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SURGICAL MANAGEMENT OF BPH IN GHANA: A NEED TO IMPROVE ACCESS TO TRANSURETHRAL RESECTION OF THE PROSTATE

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SURGICAL MANAGEMENT OF BPH IN GHANA: A NEED TO IMPROVE ACCESS TO TRANSURETHRAL RESECTION OF THE PROSTATE

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ABSTRACT

Background: Open prostatectomy for benign prostate hyperplasia (BPH) is widely practiced in Ghana and Africa. Some of the reasons include lack of expertise and facilities for Transurethral Resection of the Prostate (TURP) and digital rectal examination assessment of prostates as greater than 50 grams.

Objectives: To assess the prostate volumes of patients for surgical management of BPH by transrectal ultrasound (TRUS) and to determine, on the basis of prostatic volume, what percentage of those who had open prostatectomy could have been managed by TURP.

Design: Prospective cohort study.

Setting: The Korle Bu Teaching Hospital, Accra, Ghana.

Subjects: Patients for elective surgical management of BPH from March to September 2010 were studied.

Results: Fifty-eight patients had surgical management of BPH. Forty-six of them (79.3%) had open prostatectomy whilst twelve (20.7%) had TURP with a mean age of 70.4 and 65.2 years respectively. The most common reason for the open prostatectomy was refractory retention of urine (76.0%) while that for TURP was lower urinary tract symptoms (58.3%). The mean prostate volume for the patients who had open prostatectomy was 64.2ml ± 28.7mls (range 23.0-121.0ml) while that of the TURP group was 40.1g ± 16.2mls (range 18.5-70.0mls). Of the open prostatectomy group, 67.4% of them had prostate volumes 75mls or less. The blood transfusion and peri-operative complication rates for the open prostatectomy and TURP groups were 13% versus 8.3% and 8.7% versus 8.3% respectively. There was no mortality.

Conclusion: Access to TURP in the surgical management of BPH in Ghana is low (20.7%). With improved facilities including routine use of TRUS for assessing prostate size and availability of expertise for TURP, 67.4% of patients offered open prostatectomy presently could benefit from TURP, using prostate volumes 75mls (75g) or less as indication for TURP.

INTRODUCTION

Lower urinary tract symptoms due to benign prostatic hyperplasia (BPH) is a common clinical entity managed by urologists in West Africa. BPH is the most common cause of acute retention of urine in Accra (1,2). Globally over the last two decades, medical therapy using selectively long acting α_1 -adrenergic blockers and 5 α -reductase inhibitors that act at the level of the bladder neck and prostate have

become the main stay of treatment for lower urinary tract symptoms due to BPH. For small to moderate size prostates with moderate symptoms where medical treatment has proved ineffective, minimally invasive methods such as transurethral needle ablation of the prostate, transurethral microwave thermotherapy, transurethral laser ablation of the prostate and transurethral incision of the prostate may be used (3).

Surgical management of BPH using open prostatectomy or electrosurgical transurethral

resection of the prostate (TURP) is indicated when there is refractory urinary retention, persistence or recurrent urinary tract infections, bladder calculi, severe haemorrhage due to BPH or renal insufficiency resulting from the bladder outlet obstruction (3,4). It is also indicated in patients with severe symptoms who do not respond to medical therapy or unable to tolerate medical therapy (5).

Open prostatectomy is performed using either the transvesical or the retropubic method (3). Open prostatectomy is the most common surgical method used in Ghana for management of BPH. It has the advantage of a less re-treatment rate with a demonstrated objective improvement in urinary symptoms, and the preferred procedure with prostate weights greater than 75 g (3,6,7). Its disadvantages are a lower midline incision and high risk of peri-operative haemorrhage. It is also associated with a long hospital stay and delayed return to work (8).

TURP is best suited for prostates that weigh 75g or less (3). It is relatively minimally invasive and offers advantages such as lower transfusion rates (<1%), lower complication rate and better tolerated by old and unfit patients. It is associated with shorter hospital stay, and early return to work (3,9). The disadvantage associated with TURP is that it may be complicated by the TUR syndrome (2%) especially when the operation is prolonged and a higher re-treatment rate (10). TURP is considered a "criterion" standard by which all BPH management strategies must be compared (11).

