by Husseini and Safarinad in 2004.[9] There are, however, few others whose ages could not be traced, as shown in Table 1. The current case remains the largest benign prostatic hyperplasia ever removed in the world in a man that is <50 years of age in the literature reviewed. It is also the largest documented giant benign prostatic hyperplasia ever removed in Nigeria, irrespective of the age of the patients. It is as well the 30th case of giant benign prostatic hyperplasia in the world and 3rd in nigeria. The first case of giant benign prostatic hyperplasia was reported by Akpo and Akpo in a patient with prostate volume of 510 g. The second case was reported by Ojewola *et al*. in a 73-year-old man with a prostate volume of 512.5 g in 2020.[7] The management of benign prostatic hyperplasia is dependent on symptoms severity based on some objectives and subjective measures of the disease.[10] The objective measures are urine flow rate, postvoid residual volume, and bladder wall thickness, whereas the subjective measures are international prostate symptoms score and quality of life. Patients with symptomatic benign prostatic hyperplasia are categorized into mild, moderate, and severe based on their international prostate symptoms score irrespective of the size of the prostate. Prostatic size does not correlate with the severity of symptoms. The size of the prostate cannot be used to grade the severity of symptoms before interventions. Our patient had severe lower urinary tract symptoms complicated by three episodes of acute urinary retention necessitating placement of suprapubic catheter due to failed urethral catheterization following the last episode of acute urinary retention at the source of referral. The inability to pass urethral catheter may be connected with the prominent median lobe protruding into the bladder, causing the ball-valve phenomenon. The indications for surgical intervention are severe lower urinary tract symptoms with complications, recurrent acute urinary retention, chronic urinary retention, recurrent hematuria, renal insufficiency, and recurrent urinary tract infections among others. The indications for surgery in our patients are severe lower urinary tract symptoms, recurrent acute urinary retention, and failed medical therapy. The traditional gold standard surgical intervention for benign prostatic hyperplasia is transurethral resection of the prostate (TURP). TURP may, however, not be feasible in the case of giant benign prostatic hyperplasia because of its massive size. Giant prostate may be associated with difficult hemostatic. This should be anticipated. Open surgical intervention remains the treatment of choice for patients with giant benign prostatic hyperplasia in our environment. Holmium laser enucleation of the prostate is a good alternative for giant benign prostatic hyperplasia. Its use is not limited by the size of the prostate like TURP. It has an effective mechanism of securing hemostasis thus could be used in patients on anticoagulants.

Table 1: The previously reported cases of giant benign prostatic hyperplasia (authors, year, weight of the specimens, and age of the patients) in the medical literature, including the current case

Authors	Date	Weight of the adenoma (g)	Age of the patients (years)
Domínguez *et al*.[11]	2016	3987	72
Medina Perez *et al*.	1997	2410	57
Dincer *et al*.[12]	2021	1090	72
Aghamir *et al*.[13]	2020	1070	78
Tolley *et al*.	1987	1058	55
Ockerblad	1946	820	86
Appiah *et al*.[14]	2014	800	82
Maliakal *et al*.[15]	2014	740	89
Wang *et al*.[16]	2016	800	52
Ucer *et al*.[17]	2011	734	75
Nelson	1940	720	*
Wroclawski *et al*.[18]	2015	720	82
Gilbert	1939	713	*
Lacy *et al*.[19]	2015	708	65
Wadstein	1938	705	80
Lantzius-Beninga	1966	705	*
Khan *et al*.[20]	2014	700	73
Egote *et al*.[21]	2018	700	88
Ashamala and Ahmed	1972	695	79
Thomson-Walker	1920	680	76
Idowu *et al*.	2021	610 (current case)	46
Yilmaz *et al*.[22]	2006	610	73
Bacon	1949	602	80
Bhatia *et al*.[23]	2018	571	80
Middleton *et al*.[24]	1937	602	72
Kitagawa *et al*.[25]	1980	535	*
Fishman and Meril	1993	526	86
Zeng *et al*.[26]	2017	524	52
Sood *et al*.	2006	522	73
Ojewola *et al*.[7]	2020	512.5	73
Akpo and Akpo	2010	510	*
Hosseini and Safarinajad	2004	508	47

*Age could not be traced

Conclusion

Giant benign prostatic hyperplasia is uncommon before 50 years. In this study, we reported successful management of a 46-year-old man with a prostate size of 610 g, the largest ever removed in the medical literature among patients who were <50 years of age.

Acknowledgments

The authors would like to express their special thanks to the Head of Department of Surgery, LAUTECH Teaching Hospital Ogbomosho, Oyo State. Nigeria.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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