

An Experience of Open Anderson-Hynes Pyeloplasty

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ABSTRACT

- Objective* To document the outcome of open Anderson-Hynes pyeloplasty for pelviureteric junction (PUJ) obstruction in terms of renal function and complications.
- Study design* Descriptive study.
- Place & Duration of study* Department of Urology at Peoples University of Medical and Health Sciences for Women Hospital Shaheed Benazir Abad (Nawabshah) from 2007 to 2009.
- Methodology* Thirty consecutive cases of pelviureteric junction obstruction were admitted. All patients underwent Anderson-Hynes open pyeloplasty. Complications and outcome were recorded.
- Results* Most of our patients were male (n=25). Majority belonged to age group 1-5 year (n=18). Left side was affected in most of the cases (n=22). Low incidence of postoperative accepted complications noted. Post operative outcome was excellent in relation to improved drainage and renal function.
- Conclusion* Anderson-Hynes pyeloplasty was safe, with low postoperative complication rate and better renal function preservation.
- Key words* Pelvi-ureteric junction obstruction, Hydronephrosis, Anderson-Hynes pyeloplasty.

INTRODUCTION:

Pelviureteric junction obstruction is the most common congenital abnormality of upper ureter, occurring in nearly 1 per 1250 live births. Intrinsic pelviureteric junction obstruction is the commonest cause of hydronephrosis.¹ Hydronephrosis causes progressive renal impairment if left untreated. More than 100 years ago the first successful repair of ureteropelvic junction obstruction was described by Kuster in 1891.² Since then, a number of modifications have been made regarding surgical intervention. Anderson and Hynes modified Kuster's dismembered pyeloplasty in 1949.³ It has been in use for more than 50 years and is considered to be a gold standard procedure with success rate greater than 90%.⁴

Though recently minimally invasive techniques have been developed in an attempt to reduce post operative morbidity and pain, open dismembered pyeloplasty continues to be preferred surgery for correction of ureteropelvic junction obstruction in developing countries like Pakistan.^{5,6} In this study, we share our experience of open Anderson-Hynes dismembered pyeloplasty regarding complications and outcome.

METHODOLOGY:

This prospective study was conducted in Urology ward at Peoples Medical College hospital Nawabshah from 2007 to 2009. Thirty patients of all ages and both sexes were admitted. All patients had unilateral problem. Those patients who had hydronephrosis without hydroureter on sonography and intravenous urography suggesting primary pelviureteric junction obstruction with small segment and split renal function more than 15% were included in this study. Patients with ectopic or solitary kidney, PUJ obstruction secondary to stones adhesions or external

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compression and split renal function less than 15% were excluded.

Patients were evaluated by taking detailed history, physical examination and investigations such as, urine analysis, blood CP, blood sugar, urea and serum creatinine, serum electrolytes, sonography and intravenous urography. Renal scan was done in patients where excretory urography did not show significant contrast excretion. MCUG was also done. Standard open Anderson-Hynes dismembered pyeloplasty was done in all patients through anterior or subcostal incision. Accessory renal arteries crossing the ureter at PUJ obstruction were searched for. Repair was performed using polyglycolic acid 5-0 running sutures. JJ stent was placed in antegrade fashion peroperatively. Drain was placed adjacent to repair. Foley catheter was kept in the bladder.

Post-operative complications were recorded. Foley catheter was removed after 24 hours and drain was removed when there was minimal drainage. JJ stent was removed after 6 weeks. Patients were followed at 3 and 6 months for two years. The success was defined with asymptomatic, maintained renal function and unobstructed PUJ on urography.

RESULTS:

Majority of patients were males (n=25, 83.33%). The age ranged from 1-25 year with mean age of 6.3 year. Eighteen 18 (60%) patients belonged to age group 1-5 year. Left side was affected in 22 (73.33%) patients, while right side in 08 (26.67%) patients. The presenting symptoms were pain in 27 (90%), abdominal mass in 2 (6.67%) and hematuria in 1 (3.33%) patient. Immediate postoperative complications were fever in 5 (16.67%), hematuria in 1 (3.33%) and leakage in 1 (3.33%), which settled within 48 to 72 hours without any intervention. Overall complication rate was 26.66% (8/30-patients). Twenty-nine (96.67%) patients showed improved function and drainage. One (3.33%) patient developed restenosis within three months at follow up and treated by redo-pyeloplasty.

