ORIGINAL ARTICLE

Comparision of Surgical Outcome Between Dismembered Pyeloplasty with or Without Double J Stenting

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ABSTRACT

Objective: To assess the benefit of temporary ureteral stenting with double J stent on the surgical outcome of dismembered pyeloplasty.

Study Design: Prospective Comparative Study

Place & Duration: Department of urology at People Medical College Hospital Nawabshah during the period of 2008 to 2010.

Material & Methods: Forty consecutive patients of any age and sex having primary pelviureteric junction obstruction were admitted. All patients underwent open Anderson Hynes pyeloplasty with or without double J stent. Post-operative complications and outcomes were recorded.

Results: Most of our patients were male 30 (75%) and female 10 (25%). Majority of them belonged to age group 1-5 years. Left side was affected in most 28 (70%) of the cases. We had low incidence of postoperative accepted complications p-value=0.87. Postoperative outcome was excellent in relation to urine leakage 0(0%) and hospital stay in stented group while there was no any difference regarding urinary tract infection between stented and non-stented groups.

Conclusion: No significant difference in terms of resolution of hydronephrosis and postoperative complications between double J stent and without double J stent groups. However outcome was good in double J stent group in terms of no urinary leakage.

Keywords: Surgical outcome, Pelviureteric junction obstruction, Anderson Hynes pyeloplasty, Double J stent.

INTRODUCTION

In the upper urinary tract, the most common site of obstruction is the pelviureteric junction obstruction. Primary pelviureteric obstruction is the commonest cause of hydronephrosis in infants and children[1,2]. Now a day's findings of hydronephrosis on prenatal ultrasonography allow most of the cases diagnosed in utero. Children with prenatal hydronephrosis, 48% are diagnosed with pelviureteric junction obstruction and 15 to 30% affected children will require surgical treatment[3,4]. Pelviureteric junction obstruction may present in middle or late age[5,6]. Selection of pyeloplasty approach for primary PUJ obstruction is mostly dependant of surgeon preference & experience[7]. Despite recent advances in minimal invasive techniques, open dismembered Anderson Hynes is the preferred surgery for correction of pelviureteric junction obstruction[8]. The use of ureteral stenting at the time of pyeloplasty has been the subject of debate[5]. Again, it is domain of surgeon whether to place a ureteral stent for internal or external drainage. Nowadays many surgeons prefer internal drainage to external drainage[9, 10]. This study is conducted to investigate whether temporary internal ureteral double J stent improves the surgical outcomes in patients who undergone dismembered pyeloplasty.

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MATERIAL & METHODS:

This prospective comparative study is conducted at the department of urology Peoples Medical Collage Hospital Nawabshah from 2008 to 2010. Forty, patients of primary pelviureteric junction obstruction were treated by open dismembered Anderson Hynes pyeloplasty, with and without double J stent. Patients of all age groups and both sexes were admitted. Patients were randomly divided in two groups, each comprising 20 cases, on the bases of cases with stent and cases without stent. All patients had unilateral problem. Those patients were included, who had hydronephrosis without hydroureter with small segment, split renal function more than 15%. The patients with ectopic or solitary kidney, pelviureteric junction obstruction secondary to stones, adhesions or extra renal compression and split renal function less than 15% were excluded from the study.

All patients were evaluated by detailed history and physical examination and subjected to routine investigations like Blood CP ,Urine DR ,Blood Urea, sugar, creatinine ,electrolytes, Urine Culture & Sensitivity .Investigations used to confirm primary pelviureteric junction obstruction were Ultrasonography, Intravenous Urography & renal scan where intravenous urography did not show contrast excretion . Retrograde pyelogram was done to confirm lower ureteric patency, to determine the length of pelviureteric junction obstruction. Those patients presented with recurrent urinary tract infection, pain and hematuria were treated preoperatively.

Standard open dismembered Anderson Hynes pyeloplasty was carried out with flank incision. Muscles were divided in the line of incision, peritoneum reflected medially. Meticulous dissection was done to clear the pelviureteric junction obstruction; stay sutures were applied on the renal pelvis and ureter distal to PUJ obstruction and the segment of PUJ was excised out sharply. Ureter was spetulated laterally. If renal pelvis was hugely enlarged, it was reduced in size and anastomosis was made with 5/0 polyglycolic acid suture between spatulated ureter and renal pelvis. Double J stent was passed per-operatively. Drain was placed adjacent to repair and wound was closed in layers. Foley's catheter was kept in bladder. After procedure, patients were observed for post-operative outcome. Foley's catheter was removed after 24 48 hours and drain removed when there was minimal drain output. Double J stent removed after 6 weeks. The patients were advised to attend OPD daily, from 15th day to one month then monthly for 3 months. In every follow up, we assessed the patient with, history, clinical examination and ultrasonography. Intravenous urography was done at 3rd month. If intravenous urography was insignificant then renal scan was done. Total follow-up was for one year. Statistical analysis was performed by using SPSS version 20. Chi-square test was used to compare categorical variances. P-value of lower than 0.05 was considered as significant.

