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NARROWING OF THE MALE URETHRA AT THE REGIONAL HOSPITAL OF NGAOUNDERE: EPIDEMIOLOGICAL,CLINICAL AND RADIOGRAPHIC ASPECTS

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ABSTRACT

Narrowing of the urethra is the reduction in diameter of the urethral canal. It affects mostly men. Its management requires a precise diagnosis such as cystourethrography. The objective of this study was to describe the epidemiological, clinical and radiographic profiles of the male urethral stenosis or stricture. As such a cross-sectional descriptive study was carried out at the regional hospital of Ngaoundéré going from June 1st, to September 30th, 2016. Were included to the study all patients who consented to participate to the study and presented a urethral stenosis at cystourethrographic exam. Thus, 13 patients underwent cystourethrography, representing 22.4% of the sample size. Age extremes went from 4 years to 76 years with the age group of [50-60] years mostly represented. Shepherds and drivers with 23.1% where the most represented professions. This study reveals that, urethral stenosis is an affection of the young adult with infection as principal etiology. The prevention of STDs may as a result reduce the risk of urethral stenosis.

Key words: stenosis, urethra, cystourethrography, infection

INTRODUCTION

The male urethra is a narrow fibromuscular tube that conducts urine and semen from the bladder and ejaculatory ducts, respectively to the exterior of the body. At normal state, the male urethra is a soft, circular and elastic canal with a virtual diameter that opens during micturition. The urethra may be subject to several pathologies amongst which stenosis happens to be the most frequent. This stenosis is as a result of the reduction in diameter of the urethral canal that limits the normal flow of urine from the bladder to the exterior [1]. Its incidence is increasing regularly. In Europe, the pathology is as frequent as demonstrated by the studies carried out [2]. On the other hand, in Africa, and mostly in tropical zones, the frequency is not negligible as revealed by Ouattara K and collaborators [3]. If infectious forms are in regress in developed countries to the benefit of post-traumatic and iatrogenic forms, it is not the case of in our context in spite of the lack epidemiological studies. In fact, urethra stricture is first and famously a male affection. This invalidating affection remains widespread due to the recrudescence of sexually transmissible diseases, traumatic lesions of the urethra during perineal trauma and/or pelvic trauma and the frequent endo urethral manipulations [1]. This will with time lead to a partial or complete obstruction of the urinary canal which will equally with time lead to the alteration of the renal function and as such a risk of chronic renal insufficiency. The symptomatology is unique and manifested by the difficulty to evacuate urine. In spite of the progress made in this domain, the management is still a challenge in many situations [4]. It requires an accurate diagnosis indicating the site, the seriousness and the length of the stenosis. Endoscopy permits to confirm the diagnosis of the stenosis but remains limited in cases of complete stenosis. Cystourethrography, no matter the technique used permits to describe the characteristics of the stenosis and the evaluation of the whole urethral canal. As a matter of fact, this study was carried out in the regional hospital of Ngaoundéré with the goal to participate to the amelioration of its management.

GENERAL OBJECTIVE

It was to describe the epidemiological, clinical and radiographic profiles of the male urethral stenosis in the regional hospital of Ngaoundéré (RHN)

SPECIFIC OBJECTIVES

a- Present the sociodemographic characteristics of the patients

b- Study the different aspects and etiologies of the stenosis

c- Confront radiographic results to the clinical aspects

METHODOLOGY

a- Study design and setting

This study was a cross-sectional descriptive and prospective study, carried out at the regional hospital of Ngaoundéré going June 1st, 2016 to September 30th, 2016.

b- Study subject and method

Our population of study was consecutively exhaustive and concerned the male patients who presented themselves at the regional center of medical imaging of the RHN for a cystourethrographic exam. And as such, were included to the study all the male patients who consented to take part to the study and on the other hand, were included to the study: patients who were allergic to the contrast product used, patients with an infection of the lower urinary tract, patients with inabilities to cooperate and non-consented patients. The day of the exam, the identified patient is introduced where the exam will be carried out. We explain the procedure of the exam to the patient, its importance preparation to exam. Here, we start data collection by sociodemographic characteristics of the patients. Once the patient is installed, the contrast product prepared and ready for use, the clichés are taken before injection of the contrast product, during micturition and post-micturition.

c- Statistical data analysis

During data collection, we used the following tools: exam bulletin, a pen, technical file, records of procedures, and registers. On the other hand, instruments used for data analysis included Microsoft office 2010 and Sphinx V5.