Despite the advantages of TURP, open prostatectomy for BPH is widely practiced in Ghana. Some of the reasons include lack of expertise and facilities for transurethral resection of the prostate (TURP) and unreliable electricity supply in Ghana and even in the presence of expertise open prostatectomy is practiced due to digital rectal examination assessment of prostates as big (>50g).

This study was aimed at assessing the prostate volumes pre-operatively by TRUS and subsequently the corresponding method of prostatectomy, of patients scheduled for surgical management of BPH to determine on the basis of prostatic volume, what percentage of those who had open prostatectomy could have been managed by TURP.

MATERIALS AND METHODS

In this prospective study, patients scheduled for elective surgical management of BPH at the Korle Bu Teaching Hospital in Accra, from March to September 2010 were studied. The parameters recorded during the initial work up included the age of the patients, the digital rectal examination (DRE) findings, the serum total prostate specific antigen (tPSA), the indication for the prostatectomy, and the prostate

volume as determined by transrectal ultrasound. Patients with tPSA ≥ 4.0 ng/ml or abnormal DRE had TRUS guided prostate biopsy to rule out prostate cancer. The patients had anaesthetic assessment and were cleared for the procedure.

The patients were admitted two days before the surgery. The surgeries were carried out by consultants and senior residents in the Urology unit. The decision as to which surgical method to be used was made on the basis of a DRE assessment of prostate size and TRUS prostate volume with access to facilities for TURP being the final determinant. All the surgeries were under taken under spinal anaesthesia with prophylactic antibiotic cover using intravenous ceftriaxone and gentamicin (in the absence of renal insufficiency) at induction and continued for 48 hours post-operatively. A three way foley catheter was placed transurethraly after both the open prostatectomy and TURP and bladder irrigation instituted using 1.5% glycine till the urine had become sufficiently clear of haematuria. The open prostatectomy and TURP groups had their urethral catheters removed between post-operative days eight and ten and two and five respectively, after which the patients were discharged. The other parameters recorded were the surgical method used, blood transfusions, peri-operative complications and the duration of hospital stay after the procedure. All the prostatectomy specimens were confirmed as benign after histological review of the operative specimen.

The patients were followed up for three months after the prostatectomy. Excluded were two patients with associated large bladder calculi who could only be managed with open prostatectomy.

RESULTS

Fifty-eight patients had surgical management of BPH. Forty-six of them (79.3%) had open prostatectomy while twelve (20.7%) had TURP.

The mean age of the patients who had open prostatectomy was 70.4 years \pm 10.2 years (range 49-91 years) while those who had TURP was 65.2 \pm 9.6 (range 49-78 years)

The mean PSA of the open prostatectomy group was 17.1 ng/ml \pm 21.8 ng/ml (range 0.92-110 ng/ml) with a median of 7.9 ng/ml while that for the TURP group was 8.7 ng/ml \pm 6.4 ng/ml (range 1.3-17.8) with a median of 7.0 ng/ml.

The most common clinical reason for the surgical management of BPH among the patients was refractory retention of urine (76%) for the open prostatectomy group and that of the TURP group was lower urinary tract symptoms (LUTS) unresponsive to medical therapy (58.3%). The distribution is as shown in Table 1.

Table 1

Clinical reason for the prostatectomy

Clinical reasons for prostatectomy	Open prostatectomy No. (%)	TURP No. (%)
LUTS	5(10.9)	7(58.3)
Refractory retention of urine	35(76.0)	2(16.7)
Haemorrhage due to BPH	5(10.9)	1(8.3)
Renal insufficiency due to BPH	1(2.2)	2(16.7)
Total	46(100.0)	12(100.0)

The mean TRUS prostate volumes for the patients who had open prostatectomy was 64.2ml \pm 28.7ml (range 23.0- 121.0ml) while that for those who had TURP was 40.1ml \pm 16.2ml (range 18.5-70.0ml). Table 2 shows the percentage distribution of the prostate volumes of the patients.

Table 2
Trus prostate volume distribution

Trus prostate volume (ml)	Open prostatectomy No. (%)	TURP No. (%)
\leq 20	0(0.0)	1(8.3)
21-30	7(15.2)	4(33.4)
31-40	5(10.9)	3(25.0)
41-50	4(8.7)	1(8.3)
51-60	8(17.4)	2(16.7)
61-70	6(13.1)	1(8.3)
71-80	5(10.9)	0(0.0)
81-90	2(4.3)	0(0.0)
91-100	2(4.3)	0(0.0)
>100	7(15.2)	0(0.0)
Total	46(100.0)	12(100.0)

The surgical method used for the prostatectomy is shown in table 3.

