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Original Research Article

Epidemiological, Clinical and Therapeutic Study of Urolithiasis at the Fousseyni Daou Hospital in Kayes, About 111 Cases

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Abstract: The aim was to study the epidemiological, clinical, paraclinical and therapeutic aspects of obstructive urinary calculi of the urinary tract. This was a prospective and descriptive study of 111 patients admitted to the urology department over a period of 6 years (January 2016 to December 2021). All patients with obstructive (symptomatic) urinary stones over 1.5 cm in diameter were included. Treatment results were analyzed 6 months later. Surgery for urolithiasis represented 4.10% of the interventions performed over the study period. The average age of the patients was 41 years old, with extremes of 1 and 81 years old. The age group 21 to 30 years was predominant, i.e. 24.3% of cases. The M/F sex ratio was 2.26. Renal colic was the main reason for consultation, i.e. 72.1%. Staphylococci, E. coli and Enterococci were respectively 22.5%; 21.6% and 12.6%. The operative technique used was open surgery. The postoperative course was simple in 92.8% and complicated in 7.2%.

Keywords: urinary tract, urology, Urolithiasis, postoperative course.

INTRODUCTION

Urolithiasis is a common condition that affects 4 to 12% of the population of industrialized countries [1, 2]. It is a multifactorial pathology that is due to very diverse causes: metabolic, nutritional, infectious, anatomical and/or medicinal, the identification of which requires clinical and biological investigations.

In countries with a low level of development, the resurgence of certain specific conditions such as urinary schistosomiasis or urogenital tuberculosis, exposure to a hot and dry environment, as well as diet and hydration, play a major role. in the formation of urinary crystals and stones [3].

The Kayes region presents these socio-economic, affectionate and climatic particularities. Urolithiasis represents 4.10% of the activities of the urology department of the Fousseyni Daou Hospital in Kayes.

Mali, there are hospital frequencies. In 2018 Amadou K *et al*., at the CHU Pr Bocar Sidy Sall in Kati, found a hospital frequency of 20.35% [4].

The aim of our study was to study the epidemiological, clinical and therapeutic aspects of obstructive urinary calculi of the urinary tract in the urology department of the Fousseyni Daou Hospital in Kayes;

PATIENTS AND METHODS

This study was prospective and descriptive involving 111 patients admitted to the department for obstructive urinary stones (symptomatic) over a period of 6 years (January 2016 to December 2021). The patients included had stones whose size was greater than or equal to 1.5 cm in diameter. Patients with asymptomatic or symptomatic urinary calculi less than or equal to 10mm were excluded.

The data was collected on a survey sheet developed by us from patient hospitalization records, entered and analyzed by Word 2016, Excel 2016, SPSS version 20 and Epi info software.

Ultrasound, UIV and sometimes CT were the reference examinations to determine the location, size and number of stones.

A cytobacteriological examination of urine was performed in all scheduled patients. The treatment was open surgery. The result was evaluated 6 months

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after treatment. The postoperative course was simple in 92.8% and complicated in 7.2%.

RESULTS

During the study period, 111 patients with symptomatic urolithiasis were collected in the urology department out of 2757 operated patients, i.e. a frequency of 4.10%.

The average age of the patients was 41 years old, with extremes of 1 and 81 years old. The age group 21 to 30 years was predominant, i.e. 24.3% of cases.

