

Intractable haematuria due to giant prostatic hyperplasia in a resource-challenged centre: between the devil and the deep blue sea

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Massive prostatic enlargement greater than 500 g is a rare condition known as giant prostatic enlargement, which most literature refer to as giant prostatic hyperplasia (GPH). Hyperplasia of enormous size is very uncommon alongside the presentation of intractable haematuria, especially in a facility like ours with limited resources to investigate and the need for repeated blood transfusions combined with a deteriorating clinical state.

A case is reported of intractable haematuria with a giant prostate, weighing exactly 610 g, which was successfully removed at the Federal Medical Centre in Keffi, Nasarawa State, Nigeria, by a Pfannenstiel transvesical simple prostatectomy. A histological examination showed nodular hyperplasia with a predominant stromal component, however, the patient had an uneventful postoperative recovery necessitating discharge a week after surgery. A urethral catheter was removed after three weeks with a satisfactory outcome.

This case report highlights the presentation and the dilemma in decision-making regarding the established protocols in the management of such conditions and the lessons learnt from our approach to its intervention.

Keywords: benign prostatic hyperplasia (BPH), giant prostatic hyperplasia (GPH), intractable haematuria, prostatectomy, transvesical

Case report

A 54-year-old man was admitted to the accident and emergency unit on account of lower urinary tract symptoms (LUTS) he had experienced for many years. The patient had a history of painful total haematuria, no urinary incontinence, and no history of severe comorbidities, although he had had a suprapubic cystostomy seven years before. Upon physical examination, the patient was acutely ill-looking, restless, severely pale, and had suprapubic fullness and acute urine retention. Through a digital rectal examination, an enlarged prostate with benign consistency was revealed. The total PSA level was 18.1 ng/ml. An abdominal ultrasound was performed which showed a grossly enlarged prostate, but the volume of the prostate was difficult to estimate because of the presence of clots in the bladder preventing its drainage.

Evaluation of the kidney was within normal limits. A size 22 FR triple lumen catheter was passed into the bladder, which drained frank blood but stopped draining, necessitating repeated catheterisation. Packed cell volume at referral was 11%, needing four units of cross-matched whole blood. Electrolytes, urea and creatinine (EUCr) were essentially normal. An open transvesical prostatectomy was performed and the whole hyperplastic prostatic adenoma (Figure 1) was enucleated through a direct incision using diathermy with about 300 ml of blood clots removed from the bladder.

Findings at surgery revealed a highly vascular and markedly trilobar enlarged prostate with a protrusion of a massive median lobe into the bladder cavity, as well as a thick-walled bladder with numerous blood vessels.

Haemostatic stitches were applied to the five and seven o'clock positions as well as other prominent blood vessels on the prostate and the bladder neck. Coagulation of prominent vessels on the bladder using diathermy allowed for complete enucleation of the prostate, and the prostatic fossa was packed with gauze for 15 minutes and exteriorised through the bladder, rectus sheath, subcutaneous layer, and the skin. Haemostasis was secured, and a two-way 24 FR haematuric catheter was inserted and inflated with 40 cc of sterile water. A perivesical drain was inserted and a size 20 FR suprapubic catheter inflated with 20 cc of sterile water with bladder irrigation commenced on the table.

The operation lasted about two hours with an estimated blood loss of 600 ml. The patient was transfused with four units of whole blood

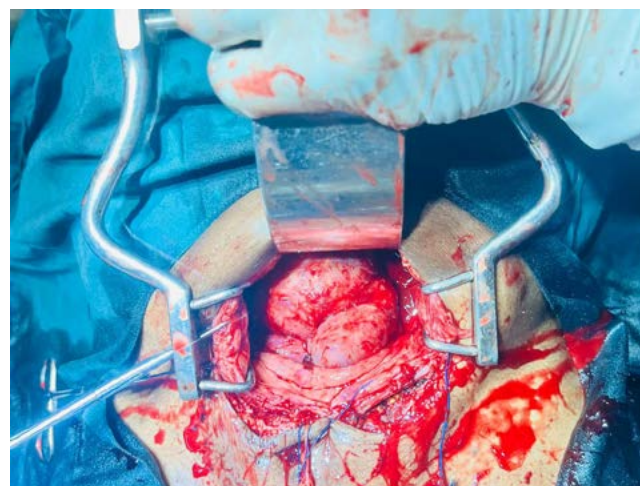


Figure 1: Enlarged prostate with protrusion of the median lobe into the bladder cavity



Figure 2: Enucleated giant prostate showing the two lateral lobes and median lobe



Figure 3: The enucleated giant BPH weighing 610 g as depicted on the weighing scale

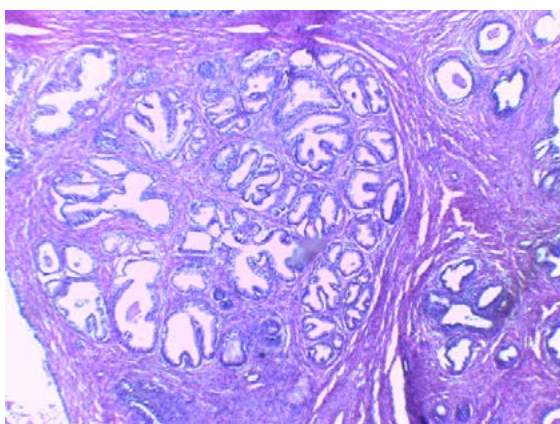


Figure 4: Photomicrograph of the pathological findings in the prostatic specimen (Leica® DM 500 × 60 × 100)

in the immediate postoperative period. The immediate weight of the prostate was 610 g (Figure 3). The patient's postoperative condition was uneventful with the removal of the prostatic fossa pack using artery forceps. Complete clearance of the haematuria was achieved after four days of bladder irrigation. He was discharged on the eighth day. The suprapubic catheter was removed on the 13th day and the urethral catheter was removed on the 28th day at the outpatient clinic, and the patient voided without difficulty. The histological examination showed nodular hyperplasia with a predominantly stromal component. The patient was reviewed again at six weeks, and he continued to have satisfactory voiding with normal incontinence.

