

Endoscopic Management of Secondary Sclerosis of the Bladder Neck in Bouaké: Our Experience with 23 Cases

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Abstract

Background: Secondary sclerosis of the bladder neck is a rare but serious late complication that occurs after open or endoscopic prostatic adenomectomy. **Objective:** The aim of this study was to report the results of endoscopic management of secondary sclerosis of the bladder neck in a series of 23 cases. **Patients and Methods:** Cross-sectional study of 23 patients presenting with secondary sclerosis of the bladder neck following adenomectomy and treated by endoscopic resection of the bladder neck in a private facility in Bouaké (Ivory Coast) over the period from 1 January 2021 to 1 December 2022, *i.e.* 2 years. The mean age of the patients was 61, 7 years with extremes from 53 to 76 years. The diagnosis of secondary sclerosis of the cervix was based on clinical and radiological data (retrograde ureterocystography). The parameters studied were the reason for consultation, time to onset of signs after adenomectomy, clinical data, results of retrograde ureterocystography (RUC), results of urine cytobacteriological examination (UCT), complications, endoscopic procedure, duration of operation, duration of postoperative urinary drainage, duration of hospitalization, postoperative follow-up and operative morbidity and mortality. **Results:** 23 patients with secondary sclerosis of the bladder neck were treated by endoscopic neck resection. The mean age of the patients was 61.7 years (5 - 76 years). Dysuria was the most frequent reason for consultation, accounting for 73.9% (n = 17). Retrograde ureterocystography (RUC) was used to make the diagnosis in all patients. It found a steam jet image in 69.6% (n = 16) and tight stenosis of the bladder neck in 30.4% (n = 7). Secondary stenosis of the bladder neck was complicated by ureterohydronephrosis in 47.8% (n = 11). 73.9% of patients had a post-micturition residual of more than 150 ml. The urine cytobacteriological examination (UCE) found four

urinary tract infections (17.4%) treated with antibiotics over 14 days, which sterilised the urine. The pathologies associated with cervical sclerosis were urethral stricture (13%) treated by endoscopic internal urethrotomy, and urinary lithiasis (8.7%) (n = 2). The mean duration of the operation was 53 minutes (43 - 60 min), the mean duration of postoperative urinary drainage was 3 days (2 - 6 days), and the mean duration of hospitalization was 5.4 days (3 - 6 days). Follow-up at 3 and 6 months using retrograde ureterocystography (RUC) showed good permeability of the neck and urethra with a post-void residual of less than 20 ml (10 - 36 ml). There was no morbidity. **Conclusion:** Secondary sclerosis of the bladder neck is a late but serious condition because of its obstructive and recurrent nature.

Keywords

Secondary Sclerosis of the Bladder Neck, Adenomectomy, TURP

1. Introduction

Secondary sclerosis of the bladder neck, first described in 1958 by DANSLOW, is defined as a fibrous scarring of the bladder neck following endoscopic treatment or open surgery for benign prostatic hyperplasia [1] [2]. Secondary sclerosis of bladder neck is a well-described complication that may occur following the surgical treatment of benign and malignant prostate conditions. Unfortunately, secondary sclerosis of bladder neck, recurrence after treatment is a common problem even though many series report early success [1]. Synonymous with vesicourethral stenosis, sclerosis of bladder neck can range in complexity from simple, short, annular contractures to obliterative stenoses refractory to repeated treatments. It is a rare late complication but is serious because it is obstructive, recurrent and progressive. Its treatment is essentially endoscopic [3] [4], but since the introduction of endoscopic surgery into the therapeutic arsenal in Côte d'Ivoire, this minimally invasive technique has been used in our practices in Bouaké since 2020. In other words, 40 years after its introduction.

We conducted a primary study with the aim of reporting our results of endoscopic management of secondary sclerosis of the bladder neck in a series of 23 cases.

2. Patients and Methods

We conducted a cross-sectional study from 1 January 2021 to 1 December 2022. Twenty-three patients with a mean age of 61.7 years, ranging from 53 to 76 years, presenting with secondary sclerosis of the bladder neck were treated by endoscopic resection of the sclerosis. Diagnosis was based on clinical and radiological data. All patients with secondary sclerosis of the bladder neck and operated on by endoscopic resection were included in our research work, those with primary or congenital sclerosis or patients operated on by conventional surgery

were not included in our study. The data was collected on a survey sheet including the different parameters studied. The parameters studied were time to onset of signs, clinical data, results of urine cytobacteriological examination (UCAE), results of retrograde ureterocystography (RUC), endoscopic procedure performed, duration of the operation, duration of postoperative urinary drainage, duration of hospitalisation, postoperative follow-up and morbidity and mortality. The data collected was entered using the word software. The data analysis was done using the Epi Info 7 software.