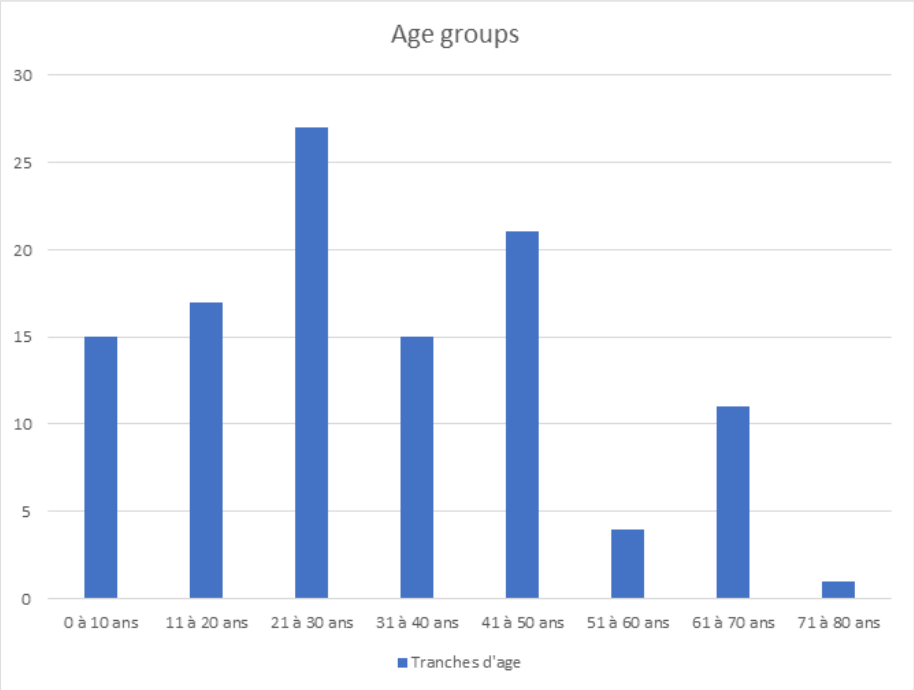

Figure 1: Distribution of patients according to age groups

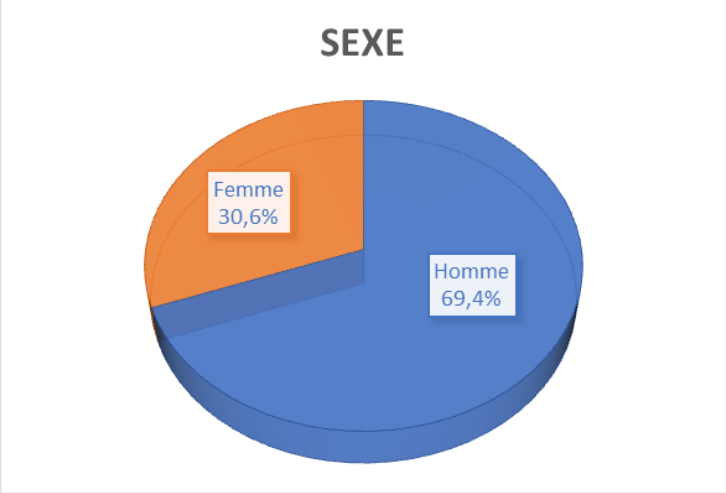

Figure 2: Distribution of patients by gender

Renal colic was the main reason for consultation, i.e. 72.1%.

The most common urological history was urinary tract infection (9.9%), urinary schistosomiasis (8.1%) and ureteropelvic junction syndrome (6.3%). The most found germs were E. coli (22.5%) Staphylococci (21.6%) and Enterococci (12.6%).

The dietary risk factors found were low consumption of animal protein, insufficient water intake and regular consumption of tea and dairy products.

Urinary cytobacteriological examination (ECBU) was positive in 67.6%. The most frequently found germ was Escherichia (E) coli (22.5%).

Table 1: Distribution of patients according to the germs identified

GERMS	WORKFORCE	PERCENTAGE (%)
Staphylocoque	24	21,6
Enterococcus	14	12,6
E. coli	**25**	**22,5**
Aeromonas	9	8,1
Autre germe	3	2,7
Subtotal	**75**	67,6
Aucun germe identifié	36	32,4
Total	111	100,0

For medical imaging, ultrasound was performed in 103 patients, i.e. 92.8%; intravenous urography in 44 patients or 39.6% and uroscanner in 13 patients or 11.7%.

The stones were of renal seat in 46.8%, ureteral 34.2% and bladder in 19%. Upper urinary tract stones accounted for 81.1% of cases.

The treatment performed was open surgery in all patients. Pyelolithotomy was 32.4% Ureterolithotomy 34.2%, Cystolithotomy 15.4%.

