Original article

Open Anderson Hynes Pyeloplasty in Ureteropelvic Junction Obstruction: An Institutional Experience

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Abstract

Introduction: Ureteropelvic junction obstruction (UPJO) is one of the common causes of hydronephros is in children and adults. The cause may be congenital or acquired. The standard management of UPJO has classically been an open Anderson-Hynes (A-H) dismembered pyeloplasty. This study is an audit of A-H pyeloplasty done for patients with UPJO presenting to our institution.

Methods: A retrospective analysis was done in the Urology unit, Tribhuvan University Teaching Hospital from July 2013 to November 2014. All patients undergoing A-H pyeloplasty were included for review. Preoperative data regarding the demographics, presentation, diagnostic tools used, details of the surgery, postoperative complications, duration of hospital stay and follow up findings were reviewed. Initial follow up was scheduled at two weeks, then at three months and at one year. At 3 months, DTPA renogram was obtained to assess the function and clearance of the treated kidney.

Results: The age of the patients ranged from 5 months to 69 years. Flank pain was the most common presenting complain. Most of the patients were males and left sided obstruction was common. The most common diagnostic modality used was USG and excretory urography. CT urography was done in cases of secondary UPJO. DTPA scan was used in select cases for baseline documentation of the function of the involved kidney. The average duration of surgery was 2 hours and 30 minutes. The mean duration of hospital stay was 5 days. The most common complication was urinary tract infection.

Conclusion: Open A-Hpyeloplasty is the most common surgery done for UPJO at our institution. The outcome can be improved by attention to the principles of A-H pyeloplasty.

Key words: hydronephrosis, A-H pyeloplasty, ureteropelvic junction obstruction

Introduction

Hydronephrosis is a common presentation of complete or partial obstruction to the outflow of the kidney. Among the several causes,UPJO is common in both children and adults. It may be congenital or acquired. Diagnosis is done with combination of clinical features, anatomical study and diuretic renogram. The gold standard management for UPJO is a dismembered Anderson-Hynes pyeloplasty. Alternative treatment options are endopyelotomy, laparoscopic pyeloplasty and robotic pyeloplasty; the results of which are compared with the classic A-H pyeloplasty[1]. This study was carried out to audit open A-H pyeloplasty in patients with UPJO presenting to our institution.

Methods

This retrospective study was carried out in the Urology unit, Tribhuvan University Teaching Hospital from July 2013 to November 2014. All patients undergoing A-H pyeloplasty for UPJO were included for the analysis. Approval was obtained from the institutional review board of Institute of Medicine. Data regarding demographics, diagnostic

modalities, surgical procedure, postoperative care, postoperative complications and follow up were analyzed. The grading of hydronephrosis was done as follows[2] :

- Grade I : slight blunting of calyceal fornices
- Grade II : blunting and enlargement of calyceal fornices but easily seen shadow of papilla
- Grade III : rounding of calyces with obliteration of papillae
- Grade IV : extreme calyceal balooning

The standard procedure for surgery included general anesthesia, urethral catheterization, a single dose of preoperative antibiotics, flank position, flank incision for reroperitoneal approach, mobilization of the proximal ureter and the pelvis, documentation of the findings, excision of the diseased part and ureteropelvic anastomosis over a stent with 5-0 polygalactin suture (Fig 1). Drain were kept in all the cases. The foley catheter was removed on the second day after surgery in most cases. All drains were removed in 2 to 3 days of foley catheter removal. Following discharge initial follow up was scheduled at two weeks, then at 3 months and then at one year. All patients had their ureteral stent removed at 6 weeks. Following stent removal DTPA renogram was done to assess function of the treated kidney.

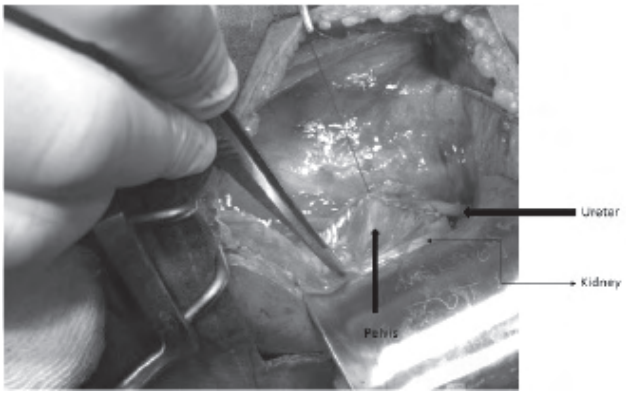

Figure 1 A-H pyeloplasty with tension free, dependent, funnel shaped and wide anastomosis

Results

A total of twenty five patients were included for the study. Most of the cases (88%) were congenital UPJO. The age of the patient ranged from five months to 69 years. Majority of patients (64%) were males.