Table 3
Method of prostatectomy

Operation	No. (%)
Open prostatectomy	40(69.0)
	Retro pubic prostatectomy
	6(10.3)
TURP	12(20.7)
Total	58(100.0)

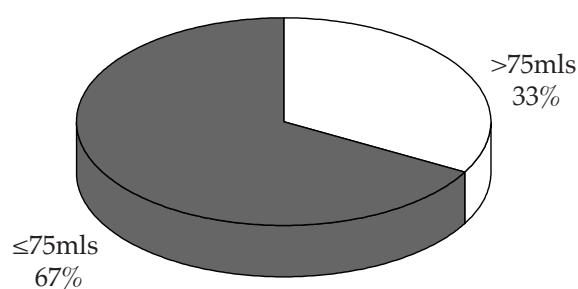
The transfusion rate for the open prostatectomy group was 13% (six patients) while that for the TURP group was 8.3% (one patient). All the patients received heterologous blood.

As regards peri-operative complications, for the patients who had open prostatectomy, one patient (2%) had clot retention requiring bladder washout, one patient had epididymo-orchitis (2%) and two patients had wound infection (4%). The only patient needing transfusion after TURP developed haematuria on post-operative day seven that necessitated re-admission. There was no peri-operative mortality.

The mean duration of hospital stay after the open prostatectomy was 10.2 days \pm 2.0 days (range 6-14 days) while that for the TURP was 3.7 days \pm 1.0 days (range 2-5 days)

Of the patients who had open prostatectomy, 31 (67.4%) had prostate volume \leq 75mls while 15 (32.6%) had prostate volumes $>$ 75mls (Fig 1).

Figure 1
Open prostatectomy patients showing proportion suitable for TURP



DISCUSSION

Lower urinary tract symptoms due to BPH is increasing in frequency in Ghana due to increasing life expectancy of the male population. Open prostatectomy (transvesical/ retropubic) has been the surgical method mostly used in Ghana. The reasons include large prostate size, unreliable electricity and limited access to facilities for TURP.

The mean PSA of the patients was observed to be high especially in the open prostatectomy group (17.1ng/ml). This could be attributed to the fact that most of the patients presented with refractory retention of urine and had urethral catheters *in situ* at the time of evaluation. It also reflects the relatively large prostate size as PSA is noted to relate positively to prostate volume.

The most common clinical reason for the open prostatectomy was refractory retention of urine (76%). Urinary retention continues to be the most common reason for open prostatectomy as was also noted in the previous study (12). However for TURP, lower urinary tract symptoms (LUTS) unresponsive to medical therapy was the most common reason (58.3%). This might be due to early presentation which could also

explain the relatively smaller mean prostate size as determined by TRUS.

The transfusion rate for the open prostatectomy patients was 13% (six patients). This compares favourably to a study from Nairobi which reported a transfusion rate of 36.8% (13). The transfusion rate for TURP in this study was 8.3% (one patient). With a reported transfusion rate of less than 1% for TURP in high volume centers, (10) it will be advantageous in our institution as we have difficulty with allogenic blood supply.

The mean duration of hospital stay for the patients that had open prostatectomy was on the average seven days more than the TURP group (10.2 days vrs 3.7 days). Mean hospital stay of 1.1-2.4 days was reported for TURP in one study (9).

It has been observed that although in most developed countries TURP and other minimally invasive methods are being frequently used for surgical management of BPH, up to 95% in some institutions, (14, 15) in developing countries due to lack of facilities and expertise and late presentation with big prostates, open prostatectomy is practiced (16,17).

In Ghana, due to lack of facilities and generally low investment in hospital equipment and lack of expertise in the performance of TURP, open surgical management of BPH is most practiced. In spite of the advantages of TURP compared to open prostatectomy, most patients do not have access to TURP. Of the fifty-eight patients that had surgical management of BPH within the period of the study, only twelve (20.7%) of them had TURP. In the period 1997 to 2000, 12% of patients who had surgical management of BPH in Accra had TURP (11). Thus the change in access to TURP over the period has been minimal.

