

Our Experience in Management of Pelvi Ureteric Junction Obstruction in Bangladesh Shishu Hospital and Institute

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Abstract

Introduction: A rare congenital malformation of the upper urinary tract is pelviureteric junction obstruction. We report its management and outcome at pediatric urology department of Bangladesh shishu hospital and institute.

Patients and Methods: We conducted a descriptive review of all patients managed in our pediatric surgical department at Bangladesh shishu hospital and institute from June 2018 to May 2021.

Results: Sixty patients were included in our study. The mean age was two years. Males were more affected (sex ratio of 2.75). The prenatal diagnosis was made in 27% of cases using prenatal ultrasonography. An abdominal mass was the circumstance of discovery in 36% of cases, and lumbar contact and renal sloshing were found in 76% of cases. There was no renal function impairment in 83% of cases. Urinary tract infection occurred in 66% of cases. Ultrasonography (100%) and urinary computed tomography (32%) were used to diagnose. A temporary nephrostomy was performed in 17% of cases, and as definitive treatment, an open Anderson-Hynes procedure was performed in 96% as a nephrectomy was made in two patient. Early postoperative complications were encountered in 26% of cases: urinary tract infection (36%), surgical site infection and anastomotic stenosis (6% both). Two patient died from sepsis. After a mean follow-up of 18 months, no additional complication was reported.

Conclusion: pelviureteric junction obstruction was frequently diagnosed late, and its management carried unneglectable morbidity in our environment. A laparoscopic approach would be a solution to improve its outcome.

Keywords: Pelviureteric Junction Obstruction, Management, Outcome, Children

1. INTRODUCTION

The pelviureteric junction obstruction (PUJO) is the most frequent congenital malformation of the upper urinary tract (UUT). There is inadequate drainage from the renal pelvis, result in hydrostatic distension of the pelvis and renal calices. The incidence of PUJO has been estimated 1 in 5000 live birth. However with the advent of anti natal ultrasonography 17% was diagnosed prenatally. In the post natal period most of the patient were diagnosed as an abdominal mass. The diagnostic tools that were used in our hospital ultrasonography, urinary tract computed tomography and renal scintigraphy. The ourcome of management of PUJO depends

on degree of obstruction and the condition of renal parenchyma, renal function as well as conservative management. Anderson hynes pyeloplasty or nephrostomy. A dismembered pyeloplasty is the preferred technique to correct PUJ obstruction. Removal of affected portion of pelvi ureteric junction and divided just below the obstruction and pyeloplasty done for better drainage from the pelvis to proximal ureter.

2. PATIENTS AND METHODS

A descriptive study review in our department of pediatric urology in Bangladesh shishu hospital and institute. Diagnosis of PUJO considered based on ultrasonography with pelvi anterior posterior diameter 10-15 mm. CT urogram also

used as diagnostic tools when affordable for patient. It was used to confirm finding of renal ultrasonography. All the patient hospital for PUJO in our department over three years from June 2018 to May 2021. The study parameters were patients age and sex prenatal ultrasonography biology clinical expects imaging treatment and outcome. The data were encoded on the Excel spreadsheet and analyzed with Epimto 7.2tm. The quantitative data were presented as frequencies.

3. RESULT

A total number of 60 patient with PUJO were included in our study. The mean age was three years with extreme of 7 day to 10 years. In our series had 45 were male and 15 were female where sex ratio 3:1.

The prenatal diagnosis made in 18(28.8%) by prenatal ultrasonography. About 22 cases were diagnosis by abdominal mass (35.2%). On physical examination a lumbar mass revealed in 10 cases (16.2%), tenderness in flank was found 10 cases (16.2%). Renal function was normal in 54 cases (86.4%) in renal function impaired in 6 cases (9.6%). Urinary tract infection was found in 35 patient and cultural pathogen were E-coli 10 cases (16%) and klebsilla pneumoniae in 8 cases (12.8%). Ultrasonography of KUB region was performed in all patient and allow to

diagnosis all the cases. In some of the patient are allowed to additional investigation included CT urogram intravenous urography and renal scintigraphy mixturing cysto uretherography and noted two nonfunctional left kidney in two different cases.

All of our patients underwent surgical treatment. A temporary nephrostomy was performed in eleven cases (17.6%). An open approach via homolateral anterolateral muscle splitting incision was performed in 54 cases (86.4%) and a homolateral anterior transperitoneal incision in six cases (9.6%). Anderson-Hynes procedure was performed in 58 cases (92.8%) and nephrectomy in two patients due to a nonfunctional left kidney, confirmed by renal scintigraphy. Trans-anastomotic tube was left in place in all our patients, including 58 (92.8%) by a double J probe. All patients underwent drainage of the renal compartment.

