

# Simultaneous Management of Inguinal Hernia and Benign Prostatic Hypertrophy in a Single Operation at the Chu D'abeche/Chad

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## Abstract

**Introduction:** Benign prostatic hypertrophy and inguinal hernia are related and frequent pathologies in people over 50 years old. Their incidence is 15% to 25% according to the literature. The occurrence of hernia during benign prostatic hyperplasia is favored by disorders of the lower urinary tract. Simultaneous single-stage treatment of these two pathologies makes it possible to obtain satisfactory results that can reduce the cost of hospital stay and the multiple risk of anesthesia. The aim of our study was to: 1) Report the epidemiological, anatomo-clinical and para-clinical aspects of hernias during benign prostatic hypertrophy; 2) Evaluate the feasibility and the results of the combined treatment of inguinal hernia and prostatic adenectomy in a single operation. **Patients and Method:** This was a retrospective descriptive study over a period of 7 years from March 2014 to February 2021, including patients operated on simultaneously at the University Hospital of Abeche for inguinal hernia and benign prostatic hypertrophy. The variables studied were: age, antecedents, favouring factors, clinical symptomatology, para-clinical elements, treatments and results. **Results:** 356 patients underwent surgery for benign prostatic hyperplasia, 36 of whom had an associated inguinal hernia. The mean age was 65.5 years, ranging from 50 to 93 years. The main reason for consultation was chronic urinary retention. The average consultation time was 10.2 months. The inguinal hernia was located on the right in 51% of cases and on the left in 18.4%. The mean prostatic volume measured by suprapubic ultrasound was  $60.5 \pm 25$  cc. 14% and 10.2% of patients respectively were found to have struggle bladder and bilateral ureterohydronephrosis. Trans-

vesical suprapubic adenectomy of the prostate was performed in all patients. The Bassini technique was the most commonly used (91%) for hernia repair. The average hospital stay was 7.5 days. **Conclusion:** Simultaneous treatment of benign prostatic hypertrophy and inguinal hernia reduces the number of hospital admissions in elderly patients, as well as the length of hospital stay.

## Keywords

Benign Prostatic Hyperplasia, Herniography Adenectomy, Inguinal Hernia

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## 1. Introduction

Benign prostatic hyperplasia and inguinal hernia are a public health problem in men over the age of 50. Some patients consult a specialist for prostatic disease, and inguinal hernia may be discovered incidentally during clinical examination [1]. According to the literature, the incidence of inguinal hernia ranges from 15% to 25% [2]. The occurrence of a hernia during benign prostatic hyperplasia is favoured by disorders of the lower urinary tract and by acquired parietal weakness in the elderly [3]. Abdominal tension associated with dysfunction has traditionally been associated with the development of abdominal wall hernias [4].

The combination of prostatic hypertrophy and inguinal hernia also poses the problem of the timing of their repair. The management of benign prostatic hyperplasia has been revolutionized by the advent. Trans urethral resection of the prostate is the second most common surgical procedure in France and the United States after cataract surgery [5] [6]. Despite its convincing results, it remains a luxury in underdeveloped countries with a limited technical platform where open surgery retains its place and remains common practice [7]. In Africa, according to some studies, prostatic adenomectomy ranks first among the surgical activities of urology departments [7] [8].

A first hernia repair without treatment of the cervicoprostatic obstruction exposes the patient to a high rate of recurrence due to dysuria [9].

The anatomical proximity and pathophysiological relationship between an inguinal hernia and benign prostatic hyperplasia raise the question as to why these two disorders should be treated simultaneously [10].

The aim of our study was to:

- Report the epidemiological, anatomo-clinical and para-clinical aspects of hernias during benign prostatic hyperplasia;
- Evaluate the feasibility and results of combined treatment of inguinal hernia and benign prostatic hyperplasia.

## 2. Patients and Method

This was a retrospective descriptive study covering a period of 7 years from March 2014 to February 2021, based on the records of patients operated on si-

multaneously at the University Hospital of Abéché for inguinal hernia and benign prostatic hypertrophy.

Patients with complete medical records were included. Patients with incomplete records, hernias or isolated benign prostatic hyperplasia were excluded. The following variables were studied: age, history, precipitating factors, clinical symptoms, paraclinical features, treatment and results. Data were collected and analyzed using SPSS 19.0 software

Calculations were performed using proportions and mean, and statistical significance was considered with  $\alpha = 5\%$ . The authorization of the research was approved by the Faculty of Health Sciences of UNABA and CHU of Abeche.

