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Upper Urinary Tract Diversion by a JJ Catheter: Indications and Results regarding 27 Cases

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Abstract

Objective: The aim is to report the indications and results of upper urinary tract diversion using a double J catheter in central Ivory Coast. This was a retrospective descriptive study from December 1, 2021 to December 31, 2022, on the records of patients who had a JJ catheter insertion as a type of upper tract diversion. **Results:** Twenty-seven patient records were included. The average age of patients was 35 years, ranging from 16 to 85 years. Women accounted for 55.56% of cases. The sex ratio was 1.26. Ureterohydronephrosis was the main indication for JJ upregulation. The etiologies were dominated by urinary lithiasis with 51.85% of cases. The JJ catheter insertion was performed without fluoroscopic control (blind) under spinal anesthesia with a success rate of 57.14%. **Conclusion:** JJ catheter insertion is an effective alternative technique for urinary diversion. Its safety should be assessed for improved management.

Keywords

Urinary Diversion, Indication, Results, JJ Catheter

1. Introduction

The double probe is a thin flexible tube = 2 - 3 mm in diameter, the extreme ends of which each form a loop ("J"). It was first used in 1978 by the Finney and Hepperlen teams [1].

This is an alternative that will indicate during the dilation of the renal cavities or renal insufficiency. Although the indications for the JJ catheter are frequent in

Ivory Coast, no recent study is available on this subject in our country whose objective was to report the indications and results of the diversion of the upper urinary tract by JJ catheter in the center of Ivory Coast.

2. Materials and Methods

This was a retrospective, single-center, descriptive study including all adult patients (>18 years) undergoing a primary JJ insertion as a type of upper urinary tract diversion during the period. Patients with incomplete records or JJ insertion in addition to a therapeutic procedure (pyeloplasty, ureterovesical reimplantation) or with incomplete records were excluded.

The parameters studied were age, sex, history, indication, preoperative cystoscopy, causes of failure, per- and post-operative complications.

The insertion of the double JJ probe was considered a surgical success: when the JJ probe was inserted up to the renal cavities, the positioning of the JJ was objective at the postoperative PSA. Data were entered and analyzed using SP SS 26.0 software.

3. Results

3.1. Epidemiological Aspects

3.1.1. Age

For this study, 27 patient records were included, the average age of the patients was 35 years, with extremes ranging from 16 years to 85 years. The age range was between 30 years and 45 years (Figure 1).

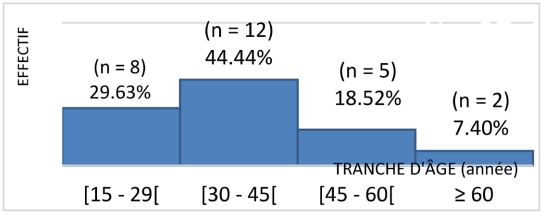

Figure 1. Distribution of patients according to age groups.

3.1.2. Sex

Women were the most represented with 55.56% of cases with a sex ratio of 1.26, there was one case of pregnancy with a gestational age of 25 weeks of amenorrhea (Figure 2).

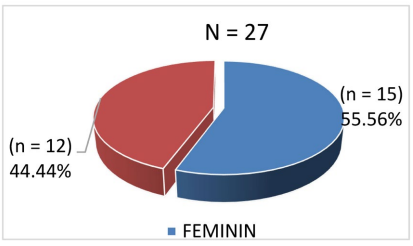

Figure 2. Distribution of patients by sex.

3.1.3. Residence

Patients lived in urban areas in 70.33% of cases.

Hypertension was noted in 18% and 17 patients had a history of hysterectomy. Patients lived in urban areas in 70% of cases.

JJ catheter insertion was indicated in 17 patients, or 63% of cases. It was bilateral in 30% of cases (Figure 3).

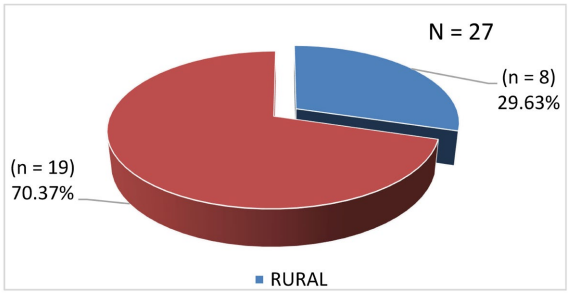

Figure 3. Distribution of patients according to place of residence.

