

# Pyeloplasty According to Küss-Anderson-Hynes: Results and Complications at the Urology-Andrology Department of the Sino-Guinean Friendship Hospital

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## Abstract

**Objective:** Evaluate pyeloplasty according to Küss-Anderson-Hynes at the urology-andrology department of the Sino-Guinean Friendship Hospital. **Patient and Method:** This is a 3-year prospective descriptive study from January 1, 2018 to December 31, 2020. It focused on a sample of 21 patients, who had undergone pyeloplasty according to Küss-Anderson-Hynes. **Results:** The averages age of the patients was 24.24 years. Lumbar pain was the main reason for consultation in 71.43% of cases. pyeloplasty according to Küss-Anderson-Hynes alone was performed in 76.20% of cases. It was associated with lower pole vessel uncrossing in 14.29% of cases and in 9.52% of cases with pyelolithotomy. The main Postoperative complications consisted of surgical site infections (23.81%) and fistula of the pyelo-ureteral junction (9.52%). The result of the pyeloplasty evaluated after three years, was qualified as good in 13 patients (86.67%), conversely the result was declared bad in 2 patients or 13.33%. During the follow-up period, postoperatively, we had lost sight of 6 patients. **Conclusion:** Pyeloplasty according to Küss-Anderson-Hynes in addition to its excellent results reported by the literature was the only therapeutic alternative performed during this study. However, its indications are considerably reduced with the advancement of laparoscopy.

## Keywords

Pyeloplasty, Küss-Anderson-Hynes, Parietal Suppuration

## 1. Introduction

Pyeloplasty is a surgical technique that consists of resection of the narrowed pyelo-ureteral zone followed by a pyelo-ureteral anastomosis [1].

The management of ureteropelvic junction syndrome has evolved considerably over the past 20 years. Before the era of obstetric ultrasound, the diagnosis was made after symptoms. Nowadays in developed countries, systematic antenatal screening has modified the clinical profile of this pathology.

Added to this is the management of pyelo-ureteral junction syndrome by so-called minimally invasive techniques with multiple advantages.

In developing countries, however, the clinical manifestations still remain the circumstances of discovery of the syndrome of the pyelo-ureteral junction.

In 2008 Savoie P H and col. [2] in France concluded that pyeloplasty by resection anastomosis is the reference treatment for stenosis of the ureteropelvic junction.

- In Senegal Diao B *et al.* [3] concluded that the success rate of open pyeloplasty according to Anderson-Hynes was over 90%.
- In Burkina Faso, Kirakoya B *et al.* [4] affirmed that pyeloplasty according to Küss-Anderson-Hynes remained the reference technique with excellent results: 90% to 95%.
- In Guinea, little previous study has been done on the subject.

The evaluation of this technique in the management of the anomaly of the pyelo-ureteral junction through its results and complications in the urology-andrology department of the Sino-Guinean Friendship Hospital constituted the aim of this study.

## 2. Patients and Method

Our descriptive-type prospective study spanned a period of 3 years from January 1, 2018 to December 31, 2020.

Were included in this study, all patients who underwent open pyeloplasty with a complete medical file.

Were not included in this study:

- All patients admitted for abnormality of the ureteral pyelojunction who did not undergo open pyeloplasty;
- All patients who underwent open pyeloplasty outside the study period.

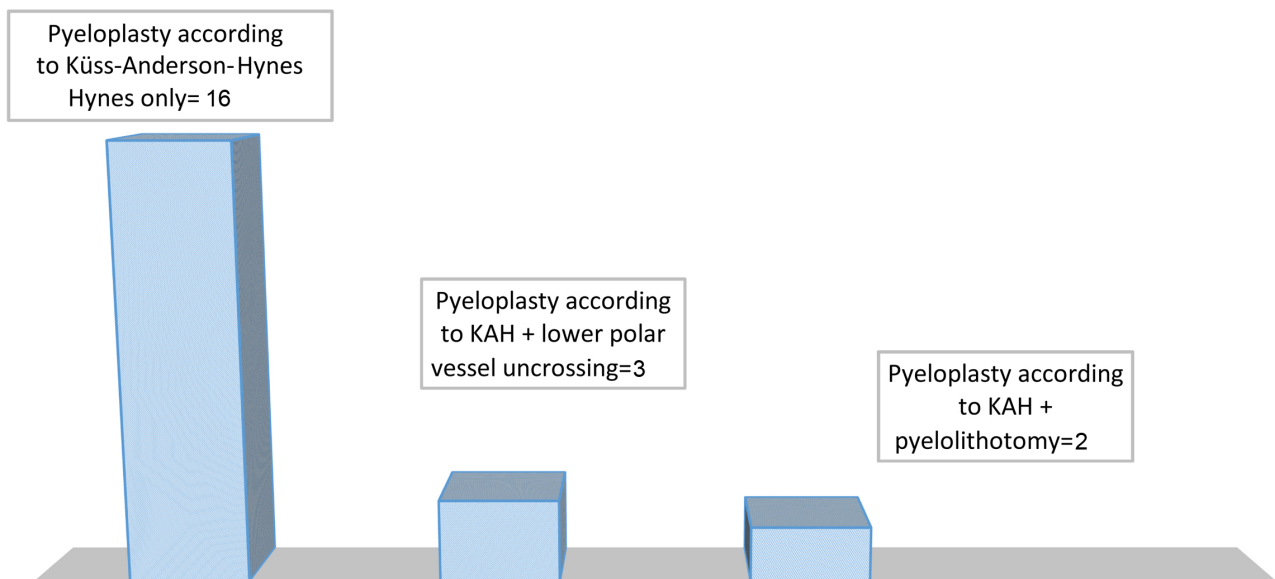
The parameters studied were clinical and therapeutic.