### 3. Results

During the study period, 356 patients underwent surgery for benign prostatic hypertrophy, 36 of whom had an associated inguinal hernia. Patients ranged in age from 50 to 93 years, with an average age of 68.5 years. The age distribution in **Table 1** shows that the 60 to 69 age group predominated ( $n = 15$ ).

55.5% of patients were from rural areas and 44.5% from urban areas. The reason for consultation was dominated by chronic urinary retention ( $n = 13$ ), followed by dysuria ( $n = 9$ ), as shown in **Table 2**.

The average consultation time was 10.2 months, ranging from 2 to 24 months. Urinary tract infection was reported in 32.7% of cases, urinary lithiasis in 6%, and 61% had no previous urological history. A hernia repair was reported in 10.2% of cases. Two cases of urethral stricture were associated (5.5%). The inguinal hernia was located on the right in 50% of cases and on the left in 22.2% (**Table 3**).

The TR was painless in all patients, with a smooth surface and regular contour in 98% and a firm consistency in 96%. The total PSA level was between 4.1 and 10 ng/ml in 45%, less than or equal to 4ng/ml in 40.7% and greater than 10 ng/ml in 14.3% of cases. A prostate biopsy was performed in 14.3% of patients with a PSA level greater than 10 ng/ml. The results were in favour of benign prostatic hypertrophy. Histological analysis of the surgical specimens in 85.7% of cases revealed adenomatous hyperplasia. Blood glucose was elevated in 4% of cases and creatinine in 25%. Cytobacteriological examination of urine in all patients found *E. coli* in 14.3% and *Klepsiella pneumoniae* in 8.2% of cases. The mean volume measured by suprapubic ultrasound was 60.5 cc, ranging from 28 to 130 cc. The median lobe was found in 20% of cases.

Struggling bladder and bilateral ureterohydronephrosis were found in 14% and 10.2% of cases respectively. The mean post-void residual was 240 ml, with extremes of 100 and 300 ml, and three cases of bladder lithiasis.

The most common emergency treatment was trans-urethral catheterisation in 20.4% of cases (**Table 4**).

Spinal anaesthesia was used in 98% of cases and general anaesthesia in 2%. The pfannenstiel incision and a separate inguinal approach were used in 69% of cases, and the extended pfannenstiel incision was used in 30.6%. Transvesical

**Table 1.** Distribution of patients by age group.

Age group	Number	Percentage (%)
50 - 59	3	8.3
60 - 69	15	41.6
70 - 79	9	25
80 - 89	7	19.5
90 and above	2	5.6
Total	36	100

**Table 2.** Distribution by reason for consultation.

Clinical signs	Number	Percentage (%)
Dysuria	9	25
Urinary urgency	2	5.5
Pollakiuria	5	13.8
Urine retention	13	36.2
Hoematuria	1	2.8
Unilateral inguinal hernia	4	11.2
Bilateral inguinal hernia	2	5.5
Total	36	100

**Table 3.** Distribution by site of hernia.

Seat of hernia	Workforce	Percentage (%)
Right inguinal	18	50
Left Inguinal	8	22.2
Inguino-scrotal left	3	8.3
Inguino-scrotal right	5	13.9
Bilateral inguino-scrotal	2	5.6
Total	30	100

**Table 4.** Distribution of patients by emergency treatment.

Emergency treatment	Workforce	Percentage (%)
Trans-urethral catheterisation	17	47.2
Derivation cystostom	2	5.6
Antibiotherapy	7	19.4
None	10	27.8
Total	36	100

suprapubic adenomectomy of the prostate was performed in all patients. The Bassini technique was used in 91% of cases and the Shouldice technique in 9% of cases for hernia repair.

The associated treatment was cystolithotomy (8.3%) and urethral dilatation (5.5%). All patients had received postoperative antibiotic therapy to prevent the risk of infection.

The mean duration of bladder catheterisation was 6.4 days, with extremes of 5 and 25 days. The average hospital stay was 7.5 days, ranging from 5 to 15 days. Two complications were noted: one case of haemorrhage and two cases of parietal suppuration.

#### 4. Discussion

The incidence of inguinal hernia is 5% in the general population [2]. The incidence of hernia associated with benign prostatic hypertrophy was 9.6% in our study. Bah I in Guinea Conakry which performs 73.89% of prostatic adenomectomy, 10% of which is associated with a hernia repair [11].

This increase in frequency can be explained by the prostatism generated by benign prostatic hypertrophy on the one hand, and age-related weakness of the parietal wall on the other. The mean age of patients in our series was 69.9 years. This is comparable to the series by Bagayogo and Davoud, who both reported 70.9 years [12] [13].