It has been shown that the less TURP is done the less likely expertise in the technique will be achieved (14). Thus in order to build expertise there is the need to improve the number of patients offered TURP.

This study shows that if efforts are made to improve the availability and access to TRUS and facilities for TURP, then using a prostate volume of 75ml (75g) below which TURP could be ideal, 67.4% of the patients offered open prostatectomy could benefit from TURP. This would result in building of expertise for TURP with its advantages and hence reflect as advancement in the surgical management of BPH, in Ghana.

In conclusion, access to TURP in the surgical management of BPH in Ghana is low (20.7%). With improved facilities including routine use of TRUS for assessing prostate size and availability of expertise for TURP, 67.4% of patients offered open prostatectomy presently could benefit from TURP.

REFERENCES

1. Yeboah E., Mante S. D., Lamptey, E., *et al.* Changing patterns of acute retention of urine in Ghana. *BJU (Int)* 2000; **86(supp3)**: 99-100.
2. Yeboah, E. D. Acute retention of urine at Korle Bu Teaching Hospital. *Ghana Med. J.* 1989; **19**: 152-155.
3. Misop Han, Md, Ms., Alan W. Partin, Md, PhD; Retropubic and Suprapubic Open Prostatectomy In: *Campbell-Walsh Urology*. Vol 3. 9th ed. Saunders Elsevier. 2007: 2845-2852.
4. [Guideline] McConnell, J. D., Barry, M. J. and Bruskewitz R. C. Benign prostatic hyperplasia: diagnosis and treatment. Agency for Health Care Policy and Research. *Clin Pract Guidel Quick Ref Guide Clin.* 1994; 1-17.
5. Blanchard, K., Hananel, A., Rutchik, S., *et al.* Transurethral resection of the prostate: failure patterns and surgical outcomes in patients with symptoms refractory to alpha-antagonists. *South Med J.* 2000; **93**: 1192-1196.
6. Javaid, I., Muhammad, A., Muhammad, R. G. and Irshad, A. Open prostatectomy. *Professional Med. J.* 2006; **13**: 125- 132.
7. Varkarakis, I., Kyriakakis, Z., Delis, A., *et al.* term results of open transvesical prostatectomy from a contemporary series of patients. *Urology.* 2004; **64**:306-310.
8. Serretta, V., Morgia, G., Fondacaro, L., *et al.* Open prostatectomy for benign prostatic enlargement in southern Europe in the late 1990s: A contemporary series of 1800 interventions. *Urology.* 2002; **60**: 623-627.
9. Borboroglu, P. G., Kane, C. J., Ward, J. F., *et al.* Immediate and Postoperative complications of transurethral prostatectomy in the 1990s. *J Urol.* 1999; **162**: 1307-1310.
10. Mebust, W. K., Holtgrewe, H. L., Cockett, A. T., *et al.* Transurethral prostatectomy: Immediate and postoperative complications. A cooperative study of 13 participating institutions evaluating 3,885 patients. *J Urol.* 1989; **141**: 243-247.
11. Nickel, J. C. Editorial Comment: Transurethral prostatectomy: immediate and postoperative complications. A cooperative study of 13 participating institutions evaluating 3,885 patients. *J Urol.* 2002; **167**: 1004.
12. Klufio, G. O. Prostatic weight in Ghanaian men with symptomatic benign prostatic hyperplasia: A preliminary report. *Ghana Med. J.* 2003; **37**: 157-160.
13. Ngugi, P. M. and Saula, P. W. Open simple prostatectomy and blood transfusion in Nairobi. *East Afr. Med. J.* 2007; **84(9 Suppl)**: S12-23.
14. Ali, M. N. The outcome of transurethral resection of prostate. *J. coll. Physician Surg. Pak.* 2001; **11**: 743-746.
15. Baxby, K. Lower urinary tract symptoms: bladder outflow obstruction. In: *Essential Surgical Practice* Vol. 2. 4th ed. London: Arnold, 2002: 1288-1292.
16. Khan, M., Khan, S., Nawaz, H., *et al.* Transvesical prostatectomy still a good option. *J. Coll. Physicians Surg. Pak.* 2002; **12**: 212-215.
17. Salim, K., Asghar Kamal and Aziz, M. K. Surgical Treatment of Benign Prostatic Hyperplasia: outcome of Transvesical Prostatectomy. *Biomedica.* 2004; **20**: 7-12.