



Research Article

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Endoscopic drainage of the upper urinary tract: indications and quality of life of post-drainage patients

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Abstract

Background and rationale: Urine drainage after renal secretion and excretion requires an unobstructed urinary tract. In the event of an obstruction, and depending on the etiology of the obstruction, endoscopic drainage of the urinary tract is indicated. This study aimed to identify the indications and assess the quality of life of patients who have undergone endoscopic drainage of the upper urinary tract at the Clinique Universitaire d'Urologie - Andrologie of the CNHU-HKM in Cotonou over the past five years. Patients and method: This was a descriptive, retrospective study of patients who underwent endoscopic drainage of the upper urinary tract (JJ stent assembly) at the CNHU-HKM University Urology-Andrology Clinic from January 1, 2018, and December 31, 2022. The English-language "ureteral stent symptom questionnaire (USSQ)" developed and validated by Joshi et al, then translated and validated in French in 2010, enabled us to assess the tolerance of JJ stents in our patients. Results: A total of 173 patients were selected, with an average age of 46. Males accounted for 64.61 % of cases. JJ catheterization was indicated in 51.44 % of cases (n=89), due to ureterohydronephrosis. Etiologies were dominated by lithiasis obstacles in 73.41 % of cases. Pain and discomfort associated with the presence of the JJ stent were found in 27.75 % of cases (n=48). Sexual activity was impeded by pain in 4 patients (8.0 %). Conclusion: The use of JJ stent is common practice in urology, but they are responsible for significant morbidity. In our study, the indication is dominated by renal colic complicating lithiasis. Studies aimed at assessing the quality of life of JJ stent patients remain a challenge, as they very often lead to subjective conclusions and are generally influenced by confounding variables such as age and comorbidities. A better understanding of the areas of daily life impacted by JJ stent use will enable us to better inform our patients, as well as develop new JJ stent models to improve their tolerability.

Keywords: JJ stent, Quality of life, Urology-Andrology Clinic, Benin.

INTRODUCTION

Obstacles of any kind to the normal excretion of urine are a major public health problem, as they can lead to renal failure. Urine drainage after renal secretion requires free intra- and extrarenal urinary tracts. An obstacle of any kind to the normal course of excretion is a major health problem, as it can lead to renal failure. Hence the importance of urinary tract drainage, which is essentially achieved using endoprostheses or double J stents [1]. The double J or "JJ" stent is an internal autostatic stent placed endoscopically between the kidney and the bladder, allowing urine to flow freely and removing obstructions [2]. It was first described in 1967 by Zimskind et al and first used in 1978 by the Finney and Hepperlen teams [2,3]. Since then, it has undergone several modifications, not only in terms of shape but above all like the component material, to considerably improve its efficacy and tolerability [3,4]. Today, the indications for JJ stent insertion are very varied, and the procedure is one of the most common in urology [2-4]. However, these stents can cause undesirable effects or complications, which can have a major impact on a patient's quality of life [5].

In Benin, no study has yet been published on the experience of patients after a JJ catheterization. This work aims to study the indications for JJ catheterization and to evaluate the quality of life of patients after JJ catheterization at the CNHU-HKM University urology andrology clinic over the past five years.

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METHODOLOGY

This was a descriptive, retrospective study conducted at the CNHU-HKM University urology clinic. It took place over a period from January 1, 2018, to December 31, 2022, i.e. 5 years. It involved all patients who had consulted for obstructive upper urinary tract syndrome and who had received endoscopic JJ stent insertion as the first-line type of upper urinary tract diversion from January 1, 2018, to December 31, 2022.

Parameters studied were age, Sex, history (associated comorbidities), indications for JJ stent insertion, patients' renal function before and after JJ stent insertion, etiology of pathologies indicating JJ stent insertion, use of fluoroscopic control during JJ stent insertion, type of anaesthesia performed, urinary symptoms after JJ stent insertion, pain and discomfort experienced and patients' sexuality after JJ stent insertion.