The etiologies were dominated by ureteral lithiasis with 52%, pyeloureteral junction syndrome came in second place with 18.5% (Table 1).

Table 1. Distribution of patients according to the etiologies of the obstructions (N = 27).

	Effective	Percentage
Urethral lithiasis	14	51.85
JPU syndrome	5	18.51
pregnancy	4	14.81
Extrinsic ureteral compression	1	3.70
Cervical tumor	1	3.70

Locoregional anesthesia (spinal anesthesia) was the most used (81%), abdominal X-ray without post-operative control preparation was performed in 62% of cases, in the absence of fluorescing guidance the success rate of the JJ probe insertion was 57%. Several interventions and indications could be observed in the same patient (Table 2).

Table 2. Distribution of patients according to the type of anesthesia, the technique used and post-operative monitoring (N = 27).

	Effective	Percentage
Locoregional anesthesia	22	81.48
General anesthesia	5	18.52
Post-operative control ASP Rx	17	62.96
Brightness amplifier	-	-
Use of fluorescence	-	-

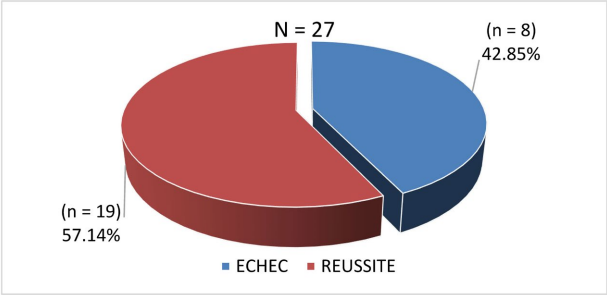

Figure 4. Evolving methods of probe placement.

Ureteral siphons and pelvic stones were the main causes of failure in 33% of cases (**Figure 4**).

4. Discussion

The upper urinary tract diversion technique can be performed permanently or temporarily by endoscopic, percutaneous or combination of these two modalities. The insertion of the double JJ catheter is one of the basic gestures performed daily, it ensures the greatest autonomy and mobility to the patient [2]. In our study the average age of the patients was 35 years with extremes ranging from 16 years to 85 years. The female sex was the most represented in 55.56% of cases. Our results were similar to those of Zakou *et al.* in Dakar found on the other hand an average age of 49.9 years with a female predominance. Other series noted respective average ages of 39.5 and 39.9 years with a male predominance [1] [3]. Ureterohydronephrosis was the main indication in 100% of cases like other authors [4] [5].

The lithiasis pathology represented 51.85% in our study. These results corroborate with some authors who noted, urinary stones in the foreground [4] [5] [7], Coulibaly and Al [6]: The other etiologies were the pyelo-ureteral junction syndrome, pregnancy, ureteral extrinsic compression, cervical tumor. Spinal anesthesia was the most used type of anesthesia 81.5%, during the installation of the double JJ catheter. This installation was done without fluoroscopic guidance, abdominal images taken in 62.06% of patients without ASP preparation, made it possible to confirm the correct positioning, Zakou *et al.* used like us the abdominal radiography without preparation in 71.4% [5]. On the other hand, some authors report JJ increases entirely under fluoroscopy in their entire series and under general anesthesia for all the patients concerned [6] [8].

JJ's rise was a success in our series in 57.14% [9].

The success rate varies from one study to another, going up to 100% success [9].

The causes of failure in the literature would be: tumor encroachments of the meatus, ureteral stenosis, compression of the pelvic ureter, the ureteral siphon [5]. Changes in the mucosa, the presence of cystitis, edema, tumor, trabeculation can make the localization of the ureteral meatus difficult or even impossible to intubate [5] [7].

We did not note any complications in our study. However, the major complications identified after JJ rise in the literature are infections, JJ migration, stone formation, JJ encrustation, JJ fracture.

5. Conclusion

The double-J catheter is an effective and non-invasive alternative for upper tract shunting. Its indication is dominated by ureterohydronephrosis complicating stone pathology. We will focus later on the short- and long-term monitoring of patients with JJ.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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