The age distribution of the patient is presented below (Figure 2)

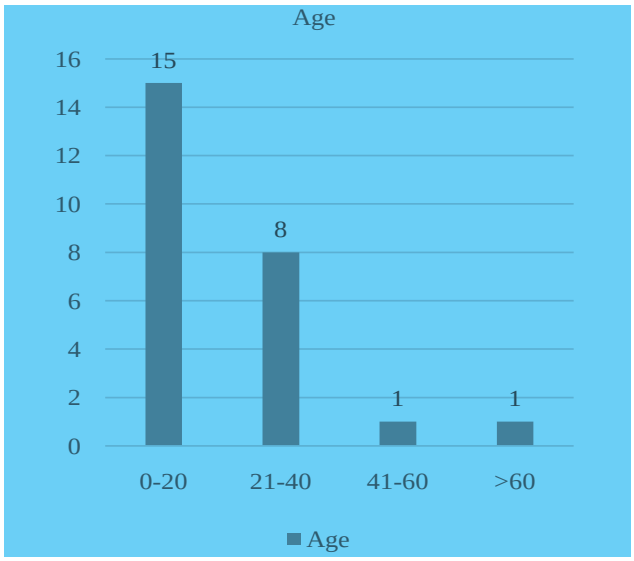

Figure 2: Age wise distribution

The clinical presentation and perioperative details of the patient are presented in the table below (Table 1).

Table 1: clinical presentation and perioperative details

Presentation	Flank pain : 20 Abdominal distension : 4 Obstructive nephropathy : 1
Position	Left flank : 16 Right flank : 9
Findings	PUJ stricture : 21 Crossing vessel : 4
Duration of surgery	Minimum : 1 hour 15 minutes Maximum : 2 hours 45 minutes
Complications	Urinary tract infection : 3 Restricture : 1

There was associated stone in three cases. The most common imaging finding was grade III hydronephrosis by IVU and CT scan. Fifty six percent of cases had left UPJO, 36% had right UPJO and 8% had bilateral UPJO. Fifteen (60%) cases had undergone DTPA renogram and showed impaired function of the affected kidney with obstructed clearance. These patient showed improvement in their clearance pattern in the renogram done after 3 months. Sixty four percent of the patients underwent A-H pyeloplasty on the left side. Urinary tract infection was dealt with empirical antibiotics followed by switch over to the sensitive antibiotics after culture and sensitivity results. The average duration of hospital stay was 5 days.

None of the patients had their ureteral stent removal due to complications relating to the stent.

Discussion

UPJO due to either intrinsic factors (idiopathic) or compression by aberrant vessels, is a common cause of ureteral obstruction in childhood[345]. Intrinsic factor constitutes majority of cause followed by crossing vessel (CV) in both children and adults. Zeltscher[6] reports an incidence of 39–71% of CV in adults with obstructed UPJ, whereas the prevalence in childhood is 25% as reported by Hacker et al[7]. Our study show crossing vessel as a cause of UPJO in 16% of the cases lower than that reported in the literature. Our study showed male preponderance of the disease and left sided pathology was more common than the right sided lesions similar to that reported by Hacker et al[7]and Sheu et al[8].

Patients with UPJO can present with acute renal colic or chronic back pain. They may also present with features of UTI or hematuria[9]. The most common presentation in our patients was chronic back pain. The stones are associated with UPJO in 20% of the cases in the literature; however we found in only 12% of such cases[10]. All cases were diagnosed with ultrasound, excretory urography or CT urography and obstruction was confirmed with renogram in equivocal cases.

The goals of treatment in patients with UPJO are preservation of renal function and prevention of symptoms[11]. Relief of obstruction and restoration of normal urine passage are achieved by surgery[12].A-H pyeloplasty have been the gold standard management for UPJO and it is against which all other forms of management is compared . The principles of A-H pyeloplasty are wide, dependent, funnel shaped, water tight anastomosis[13].Regnography is a reliable, sensitive method to evaluate differential function and drainage over time[14]. Despite this, only 60% of our patients had undergone renogram but all showing improvement in drainage pattern after surgery and only one patient showed recurrence of symptoms after surgery. Though all of our patients were stented, anastomosis without transanastomotic stent have been described[15].

Our study showed follow up of 3 months to 1 year that is less compared to other studies[7,8]. The most common complication was urinary tract infection similar to the one reported by Sheu et al[8].

We acknowledge the limitation of retrospective design and lack of renogram data in many of our patients. Nevertheless, this study highlights the importance of A-H pyeloplasty in the management of UPJO in our setup.

Conflict of interest: None declared.

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