The "ureteral stent symptom questionnaire (USSQ)" developed and validated by Joshi et al, then translated and validated in French in 2010, enabled us to assess the tolerance of JJ stents in our patients.

Data were entered and analyzed using Epi info software version 7.2.5.0.

The standard technique of retrograde endoscopic JJ probe insertion was used. An unprepared abdominal X-ray was taken on D1 postoperatively in all patients whose JJ stent had not been inserted under fluoroscopic control. Postoperative examinations, including renal function tests, were systematically performed pre- and postoperatively in all our patients.

RESULTS

Epidemiological aspects

During the study period, 236 patients were hospitalized at the CNHU-HKM University urology andrology clinic for pathologies requiring JJ catheterization. A total of 173 patients who met the inclusion criteria were included in the study. The mean age of patients was 46 years, with extremes of 3 and 86 years. Men accounted for 64.61% of cases, with a sex ratio of 1.8.

Indications for JJ stent insertion

JJ catheterization was indicated in 51.44% of cases (n=89), in the presence of ureterohydronephrosis; it was bilateral in 14.45 % (n=25). Renal colic without identification of the level of obstruction accounted for 46.82 % of indications (n=81).

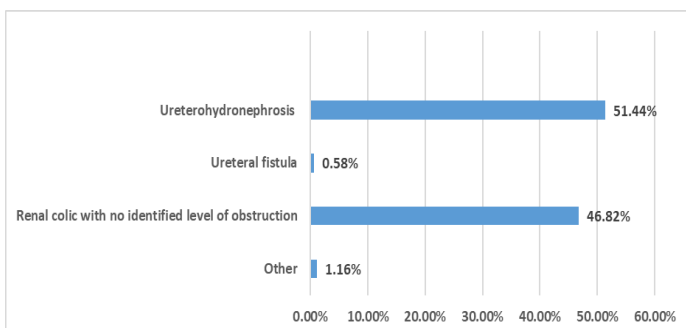


Figure 1: Indications of JJ stent insertion

A computed tomography demonstrated multiple metastases in the lungs and on the 7th and 8th right ribs (Figure 1 A, B). A prostate biopsy revealed an ISUP grade group I adenocarcinoma. The patient had already lost both his father and mother but could not tell the cause of their death. We deemed it unworthy to determine which one of the two cancers had yielded the bone metastases. In sum the 74-years-old man concomitantly presented breast cancer and prostate cancer with

metastatic costal lesions. We combined Doxorubicin, Cyclophosphamide and Triptorelin to treat him. The patient underwent 2 cycles of Doxorubicin and Cyclophosphamide and got lost to follow-up as he could not afford anymore the cost of the treatment.

Perioperative work-up

Creatinine levels were impaired (acute renal failure) in 50 patients (28.90 %) preoperatively. Normalization of renal function after JJ stent insertion was spontaneously observed in 13 patients (26.0 % of patients with impaired renal function). In 37 patients (74.0 % of patients with impaired renal function), renal function was significantly improved without normalization.

Pathologies indicating JJ stent insertion

Lithiasis was the most common etiology in 73.41 % of cases. Tumoral etiology came second with 13.29 % of cases (prostatic tumour in 6.36 % of cases, cervical tumour in 5.20 % of cases and bladder tumour in 1.73 % of cases). Pyeloureteral junction syndrome was found in 4.05 % of patients. Retroperitoneal fibrosis and ureteral fistula were found in 2.31 % and 0.58 % of patients respectively. Pregnancy (compression of the urinary tract by the fetal mobile) was found in only one patient (0.58 %).