## 3. Results

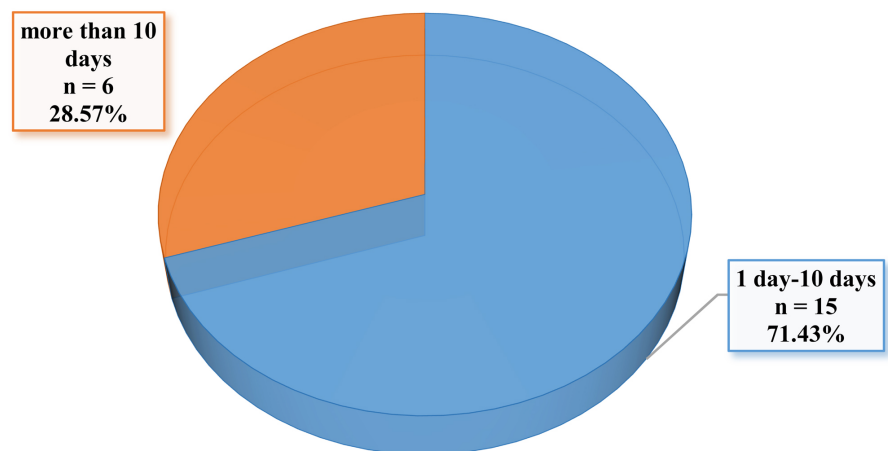
The average age of our patients was 24.24 years with a sex ratio of 1.33. Lumbar pain was the main reason for consultation in 71.43% of cases. Lobotomy was the most used approach with 15 cases or 71.43%. (**Figures 1-3** and **Table 1**)

## 4. Discussion

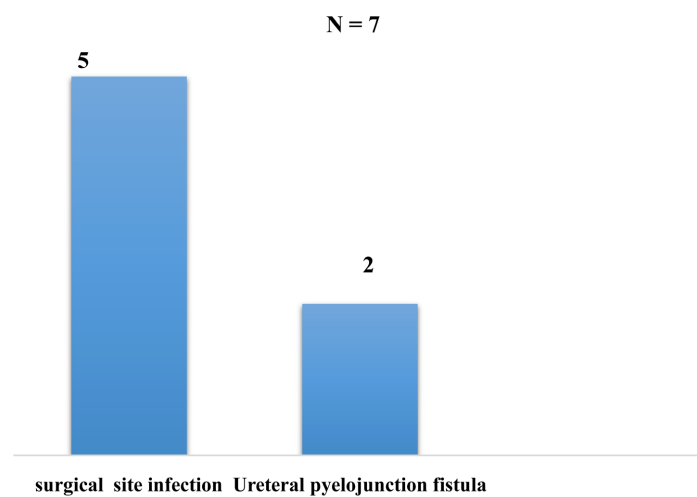
Described in the literature as the most frequent obstructive uropathy of the



**Figure 1.** Distribution of patients by surgical procedure.



**Figure 2.** Distribution of patients by length of stay.



**Figure 3.** Distribution of patients according to postoperative complications.

**Table 1.** Distribution of patients according to treatment results and follow-up.

Decline in months	Results	Effective	%
12	Good	21	100
	Bad	0	0
36	Good	13	86.67
	Bad	2	13.33

Text 1: After a follow-up of 36 months, we lost sight of six patients.

upper urinary tract [5] [6], the anomaly of the pyelo-ureteral junction manifests itself at any age from intrauterine life to adulthood in passing through the neonatal period [6].

The most affected age group in our study is that of 21 - 30 years with extremes of 1 year and 50 years. The average age was  $24.24 \pm 20$  years. Diao B *et al.* [7] reported a mean patient age of  $26.3 \pm 16.7$  years (2.5 - 60 years), whereas Kirakoya B *et al.* [6] reported a mean age of 31.3 years (extremes of 10 years and 60 years). In fact, these different results are superimposable. Moreover, in our series, the majority of patients are aged greater than or equal to twenty-one years (21 years), again reflecting in our context, the notorious insufficiency of ultrasound in the monitoring of pregnancies for earlier diagnosis and management. This makes clinical manifestations such as lumbar pain (71.43% of cases) the main circumstances of discovery of the disease in our study.

Other authors [8] [9] also reported low back pain as the main reason for consultation in their study. These results corroborate with the data of the literature making the painful symptomatology, the dominant clinical element in the abnormalities of the ureteral pyelojunction. Since the advent of antenatal ultrasound in developed countries, the discovery of the anomaly of the pyelo-ureteral junction on painful warning signs has become considerably reduced. However, they are far from having disappeared, especially in most countries of the 1/3 world [8], as our study attests.