3. Results

3.1. AGE

The mean age of the patients was 61, 7 years with extremes of 53 and 76 years.

3.2. Clinical Data

Reason for Consultation

Dysuria was the most frequent reason for consultation with 73.9% (n = 17), see **Table 1**.

- Background

All patients had a history of upper adenomectomy for benign prostatic hyperplasia (BPH).

- Time to onset of signs after adenomectomy

The time to onset of signs after adenomectomy was 35 months, with extremes of 30 and 39 months.

- Physical signs

- Three patients presented with a bladder globe, *i.e.* 13% (n = 3).
- Two patients had a cystostomy catheter for urinary drainage, *i.e.* 8.7% (n = 2).
- One patient (4.5%, n = 1) had a suspicious prostatic shell on rectal examination.

3.3. Paraclinical Data

• Retrograde urocytography (RUC)

UCR revealed the classic steam jet image in 69.6% (n = 16), see **Table 2**.

Table 1. Distribution of patients according to reason for consultation.

| Reason for Consultation | Numbers of Consultations | % |
|--------------------------|--------------------------|------------|
| Dysuria | 17 | 73.9 |
| Acute retention of urine | 2 | 8.7 |
| Pollakiuria | 1 | 4.3 |
| Urinary burning | 1 | 4.3 |
| Urinary urgency | 2 | 8.7 |
| Total | 23 | 100 |

Table 2. Distribution of patients according to UCR results.

| UCR Results | Numbers | % |
|-----------------------------|-----------|------------|
| Steam jet image | 16 | 69.6 |
| Tight bladder neck stenosis | 07 | 30.4 |
| Total | 23 | 100 |

- **Post-void residue**

Seventeen (17) patients had a post-micturition residue (PMR) greater than 150 ml, *i.e.* 73.9% (n = 17), see **Table 3**.

- **Urine cytobacteriological examination (UCE)**

Four patients had a urinary tract infection with *E. coli* infection, *i.e.* 17.4% (n = 4), see **Table 4**.

- **Complications**

Seventeen (17) patients presented with complicated secondary sclerosis of the bladder neck. These complications were dominated by repercussions on the upper urinary tract in the form of ureterohydronephrosis in 47.8% (n = 11), see **Table 5**.

- **Associated pathologies**

Nine patients had pathologies associated with secondary sclerosis of the bladder neck, *i.e.* 39.13% (n = 9); respectively urinary tract infection in 17.4% (n = 4) treated by antibiotic therapy for 14 days, urethral stricture in 13% (n = 3) treated by endoscopic internal urethrotomy and bladder lithiasis in 8.7% (n = 2) treated by endoscopic removal with foreign body forceps.

3.4. Treatment

- Type of endoscopic treatment

The majority of patients in our series underwent endoscopic resection of cervical sclerotic tissue 8.7% (n = 2).

- Average length of operation

The average duration of the operation was 53 minutes, with extremes of 43 and 60 minutes.

- **Average duration of post-operative urethral catheterisation**

The transurethral bladder catheter was removed on average three (3) days after the operation, with extremes of 2 to 6 days.

- **Average length of hospital stay**

The average length of hospital stay was 5.4 days, ranging from 3 to 6 days.

- **Morbidity and mortality**

Morbidity was zero, as was mortality.

- **Follow-up at 3 and 6 months**

The UCR performed at 3 and 6 months showed good permeability of the bladder neck and urethra, with a mean post-micturition residue (PMR) of less than 20 ml, with extremes of 10 - 30 ml.

Table 3. Distribution of patients according to post-void residue (PVR).

| PVR | Numbers | % |
|---------------------|-----------|------------|
| Less than 50 ml | 1 | 4.3 |
| Between 50 - 150 ml | 5 | 21.7 |
| More than 150 ml | 17 | 73.9 |
| Total | 23 | 100 |

Table 4. Distribution of patients by result of urinary cytobacteriological examination (ECBU).

| Urine Cytobacteriological Examination (UCE) | Numbers | % |
|---------------------------------------------|-----------|------------|
| Sterile urine | 19 | 82 |
| Infected urine | 4 | 17.4 |
| Total | 23 | 100 |

Table 5. Distribution of patients according to complications.

| Complications | Numbers | % |
|-----------------------|-----------|------------|
| Wrestling bladder | 2 | 8.7 |
| Bladder diverticulum | 4 | 17.4 |
| Ureterohydronephrosis | 11 | 47.8 |
| No complication | 6 | 26.08 |
| Total | 23 | 100 |

4. Discussion

Secondary sclerosis of the bladder neck is a rare late complication of endoscopic or surgical treatment of benign prostatic hyperplasia (BPH), due to excessive fibrous scarring of the prostatic lodge, transforming it into a stenosing fibrous block. It is a rare complication of surgery for benign prostatic hyperplasia, the frequency varying in the literature from 0.78% according to MOUDOUNI [4] to 2.8% according to HERRANDO [5]. The average age of patients reported in the literature is well above fifty [1] [2] [3] [6]. These results show that secondary sclerosis of the bladder neck is a disease of the elderly.