Table 1: Distribution of patients according to etiologies indicating JJ stent insertion

Etiologies indicating the insertion of the JJ stent	Number	Percentage
Retroperitoneal fibrosis	4	2,31
Ureteral fistula	1	0,58
Pregnancy (compression of the urinary tract by fetal motility)	1	0,58
Lithiasis obstruction	127	73,41
Ureteral stenosis	1	0,58
Pyeloureteral junction syndrome	7	4,05
Cervical tumour involving ureteral meatus	9	5,20
Prostate tumour involving ureteral meatus	11	6,36
Bladder tumour	3	1,73
Other	8	4,62
TOTAL	173	100

Type of anaesthesia

Spinal anaesthesia (SA) was used in 58.96 % of patients. General anaesthesia (GA) was required in 41.04 % of patients.

Type of intraoperative guidance

Intraoperatively, the image intensifier was used in 61.85 % of cases. The JJ probe was inserted without fluoroscopic guidance (blind) in 38.15 % of cases. Of these, the operative success rate was 95.45 %; malposition of the JJ probe was observed in 4.54 % of cases (n=3), and this was proven in postoperative with unprepared abdominal X-ray images.

Clinical course

Daytime pollakiuria was found every 3 hours (8 micturitions) in 2.89% of cases (n=5). Nocturnal pollakiuria was evaluated at 3 in 9.25 % of cases (n=16). Urinary urgency was found in 8 patients (4.62 %). Urge incontinence was found in 7 patients (4.05 %). Incomplete bladder emptying was found rarely (less than a third of the time) in 7 patients (4.05 %). Urinary burning was found in 9 patients (5.20 %). Macroscopic hematuria was found in 6 patients (3.47 %); this was hematuria of low abundance (urine slightly tinged with blood). Overall, urinary symptoms represented a mild problem in 10 patients (5.78 %), a moderate problem in 1 patient (0.58 %) and a severe problem in 3 patients (1.73 %).

Pain and discomfort associated with the JJ stent were present in 48 patients (27.75 %). Sleep interruption due to JJ tube pain and discomfort was rare (less than a third of the time) in 23.12 % of cases (n=40) and sometimes present (between 1 and 2 thirds of the time) in 6 patients (3.47 %). Overall, pain and discomfort related to the JJ stent interfered, sometimes (between 1 and 2 thirds of the time) in the lives of 4 patients (2.33 %) and rarely (less than one-third of the time) in the lives of 37 patients (21.51 %).

Table 2: Repair of patients according to the degree of urinary symptoms experienced

The degree to which urinary symptoms are felt	Number	Percentage
Exaggerated	3	1,73
Moderately	1	0,58
Not at all	159	91,91
Somewhat	10	5,78
TOTAL	173	100

Physical activity after internal drainage.

Moderate physical activity was performed with significant difficulty in 1.16 % of cases and with moderate difficulty in 9.83 %. Heavy physical activity was performed with significant difficulty in 0.58 % of cases and with moderate difficulty in 9.83 %. Resumption of sexual activity after JJ catheterization was normal in 122 patients (70.52 %). For 4 patients (8.0 %), sexual activity was impeded by pain.

Feelings associated with post-drainage JJ stent insertion

129 patients (74.57%) were very satisfied after JJ stent insertion, 22 patients (12.72%) were satisfied, 1 patient (0.58%) was dissatisfied and 11 patients (6.36%) were mixed (neither satisfied nor annoyed).