RESULTS

1- Sociodemographic data

Study registered 13 cystourethrography, representing 22.4% of the sample size of specific related exams and 2.1% of the whole radiographic exams of the regional center of radiographic imaging.

a- Distribution following age

The mean age of the sample was 43.8 years with extremes at 4 years and 76 years respectively. The most represented age group was that of [50-60] years.

Table1: distribution of patients with age

AGE GROUPS	FREQUENCY (N)	PERCENTAGE (%)
[4-10]	2	15.4
[20-30]	1	7.7
[30-40]	3	23.1
[50-60]	4	30.8
[60-76]	3	23.1
TOTAL	13	100

b- Profession

Shepherds and professional drivers with 23.1% both constituted the most represented professions suffering from urethral stenosis followed by civil servants and students with 15.4% each.

Table2: distribution of patients following profession

Professions	**Number (n)**	**Frequency (%)**
Farmer	1	7.7
Shepherd	3	23.1
Driver	3	23.1
Civil servant	2	15.4
Student	2	15.4
Soldier	1	7.7
Warehousemen	1	7.7
TOTAL	**13**	**100**

2- Motif of consultation

Dysuria and bladder retention with 38.5% and 28.28% respective were the principal motifs of consultation**.** Regarding etiologies of stenosis on the other hand, infections represented 53.9% and trauma 23.1%.

Table 3: distribution of patients following motifs of consultation

Motifs of consultation	**Frequency (n)**	**Percentage (%)**
Dysuria	5	38.5
Weak urinary stream	2	14.14
Bladder retention	4	28.28
Fistula recherche	1	7.7
Urethral break post highway accident	1	7.7
TOTAL	**13**	**100**

3- Aspect of the urethral stenosis : site, type, length, number

The membranous site was the most frequent with 69.2%, followed by penile and bulbar sites with 15.4% each. The types of stenosis the most represented was the tight stenosis with 45.5%, then follows the very tight stenosis with 36.4%. The stenosis were unique in 69.2% against 15.4% of multiple stenosis.

Table4: radiographic aspects of the urethral stricture

Variables	**Frequency (n)**	**Percentage (%)**
Site		
Peniel	2	15.4
Bulbar	2	15.4
Membranous	9	69.2
Type		
Tight	5	45.5
Less tigh	1	9.1
Very tight	4	36.4
Complete	1	9.1
Length		
≤ 3 cm	9	81.82
> 3 cm	2	18.18
Non precised		
Number		
Un	9	69.2
> 1	2	15.4

4- Confrontation between the etiologies and radiographic aspects of urethral stenosis

Infectious stenosis are characterized by their membranous site, tight and short (less than 3cm) of length and unique. Traumatic stenosis occupies mainly the

membranous segment, with characteristics been tight and very tight, a length greater than 3 cm and unique. Only infectious stenosis attain the other segments of the urethra even though predominant in the membranous segment.

Table 5: confrontation between the etiologies and radiographic aspects of the stenosis

Radiographic aspects	Etiologies			
	Infectious	traumatic	Iatrogenic	**Total**
SITE				
Peniel	0	1	**1**	2
Bulbar	2	**2**	0	4
Membranous	6	2	1	**9**
TYPE				
Tight		4	1	**5**
Less tight	1	**1**	0	2
Very tight	2	1	1	**4**
Complete	1	**1**	0	2
LENGHT				
≤ 3 cm		8	1	9
>3cm	2	1	**3**	6
NUMBER	1	5	3	9
> 1	2	**2**	0	4
Total	31	**11**	4	