Declaration of patient consent

We certify that the patient had given consent for his images and other clinical information to be reported in the journal and he is aware that his name and initials will not be published and his identity concealed, although we could not guarantee anonymity.

Discussion

Visible haematuria is a known sequela of benign prostatic hyperplasia (BPH) and a known aetiological factor in bladder outlet obstruction (BOO).¹ The proliferation of epithelial and stromal cells, impaired programmed cell death, or both, culminate in a series of endocrine episodes.² Prostate size is known to increase slowly in a regular fashion with ageing, explaining its aetiology in terms of development and growth.³ The prostate may eventually enlarge resulting in giant prostatic hyperplasia (GPH), though it is a rare phenomenon.⁴

In urological practice, large-size prostates have been documented, however, the term GPH was first mentioned in literature by Fishman and Merrill to describe prostate glands weighing more than 500 g, resulting in the enucleation of a 526 g prostate in 1993.⁵ During the periods of 1938 to 2020, 30 cases met the criterion to be documented in the medical literature. Challenges have arisen due to the non-uniformity in terminologies when reporting such giant prostates.

Pérez et al.² reported a 2 410 g prostate enucleated from a 57-year-old man diagnosed with a background of LUTS in 1997, making it the largest prostate reported in the literature. In addition, Dominguez et al.⁶ revealed a 3 987 ml prostate enucleated from a 72-year-old man in 2016, which was diagnosed following magnetic resonance imaging. Ours is the fourth case of a GPH reported from Nigeria following those of Akpo and Akpo⁷ in 2010 and Ojewola et al.⁸ from Lagos in 2020. The prostate enucleated by Ojewola et al.⁸ measured 528 g, however, the current weight of 610 g from our report makes it the largest prostate ever reported in Nigeria and the 30th largest giant prostate documented in the medical literature.

Several studies have shown a detailed perspective of the relationship between the occurrence of LUTS, enlargement of the prostate, and age-related changes and their effects on the level of molecular pathology and physiology.⁹ Many pathologists have described that the pathological basis of GPH is not well elucidated. Despite this, the role of RAS and *cerb-2*, as well as the deletion or mutation in

the p53 repressor gene, has led to excessive cell proliferation in an abnormal fashion.⁹ BPH-related LUTS result in the compression of the urethra, changes in the workings of the detrusor function due to age, stimulation of the nerves of the lower urinary tract, and the effects of multiple biochemical mediators on the contractility of the bladder smooth muscle.^{9,10}

Surgery remains the mainstay of treatment for patients with moderate to severe complications following BPH with transurethral resection of the prostate (TURP) as the standard mode of intervention for a prostate volume of less than 80 ml.¹⁵ The last two decades have seen increasing trends of minimally invasive techniques showing enhanced outcomes in terms of morbidity and associated complications, though the long-term outcome measures are being evaluated. Open surgery remains the most advocated intervention for giant BPH, but it is associated with a high risk of preoperative complications. Nevertheless, studies have revealed its effectiveness, especially in low-resource settings like ours.¹⁰ Laparoscopy, robotic simple prostatectomy, holmium laser enucleation of the prostate (HoLEP), photoselective vaporisation of the prostate (PVP), and prostatic artery embolisation (PAE) are alternative therapies which are highly recommended in the literature with good outcomes.¹⁵

Decisions regarding the patient's treatment were based on the features suggestive of BPH, the need for continuous blood transfusion in a facility with both limited blood bank capabilities and available resources, as well as the experience of the managing surgeon. Consequently, a classic open transvesical prostatectomy was performed, Harris stitches were applied, and packing of the prostatic fossa was used; resulting in short operation time, minimal bleeding, and no noted postoperative complications.

Conclusion

An atypical presentation of a GPH with intractable haematuria was described and the patient was suitably treated using an open transvesical prostatectomy despite deficient resources for its diagnosis and management, and it is our recommendation to those who work in resource-poor settings like ours.

GPH is an uncommon presentation and case reports have described the varying presentations, however, more worrisome is the association with bleeding in a resource-challenged setting. Prompt resuscitation and open-surgical techniques appear to be the most common surgical intervention with good results. Despite this, laparoscopic, robotic simple prostatectomy, and PAE are suitable alternatives to open interventions if available. Intraoperative

meticulous haemostasis after enucleation of the prostate reduces intraoperative blood loss and improves the patient outcome.

Conflict of interest

The authors declare no conflict of interest.

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Ethical approval

Ethical approval was obtained from the Federal Medical Centre-Keffi Health Research Ethics Committee (Ref: NHREC/20/12/2012).

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