DISCUSSION:

The goal of surgery for pelviureteric junction obstruction is unimpeded flow of urine from pelvis to ureter and improvement or preservation of renal function. Dismembered pyeloplasty has been proved to be the best mode of treatment for ureteropelvic junction obstruction.⁷ The procedure eliminates the diseased segment and reestablishes the continuity of urinary tract.⁸ Significant improvement in surgical techniques, refinements of surgical materials and sutures enable us to obtain a nearly water tight

anastomoses.^{9,10}

Recently few studies have been conducted to compare laparoscopic pyeloplasty with open Anderson-Hynes pyeloplasty. Laparoscopic pyeloplasty has been found to be minimally invasive, has minimal level of morbidity, less pain and outcome are comparable with open dismembered pyeloplasty, but it takes longer operating time and is associated with higher post operative complications.¹¹⁻¹³

Despite recent advance in laparoscopic surgery, open Anderson-Hynes dismembered pyeloplasty remains the preferred technique for correction of pelvi-ureteric junction obstruction in most urologic units, because of lack of laparoscopic equipment and expertise in developing countries.^{14,15}

Although the problem is congenital, it may not become apparent until much later in life.^{16,17} The age of presentation is variable. In our series age ranged from 1 year to 25 year, while in literature the age of presentation has been reported to vary from 15 months to 55 year.¹⁸ However, as has been reported by Mughal and Soomro,¹⁹ majority (60%) of our patients were of 1-5 year age group. The delayed presentation was due to non-availability of prenatal ultrasonography and disregard of mild symptoms. This condition is more common in males with male-to-female ratio of 3-4:1.²⁰ Same has been noted in our patients, where 83.33% of patients were males.

The left kidney is more commonly affected than the right kidney. In literature left kidney has been reported to be affected by PUJO in 52% to 73.52% of patients.^{4,14} Same was noted in our study, where in 73.33% of patients left kidney was affected. The presenting complaints depend on the age of patients. Older children and adults may present with flank pain, UTI/ or pyelonephritis.²⁰ In majority (90%) of our patients presenting complaint was abdominal pain. In a study from Saudi Arabia all patients presented with flank pain.¹⁴ This is in conformity with our study.

Early complications of pyeloplasty include post operative pyelonephritis, delayed opening of ureteropelvic anastomosis, prolonged leak around anastomotic site and late complications can manifest as clinical symptoms or progressively worsening radiographic studies.¹ Majority of our patients (22/30 -73.33%) had uneventful postoperative course. These results are comparable with national and international studies.²¹⁻²³

The goal of surgery is evaluated by radiographic studies and clinical examination. In older children

and adults, successful pyeloplasty is determined by the absence of symptoms.¹ Psooy et al suggested that a follow up longer than 2 years is not warranted, since long-term complications develop earlier.²⁴ In our study group decreased hydronephrosis, improved drainage and preservation of renal function was seen in 96.67% of patients.

CONCLUSION:

Open Anderson-Hynes pyeloplasty can be performed safely with less number of minor and major complications.