The postoperative course was unremarkable in 25 patients (40%), and complications occurred in 34 patients (54.4%), as detailed in Table B. The mean LOS was 8.1 days. Two case of death was registered due to sepsis complicating postoperative urinary tract infection (UTI). After a mean follow-up of 12 months (from 23 days to three years), no recurrence nor additional complication were noted.

Table A. Complementary Investigations

Investigation	Number	Percentage
Urinary CT	21	35
Retrograde urethrocytography	20	33.3
Intravenous urography	48	80

Table B. Postoperative Course of Patients

Postoperative course of patients	Number	Percentage
Unremarkable	40	66.6
Complications	13	21.6
Urinary tract infections	12	20
Anastomotic stenosis	4	6.6
Mortality	2	3.3

4. DISCUSSION

Pelviureteric junction obstruction is the most frequent congenital malformation of the upper urinary tract. It is a congenital anomaly caused either deu to intrinsic narrowing of the upper ureter or by extrinsic pressure on the ureter caused by aberrant vessels or fibrous bands. Its incidence is variable in the literature. We recorded 20 cases per year, Data of other African authors in Ivory Coast and Tunisia, ranging from 5.88 to 6.3 cases per year.

However, this is lower than the results of a French study, finding 9.6 cases per year. The mean age of our patients was two years, which is comparable to most of the data in the literature, the majority of which make the diagnosis before the age of 6 years. As in our series, most authors reported a male predominance.

The diagnosis of PUJO is increasingly made in the prenatal period thanks to prenatal ultrasonography. We reported 27.6% of prenatal

diagnoses, which is comparable to some African studies but much lower than most European studies. Postnatally, the revealing symptomatology is variable in the literature. The main symptom, according to most authors, is abdominal mass, abdominal pain and UTI. The clinical examination of a child presenting with PUJO, which depend on the degree of the obstruction and the child's age. In our series most of the PUJO are left and male dominante. All our patients benefited from the creatinine dosage, and two of them had impaired renal function, *i.e.*, in 6.6% of cases. This result is comparable to the data of some series, but lower compared to the series of another African study which recorded 22.9% of patients with impaired renal function.

In our series, UTIs were encountered in 20% of cases, similar to results of other authors who reported UTIs in 30% of cases , but other authors reported a much lower frequency of UTI, found in 8% of patients .

Urinary tract Ultrasound was performed in all patients and urinary CT in 21 patients. Urinary US and CT were the key investigations in our series, whereas, in a resource-constrained setting, urinary US and IVU were more used. This difference can be explained by the fact that IVU is being abandoned in our practice. It makes it possible to highlight associated vesicoureteric reflux (VUR) and to consider antibiotic prophylaxis. It was realized in 33.33% of our study cases and was normal in all cases.

The decision to operate immediately or secondarily after monitoring depends on the authors and the intercurrent complications or the lack of improvement during monitoring. For some authors, surgery was performed straight away, leading to a marked dilation regression and a systematic improvement in the emptying curve.

Laparoscopic and robot-assisted pyeloplasty and other minimally invasive techniques such as endopyelotomy are increasingly used, especially in high-income countries (HICs). All our patients had benefited from an open Anderson-Hynes procedure because of the lack of minimally invasive equipment, as shown by reports of other authors in resource-constrained settings. However, the open Anderson-Hynes procedure gives results comparable to the laparoscopic approach.

Some of our patients had benefited from trans-anastomotic drainage and some patients without

trans-anastomotic drainage performed, but some authors supporting that the trans-anastomotic drainage is useless when the ureteric anastomosis is made without any difficulty, which does not present tension, watertight at the end of the intervention.

Several postoperative complications can be encountered. We noted 21.6% of complications, which is higher than other reports, registering complications from 3.55% to 8.6%. The mean LOS was 7.2 days in our study. This result is similar to that of African authors, who found an average of 5 +/- 1.86 days, while those in HICs reported LOS to be three days. This difference can be explained by the fact that all our patients underwent open surgery, whereas, in HICs, the laparoscopic approach was used. Mortality of PUJO is low. We noted mortality of 3.3%, comparable to the series of authors in the same context as us, who found 2.8% of deaths.

5. CONCLUSION

The adynamic segment of the anomaly of the pelviureteric junction or abolishes muscular contractility dismembered pyeloplasty with resection of the abnormal segment has been advocated as the standard operation. The rate of prenatal diagnosis is low in our context. The most used morphological examinations were urinary ultrasonography and computed tomography. Open Anderson-Hynes procedure was the technique most used in our context and gave results comparable to the laparoscopic approach, but it lengthened the length of stay and exposed to a greater risk of postoperative complications.

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Citation: Gajendra Nath Mahato et al. *Our Experience in Management of Pelvi Ureteric Junction Obstruction in Bangladesh Shishu Hospital and Institute. ARC Journal of Pediatrics. 2024; 9(1):1-4. DOI: <https://doi.org/10.20431/2455-5711.0901001>.*

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