Table 2: Distribution of patients according to surgical treatment

Surgical treatment	Workforce	Percentage (%)
Nephrolithotomy	16	14,4
Pyelolihotomy	36	32,4
Ureterolithotomy	**38**	**34,2**
Cystolithotomy	21	19
Total	111	100,0

Ureterolithotomy was performed in 34.2%

DISCUSSION

During the study period from January 2016 to December 2021, we identified 2757 cases of urological surgical pathologies, among which lithiasis represented 111 cases, i.e. a hospital frequency of 4.10%. This frequency was 20.35% in the urology department of the CHU Pr Bocar Sidy Sall in Kati from January 2016 to December 2018 (4) and 5.7% of the services provided by the Nephrology Hemodialysis and Urology Andrology department of the Sylvanus Olympio University Hospital Center in Lomé from January 2010 to December 2018 [3].

The average age of the patients was 41 years old, with extremes of 1 and 81 years old. The age group [21 to 30] years was the most represented 24.3% of cases. It is similar to that of Amadou K *et al*., [4] with an age range of [21-30 years] at 25.9% and an average age of 33.85 years and extremes of 1 and 81 years ; it is lower than that of Abago B *et al*., [3] in Togo [40 to 50] years with an average age of patients at 44.5 years and extremes of 1 year and 88 years.

These results show that the age group frequently affected by urolithiasis varies according to the country and the dietary habits of the population studied.

In our series, the male sex represented 69.4%; against 30.6% for women. The sex ratio M/F was 2.26 close to that of Zidane D *et al*., (53) in Algeria 2.24; higher than that of Y. Diallo *et al*., (52) in Senegal 1.7 and that of Abago B. (3) in Togo 1.8. It is lower than that of Amadou K *et al*., [4] in Mali 2.86.

Several studies had already reported the male predominance of this pathology with more or less high proportions [7, 11]. This predominance would be linked to the role of estrogens in lithogenesis. Indeed, estrogen would have a protective effect, by increasing the urinary elimination of citrate which solubilizes calcium [13]. Other epidemiological studies report that it is also due to the anatomical configuration of the male urogenital system which lends itself more easily to urinary stasis as opposed to the shorter and wider female urethra [14].

Renal colic was the most common reason for consultation, 72.07%. It was respectively 69% and 82.3% in the studies of Amadou K *et al*., [4] and that of Abago B *et al*., [3]. Our study only confirms these results.

History of urological pathologies; the most found were bacterial urinary tract infection with a rate of 9.9%, urinary schistosomiasis 8.1% and pyelo-ureteral junction syndrome 6.3%. Kaboré FA (56) found urinary schistosomiasis and bacterial urinary infections in 26% and 18% of cases respectively. For Amadou K *et al*., [4] the history of urinary schistosomiasis and urinary tract infection represented respectively 6% and 10%.

Urinary tract infection and urolithiasis are two inseparable entities because, in fact, it constitutes either a contributing factor or a complication of the disease (57).

The search for a urinary tract infection was carried out in 82% of patients. The culture was positive in 75 patients or 67.6%. Escherichia Coli was the most isolated germ, 22.5%.

In the series by Amadou K *et al*., [4] on 81 patients, the culture was positive in 22 patients, i.e. 27%. The most frequently found germ was E. coli in 68% of cases.

These results prove that there is an intricacy between urinary tract infection and lithogenesis. We found 81.1% localization in the upper urinary tract versus 19% in the lower urinary tract.

Our result is very close to that of Amadou K *et al*., [4] who found 80% localization in the upper urinary tract against 20% in the bladder. These results confirm the data in the literature (6, 59, 60).

Open surgery was the only therapeutic means used. It allowed the extraction of the stone and to correct the anomalies or pathologies associated with urolithiasis. This choice is justified in our context by an insufficiency of the technical platform in our public structures which do not have new techniques for the treatment of urinary stones (extracorporeal lithotripsy, ureteroscope, nephroscope) and by the high cost of these new techniques in certain private structures. Space.

Postoperative follow-up

The postoperative course was simple in 92.8% and complicated in 7.2%. This result is close to that of Abago B *et al*., [3] 93.8%.

The chemical composition of stones has not been studied due to the lack of an appropriate analytical laboratory.

CONCLUSION

The management of urolithiasis is a common practice in urology, it affects young adults between 40 and 50 years old with a male predominance. The predominant symptomatology is renal colic. The treatment was open surgery.

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