DISCUSSION

1- EPIDEMIOLOGICAL ASPECT

Male urethral stenosis is a public health concern. It is as a result of psychological troubles, handicaps, and socioeconomic disabilities generating important medical

expenses, consequently creating a negative impact on the quality of life [1]. This affection may attain all ages, but predominate in young adults. In this study, the mean age of the sample was 43.8 years with extremes at 4 years and 76 years. The most represented age group this sample was that of [50-60] years. These results are similar to those of Ngandu in a study on urethral stenosis carried out at the Gécamines SENDWE hospital of Lumumbashi where the mean age obtained was 40 years with extremes at 9 and 78 years. Other authors, obtained their mean ages between 25 and 55 years with extremes at 0.06 year and 90 years [21,23,24]. All these studies showed that, urethral stenosis affects all ages but remains mostly the affection of the adult between the ages of 30 to 50 years. It is equally observed in this study that urethral stenosis affects all professions, however, we note a predominance of shepherds and drivers with 23.4% each. Though we cannot establish a clear relationship between this affection and their professions, we can say that, their precariousness may render difficult the treatment of STDs related diseases complicated by stenosis.

2- CLINICAL ASPECTS

In general, clinical manifestations of stenosis are related to urinary obstruction or its complications. As such, in this study, dysuria (38.5%) and bladder retention (28.28%) were the principal motifs of consultation in this study. Other signs such as reduction of the urine jet was observed in 14.14%, micturition drip 14.14%, all these signs reveals a partial or complete obstruction of the urethra. Djé and collaborators [15] in Ivory Coast, Diakhité and al.,[16] and Ouattara and al.,[14] in Mali obtained the same clinical signs but at different proportions respectively 55%, 58.6% and 88.9%. The majority of our patients had a history urethritis in 53.9% of the cases and pelvis trauma in 23.1% as showed by Ahmed and al., [17] and Dje and al., [15] who reported respectively 66.5% and 87%. There equally exist other etiologies such as iatrogenic causes that stands for 7.7% of our sample. On the other hand, in developed countries, the etiology of urethral stenosis has become iatrogenic [18] since the outcome of endoscopic methods. Out of 13 cystourethrographies carried

out, 11 presented stenosis, either 84.6% and 2 cases were normal either 15.4% which expresses a good radio clinic similarity. The analysis of the radiographic characteristic of stenosis observed in patients reveal that, they were unique in 69.2% of the cases, multiple in 15.4% of the cases, which concords with the results of Benjelloun [20] and Ndémanga K [21]. Besides, Ahmed [17] and Ouattara [22] reported a predominant forms of multiple stenosis in respective proportions of 85% and 53.5%. Urethral stricture concern different parts and/or segments of the urethra [19]. In this design study, the most concerned segment was the membranous segment with 69.2%. Obtained results are different from those of Ndémanga K and al., in 2006 [21] ; Musau and al., in 2009 [25] who obtained a bulbar predominance rate with 84.2%. The explanation being that, several para urethral glands are present in the bulbar region that accounts for the proliferation of infections, consequently resultant stenosis after infection [21]. 45.5% of the stenosis obtained in our sample was of the type tight, followed by 36.4% very tight stenosis. It is important to note that, the tight or not characteristic of the stenosis depends on the etiology and management delay. All the patients presenting a urethral stenosis had a significant post residual micturition which is a specific sign of urethral stenosis. To these stenosis were associated urethral fistula (23.1%) and diverticula (15.4) which are complications of stenosis that reveals its seriousness.

3- RADIOGRAPHIC AND CLINICAL CONFRONTATION

Confronting the site of stenosis to the clinical manifestations, we notice that, penile stenosis are generally revealed by the reduction of urinary jet, bulbar stenosis by dysuria, and variable clinical signs for membranous sites. Very tight stenosis and complete stenosis expresses bladder retention. Equally this study revealed that, infectious stenosis occupied the membranous segment of the urethra and presented the following characteristics: tight, short and unique. Furthermore, traumatic stenosis presented the characteristics of being very tight, tight, long and unique. Only infectious stenosis reaches the other segments of the urethra.

CONCLUSION

Coming to the end of this study, we can say that the male urethral stenosis is a pathology of the young adult, caused mainly by genital infections and pelvic trauma, iatrogenic causes are not left out. The site of predilection was mainly membranous, followed by the bulbar site which were for the most unique and tight with complications of fistula and bladder diverticula's.

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