REFERENCES:

- Groth TW, Michell ME. Ureteropelvic junction obstruction in Coran AG, Adzick NS, Krummel TN, Laberge JM, Shambergar RC and Caldamone AA. (eds) Pediatric surgery, 7th Edition Philadelphia Inc 2012;2:1411-25.
- Mikkelsen P, Ramussen B, Peterson W, Christensen P. Long term follow up of patients with hydronephrosis treated by Anderson-Hynes pyeloplasty. Br J Urol. 1992;79:121-4.
- Rasool M, Sheikh HM, Ali S, Ahmed I. Pyeloplasty; Comparison of results of repair with and without stents. The Professional. 2005;12:159-65.
- Elafifi M, Eltatawy H, Haroon H, Gaber M, Farha MA. Evaluation of non-stented dismembered pyeloplasty in children suffering from pelviureteric junction obstruction. Ann Pediatr Surg. 2009; 5:52-7.
- Srinivas KK, Uppin IV, Nerle RB. A prospective randomized controlled trial comparing open pyeloplasty and laparoscopic pyeloplasty for ureteropelvic junction obstruction. Subjective outcome. J Clin Diagn Research. 2011; 5:1601-5.
- Moreira- Pinto J, Osorio A, Vila F, de Castro JR, Reis A. Dismembered pyeloplasty for ureteropelvic junction syndrome treatment in children. Afr J Paediatr Surg. 2012;9:98-101.
- Poulakis V, Witzsch U, Schulthesis D, Rathert P, Becht E. History of ureteropelvic junction obstruction repair (pyeloplasty). From Trendelenburg (1886) to the present. Urologe A. 2004;43:1544-559.
- Sutherland RW, Chung SK, Roth DR, Gonzales E. Pediatric pyeloplasty: outcome analysis based on patients age and surgical technique. Urology 1997;50:963-6.
- Smith KE, Holmes N, Lieb JI, et al. Stented versus non stented pediatric pyeloplasty. A modern series and review of literature. J Urol. 2002;168:1127-30.
- Ahmed S, Crankson S. Non intubated pyeloplasty for pelviureteric junction obstruction in children. Pediatr Surg Int. 1997;12:389-92.
- Schussler WW, Grune MT, Tecuan huey LV, Preminger GM. Laparoscopic dismembered pyeloplasty. JUrol. 1993;150:1795-9.
- Simforoosh N, Basiri A, Tabibi A, Danesh AK. A comparison between laparoscopic and open pyeloplasty in patients with ureteropelvic junction obstruction. Urology. 2004;1:165-9.
- D. Duane B, Jennifer AD, Nancy W, Elspeth M. Single center comparison of laparoscopic pyeloplasty, endopyelotomy and open pyeloplasty. J Endo Urol. 2003;17:155-60.
- Tayab AM, Febu F. Long termed results of pyeloplasty in adults. Saudi Med J. 2004;25:363-6.
- Tal R, Bar Sever Z, Livn MP. Dismembered pyeloplasty in children a review of 5 year single center experience. Int J Urol. 2005;12:1028-31.
- Bejjani B, Belman AB. Ureteropelvic junction obstruction in newborn and infants. J Urol. 1982;128:770-9.
- Smith AD. Should open pyeloplasty be abandoned. J Urol. 1997;157:476-8.
- Mumtaz FH, Komm SS, Siddiqui E, Hemal AK. Minimally invasive treatment of ureteropelvic junction obstruction: Optimizing outcomes with concomitant cost reduction. J Endo Urol. 2006;20:663-8.
- Mughal SA, Soomro S. pelviureteric junction obstruction in children. J Surg Pakistan.

- 2008;13:163-6.
20. Grasso M, Cohen JH, Rajamahanty S, Gitlin JS, Johnson GB. Ureteropelvic Junction Obstruction. Last Updated on 14 Feb @013 (cited October 2013) available at www.emedicine.com
21. O'Reilly PH, Brooman PJ, Mak S. The long term results of Anderson-Hynes Pyeloplasty. *BJU Int* 2001;57:287-9.
22. Haq A, Khan I. Tubeless and stent less pyeloplasty. *J Pak Med Assoc* 2003; 17:124-7.
23. Houben C, Wischermann A, Borner G, Slany E. Outcome analysis of pyeloplasty in infants. *Pediatr Surg Int.* 2000;16:189-93.
24. Psooy K, Pike JG, Leonard Mp, Rushton HG Jr. Long term following of pediatric dismembered pyeloplasty: how long is long enough? *J Urol.* 2003;169:1809-12.