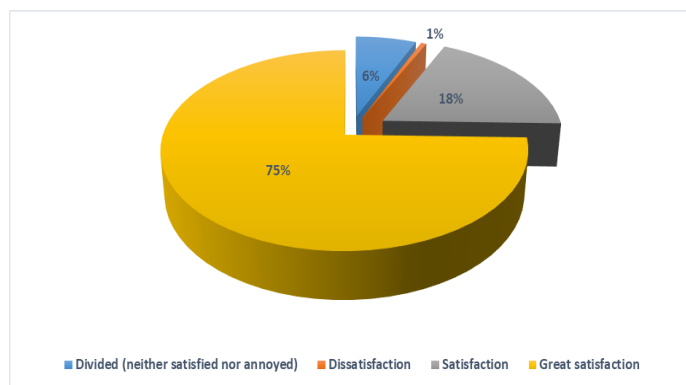


Figure 2: Patient satisfaction with JJ stent use

DISCUSSION

Upper urinary tract diversion techniques can be performed permanently or provisionally by endoscopy, percutaneous or a combination of these two modalities as a mixed technique [3]. The endoscopic route is the one used in all our patients. In our study, the average age of patients was 46. As in Zakou et al [3], who found an average age of 47.9 years. Ouédraogo et al, on the other hand, found an average age of 39.7 years [2]. This age difference depends on the particularities of the study and the region. The age depends on the etiologies that indicated the need for a JJ stent.

Male subjects were the most represented, with a sex ratio of 1.8. Zakou et al [3] and Coulibaly et al [1] reported a predominance of females. Cervical cancer was the main cause of obstruction in their study, whereas urinary lithiasis was the main cause of obstruction in our series.

In our series, etiologies were dominated by urinary lithiasis with 71.3% of cases, including 31.4% ureteral lithiasis and 39.8% renal lithiasis. Tumoral causes came second, with prostatic tumor in 6.18% of cases, cervical tumor in 5.0% and bladder tumor in 1.69%. This observation was similar to that of Zakou et al [3] and Hodonou et al [6]. In Nedjim et al [7], Kassogue et al [8] and Gandaho et al [9], obstruction was mainly tumoral.

The use of the "USSQ-FR" questionnaire in our series enabled us to assess tolerance of the JJ stent, as did Puichaud et al [10] and Ray et al [11]. Urinary symptoms, pain and even an impact on patients' sexual activity were observed. Wearing a JJ stent also leads patients to make more frequent use of the healthcare system [5].

The urinary symptoms found in our series were similar to those found in several studies [12,13]. Dysuria is generally felt at the end of micturition and may be explained by permanent irritation of the bladder trigone by the distal loop of the JJ stent when it forms an incomplete loop. Hematuria may result from the insertion of the JJ stent itself or irritation of the bladder mucosa by the JJ stent. Urinary incontinence usually results from the migration of the JJ stent beyond the bladder neck into the proximal urethra, bypassing the urethral sphincter mechanism of continence [11-14].

Pain and discomfort associated with the JJ stent interfered with between 1 and 2 thirds of the time in the lives of 4 patients (2.33%) and less than one-third of the time in the lives of 37 patients (21.51%) in our series. These pains were mainly localized to the flanks and hypogastric region. In the series by Miyaoka et al [13], pain associated with the insertion of a JJ stent was found with an incidence varying between 19% and 32% for flank pain and 30% for hypogastric pain. Flank pain is most likely the result of urine reflux to the kidney, leading to an excessive increase in intra-pelvic pressure, which ultimately translates into pain. It is generally mild to moderate and is not influenced by the position of the proximal loop. Suprapubic pain, on the other hand, is the result of local irritation of the bladder by the distal loop of the JJ stent or may be a result of the position of the proximal loop.

JJ catheterization is the method of urinary diversion that offers the most autonomy and mobility to the patient and is therefore the most widely used for transient or permanent use [2]. However, wearing a JJ stent leads to impaired sexual activity and satisfaction. In our series, sexual activity was accompanied by slight pain in 5.60 % of cases and stopped in 8.0 % of cases. Chiron et al [5] reported the same observation.

CONCLUSION

The use of JJ stents is common practice in urology, but they are responsible for significant morbidity. In our study, the indication is dominated by renal colic complicating lithiasis. Studies aimed at assessing the quality of life of JJ stent patients remain a challenge, as they very often lead to subjective and variable conclusions generally influenced by confounding variables such as age and comorbidities. A better understanding of the areas of daily life impacted by JJ stent use will enable us to better inform our patients, as well as develop new JJ stent models to improve their tolerability.

Conflict of Interest

The authors declare no conflicts of interest.

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