Secondary sclerosis of the bladder neck is a pathology that occurs after open or endoscopic surgery for benign prostatic hyperplasia [3] [4]. For some authors, such as SATAA [1], sclerosis of the bladder neck occurs early after transurethral resection of the prostate. In our series, the sclerosis occurred after high approach adenectomy, since all the patients in our series had only undergone open surgery for the treatment of benign prostatic hyperplasia.

In our study, clinical symptoms were dominated by dysuria (73.9%). This finding has been reported by SATAA [1], ANTAOUI [7] and DESCAZEAUD [8]. The high frequency of obstructive disorders of the lower urinary tract confirms the obstructive nature of fibrous scarring of the bladder neck after prostat-

ic adenomectomy. The time to onset of signs after prostatic adenomectomy was 35 months, with extremes of 30 and 39 months. This result is similar to that of SATAA [1] who, in his study of secondary sclerosis of the bladder neck after surgical or endoscopic treatment of benign prostatic hyperplasia, reported a mean time to onset of signs of 46.5 months. These results support the view that secondary sclerosis of the bladder neck is a late complication of adenomectomy.

From a diagnostic point of view, retrograde ureterocystography (RUC) with voiding films was used to diagnose secondary sclerosis of the bladder neck in all our patients. The typical steam jet image was found in 69.6% of cases. UCR also revealed complications of secondary sclerosis of the bladder neck. These complications were dominated by dilatation of the upper urinary tract in the form of ureterohydronephrosis in 47.8% of cases. Our results corroborate those reported in the literature [1] [2] [3]. However, the occurrence of complications in our patients could be explained by the delay in consultation on the one hand and by the long evolution of sclerosis after prostatic adenomectomy on the other.

The post-micturition residue was greater than 150 ml in 73.9% of patients, and the cytobacteriological study of urine found a urinary infection in 17.4%. Urethral stricture was present in 13% of patients and bladder lithiasis in 8.7%. Urinary tract infection and bladder lithiasis in our series could be explained by the presence of significant post-micturition residue in our patients, which more often than not constitutes a germ culture medium, and also by the proliferation of certain so-called ureasic germs, a source of bladder lithiasis formation. Urethral stenosis associated with secondary sclerosis of the cervix could be explained by the relatively long period spent wearing a urinary catheter after adenomectomy.

In our work, the average duration of the procedure was 53 minutes, with extremes of 43 and 60 minutes. Our results corroborate those reported in the literature [6] [9]. The mean duration of postoperative urinary drainage was 3 days, with extremes of 2 to 5 days. The average length of hospitalisation in our series was 5.4 days, ranging from 3 to 7 days. Our length of stay is longer than that reported in the literature [1] [6] [9] [10]. During the post-operative follow-up period, retrograde ureterocystography (RUC) performed at 3 and 6 months showed good patency of the bladder neck and urethra, with a post-void residual of less than 30 ml.

We noted no recurrence or complication such as urinary incontinence. Our results corroborate those of MARTOV, who reported a 97% success rate without recurrence or complication. However, other authors such as SATAA have reported 27% recurrence and three (3) urinary incontinences [1] [11] [12]. The limit of this study is in the size of the sampling, however it could be understandable since it is an inaugural study. Further studies with more significant series will come to compare our results.

5. Conclusion

Secondary sclerosis of the bladder neck following prostatic adenomectomy is a

late but serious complication due to its obstructive and recurrent nature. The best treatment is endoscopic resection, which has produced satisfactory results in our study. It must be diagnosed early in order to avoid serious complications affecting the upper urinary tract.

Authors' Contributions

AVION Kouassi Patrice, AKASSIMADOU N'diamoi, AGUIA Brice: Statistical analysis and re-reading of the article as well as its drafting.

ZOUAN Freddy, ALLOKA Venance, KAMARA Sadia, DJE Koffi: Documentary research and editing.

Ethical Considerations

We protected the confidentiality of the information collected during the survey. An anonymity number was assigned to each survey form, with authorisation obtained from the administrative and health authorities.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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