Urinary retention accounted for 30.6% of consultations. The occurrence of urinary retention during the course of benign prostatic hyperplasia constitutes a turning point in the course of the disease and is what prompts the patient to consult a doctor. This result is similar to that reported in the literature [9] [12] [13].

Urological history was dominated by urinary tract infections in 32.7% of cases. These results are higher than those of Gonzalez [14] and Dahimi [2], who found 11% and 7.7% of cases respectively. This high rate of urinary tract infection may be explained by the patients' poor lifestyle and also by complications of the disease. The inguinal hernia was unilateral in 95.9% of cases. This result is similar to those of Cimentepe [15] and Filiadis [16], who reported 91% and 86.4% respectively. A digital rectal examination (DRE) in favour of benign prostatic hyperplasia was found in 95.9% of cases in our study. This result corroborates those of Dahami [2] and Bah [11] who reported 96.4% and 100% respectively.

PSA levels were normal in 34.7% and elevated in 65.3% of cases. This result differed from that of Bah, who found a normal PSA level in 92% of cases [11]. This increase in PSA levels in our series is thought to be due to urinary tract infections, which are frequent in our exercise setting.

Histopathological analysis of the biopsy cores revealed benign prostatic hypertrophy in all cases. This result is similar to that of Bagayogo [12].

*E. coli* was found in 14.3% of cases. Urinary retention is a factor in the development of urinary tract infections. *Escherichia coli* is the germ most responsible

for urinary tract infections [17]. The mean volume of the prostate on ultrasound was 61.6%.

Cimentepe found a similar result in his series, 58.6% [15].

Struggle bladder and ureterohydronephrosis represented the impact on the upper apparatus in 14.3% and 10.2% respectively. The post-micturition residual was 240 ml. The same complications have been reported in the literature [2] [12].

Spinal anaesthesia was used in 98% of cases and general anaesthesia in 2%. Our results are similar to those of Gueye [4] and Dahimi [2] who found in their series respectively 96.8% and 80% of cases. These results show that spinal anaesthesia is increasingly preferred because of its advantages.

In our series, the pfannenstiel incision and a separate inguinal approach were used in 69.4% of cases. The extended Pfannenstiel incision was used in 30.6% of cases.

On the other hand, the series by Gueye in Senegal and Filladis in Greece reported an enlarged pfannenstiel incision in 64.1% and 22.7% respectively, and a median incision in 35.9% and 77.3% respectively [9] [14]. Transverse suprapubic adenectomy was performed in all our patients. Gueye [9] and Granados [1] used the same technique in all cases in their series. However, our results differed from those of Ramzi Khiari [18] who reported transvesical suprapubic adenectomy in 53% of cases and transurethral resection of the prostate in 47%.

This difference can be explained by the lack of minimally invasive surgery facilities in our regions.

In our study, the Bassini technique was used in 91.8% of cases for hernia repair. These results are comparable to those of Gueye [9] and Dahimi, [2] who reported 80.6% and 74.2% respectively.

Treatments associated with the procedure were dominated by cystolithotomy and urethral dilatation, performed in 8.2% and 6.1% of cases respectively. These conditions were related to mictional disorders and urinary tract infections. Prophylactic antibiotic therapy was systematic in all cases to prevent the risk of infection, as recommended by several authors [2] [16] [19].

The mean duration of catheter use was 8.2 days. Our result is better than that of Dahami [2], in whom the bladder catheter was removed on the third post-operative day. This difference can be explained by the technique used by Dahami, which is minimally invasive compared with the traditional open surgery used in our series [2].

The average hospital stay in our study was 7.6 days. Our results are similar to those of Filladis who reported 6.7 days [16] and lower than those of Bah who reported isolated adenomectomies 12 days in his series [11]. However, our results were higher than those of some authors [2] [15] [20]. This difference can be explained by the open surgical technique used in our series on the one hand, and the infectious context and associated pathologies on the other.

We noted two cases of parietal suppuration and one case of intraoperative haemorrhage. Complications have been reported by some authors [2] [16] [20].

Simultaneous cure of the inguinal hernia and open prostatic adenectomy gives satisfactory results. However, the wound infection rate is 6% - 15% when open adenectomy is combined with unilateral inguinal hernia repair, and 25% when combined with bilateral inguinal hernia repair [20].

## 5. Conclusion

Benign prostatic hypertrophy and inguinal hernia are common in people over the age of 50 in our practice setting. Simultaneous prostatic adenectomy and herniorrhaphy is a safe procedure that can be performed easily by urologists. The procedure is effective and produces satisfactory results that can reduce the cost of hospital stay and the multiple risk of anaesthesia.

## Conflicts of Interest

The authors declare that they have no conflict of interest.

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