Classically in open surgery, the approach initially described for the management of the anomaly of the pyelo-ureteral junction is lumbotomy [10]. This route has the advantage of relative simplicity and “urological habit” [7].

Pyeloplasty according to Küss-Anderson-Hynes, as described in the literature, makes it possible to treat the anomaly of the pyelo-ureteral junction either in isolation, or by associating the uncrossing of a lower polar vessel or the ablation of a possible calculation pyelic [11]. All patients in our series benefited from pyeloplasty according to Küss-Anderson-Hynes isolation in 76.20% of cases, associated with uncrossing of the inferior polar vessel in 14.29% of cases and pyelolithotomy in 9.52% cases. Our study can be superimposed on that of Kirakoya B *et al.* in Burkina Faso [9]. Nowadays, the management of ureteral pyelojunction syndrome is marked by the development of so-called minimally invasive techniques such as laparoscopic pyeloplasty and endopyelotomy with multiple advantages and similar functional results [7]. Access to the kidney by open surgery,

in particular according to the Küss-Anderson-Hynes technique, although via the retroperitoneal route, does not protect against intraoperative complications. They are rarely severe but can reach 20% of cases [11]. In our series, there were 3 of them, consisting of peritoneal rupture, 2 cases immediately repaired and one case of controlled compartment hemorrhage, which did not require blood transfusion.

Diao B *et al.* [3] reported one case of peritoneal breach and two cases of pleural breach as the only intraoperative incidents immediately repaired.

Early complications related to pyeloplasty according to Küss-Anderson-Hynes in the management of PJPU have become rare [9]. According to Diao B *et al.* [3], the early surgical complications of open pyeloplasty are essentially urinary leakage at the level of the ureteropyelic anastomosis, urinoma and surgical site infections which fall within the scope of infectious complications. These complications can occur during both open and laparoscopic pyeloplasty. Our series includes seven, including five surgical site infections, a ureteropyelic fistula manifesting as urine leakage and a urinoma.

Carpentier X *et al.* [11] reported anastomotic leaks responsible for urinoma (0.3%). Diao B and *col* [3] found in their study, 3 cases (10%) of uro-haematoma and 3 cases (10%) of parietal suppuration. In Burkina Faso, kirakoya B *et al.* [9] noted two early complications: urinary leakage and parietal suppuration.

The management of the complications in our series consisted of appropriate antibiotic therapy, double J catheterization and drainage, respectively. These results with converging tendencies confirm the data of the literature on the merits of this technique [10] [12] [13] [14].

However, pyeloplasty according to Küss-Anderson-Hynes causes significant postoperative pain, prolonged convalescence and non-aesthetic scarring, as well as limited access in certain categories of obese patients [11].

The majority of our patients had an average length of stay of 10 days (70% of cases). Kirakoya B *et al.* found an average length of stay of 14 days, while Diao B *et al.* reported a mean hospital stay of  $10.4 \pm 5.1$  days (5 - 25 days).

These different average durations of hospitalization are similar to the average durations reported in the literature (10 to 12 days) [11]. One of the great advantages of laparoscopic surgery is to shorten the hospital stay to an average of three to five days [1] [2] [15].

Admittedly, laparoscopic pyeloplasty has the disadvantage of being much more expensive, but the shortening of the duration of hospitalization and the rapid resumption of activity could compensate for this cost factor [3] [7] [16] [17].

Küss-Anderson-Hynes type pyeloplasty is the technique for treating anomalies of the pyelo-ureteral junction for which we have the greatest experience. Its effectiveness is durable for more than 10 years in the series of the literature [11] [18] [19]. In our study, after a follow-up of 36 months, we noted a good result in thirteen patients (86.67%) by the disappearance of the pain and a passage of the product of contrast at the level of the junction with a clear opacification of the

ureter under pyelic, witness of the lifting of the obstacle.

And conversely the result was declared bad in two patients (13.33%). Diao B and col. [3] noted a mean follow-up of  $28 \pm 13.7$  months (13 - 48 months). Six patients (20%) had complications. Our result is lower than that of Diao B *et al.*

**Our Study has some limitations:**

- 1) The non-respect of appointments;
- 2) the impossibility of carrying out check-ups;
- 3) the instability of the patients were among other obstacles to the realization of this study.

## 5. Conclusions

The anomaly of the pyelo-ureteral junction is the most frequent malformative uropathy [5] [6] affecting more men than women. If the antenatal diagnosis of this condition is possible in developed countries with the contribution of ultrasound, it is still late in our conditions based mainly on clinical manifestations such as low back pain.

Open surgery according to Küss-Anderson-Hynes was the only therapeutic method that was practiced in this study. Surgical site infections and ureteropyelic fistulas were the postoperative complications recorded in this study. However, we noted a good result in 86.67% of cases. Nowadays, the indications for open pyeloplasty are considerably reduced with the advancement of laparoscopy.

## Conflict of Interest Statement

The authors declare that there is no conflict of interest with any financial organization or corporation or individual that can inappropriately influence this work.

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