RESULTS:

The total number of patients were forty having unilateral pelviureteric junction obstruction. The patients were divided in STENTED and NON-STENTED groups, twenty (20) patients in each group. The age ranged to 1-30 years with mean age 11.25 and 10.30 years of STENTED and NON-STENTED group respectively. Regarding the sex , male were 30 (75%) and female 10 (25%). Out of forty patients, 28 (70%) have left side while 12 (30%) right side affected.

The demography of the two groups was similar with regard to sex, age and affected side, which was statistically insignificant. The presenting symptoms were flank pain, mass in abdomen, hematuria, nausea and vomiting, recurrent urinary tract infection, concomitant stones and incidental finding of hydronephrosis on ultrasound (Table No: 1). The postoperative status and outcome of two groups was compared (Table No: 2). Postoperative pain occurs in both groups in all patients for 24 hours. In the stented group fever occurred in 03(15%) patients, hematuria in 01(5%) patients, wound infection in 01(5%) patients and urinary tract infection in 04(20%) patients . In the non-stented group fever occurred in 03(15%) patients, hematuria in 01(5%) patients,

wound infection in 02(10%) patients and urinary tract infection in 02(10%) patients. There was no urinary leakage in stented group while 02 patients developed urinary leakage in non-stented group. Urinary leakage of one patient stopped spontaneously within 14 days while other patient needed double J stenting. Perinephric drain was removed earlier and hospital stay was shorter in stented group. The postoperative status of hydronephrosis improved in both groups significantly. There was one patient in non-stented group who developed restenosis of anastomosis line, which needs re-do pyeloplasty over double J stent.

Table-1: Patients Characteristics n=40

Gender	
Male	30(75%)
Female	10(25%)
Side effected	
Left	28(70%)
Right	12(30%)
Clinical presentation	
Flank pain	33 (82%)
Mass in abdomen	07 (17.5%)
Hematuria	18 (45%)
Nausea + vomiting	33 (82.5 %)
Recurrent urinary tract infection	15 (37.5%)
concomitant	
Stones	7 (17.5%)
Incidental	5 (12.5%)
P-VALUE=1.62	**NON-SIGNIFICANT**

DISCUSSION:

Pelviureteric junction obstruction is the most frequent urological malformation occurring in 40 to 60% [11].Some form of pyeloplasty is required to correct this anomaly. The gold standard method of repair for pelviureteric junction obstruction is open dismembered Anderson Hynes pyeloplasty[12]. The procedure eliminates the disease segment and establishes the continuity of urinary tract[13]. Most important aspect of the successful outcome of this surgery is to avoid unnecessary dissection around the upper ureter [14]. The question of whether postoperative urinary diversion after pyeloplasty is beneficial or not, has been debated for decades[1,5,15]. In the original report, Anderson Hynes, they clearly supported, non-stented repair of pelviureteric junction obstruction. They claimed that, a nephrostomy tube or internal stent causes urinary tract infection, fibrosis at the suture line , recurrent pelviureteric junction obstruction and hindered healing of anastomosis site[16] .However, as operative techniques have evolved and post-operative complications such as urine leakage have been reported, the standard operative technique has evolved to include a urinary diversion modality such as nephrostomy or internal ureteric stent to prevent leakage at the anastomosis site . Several favorable reports on the use of internal stents have been published in recent years showing their several advantages[5,9,10,17,18].

Table-2: Post Operative Outcome

Post operative outcome	Stented group n =20	Non-stented group n= 20
Pain	20 (100%)	20 (100%)
Fever	3 (15 %)	3 (15%)
Hematuria	1(5 %)	1(5%)
Wound infection	1 (5%)	2(10%)
UTI	4(20%)	3(15%)
Restenosis	0(0%)	2(10%)
Urinary leakage	0 (0%)	1(5%)
Hospital stay	03 days	6 -8 days
Decrease hydronephrosis	19 (95%)	19(95%)
Improved renal function	20 (100%)	20(100%)
P-VALUE=0.87	NON-SIGNIFICANT	

Urinary diversion during pyeloplasty is a matter of individual preference based upon the belief and experience of the surgeon[13]. A number of studies have examined complication rates with and without stents, yielding varying results [14]. The advantages of double J stent include, shorter hospital stay, lower morbidity rate[19], prevents adhesions to the suture site by splitting the suture line, help to maintain an appropriate diameter and alignment of ureter and limit ureter-kinking [20]. Woo and Farnsworth used only internal ureteral stents, showed low rate of post-operative complications, and decreased post-operative hospital stay [9].This is also seen our stented group. Nian et al reported a review of records of 60 patients who underwent pyeloplasty and strongly recommended double J stenting, claiming that it was the safest mode of drainage. None of their 58 stented patients developed stricture of the anastomosis site, where 01 of the 03 patients who did not receive a stent, developed stricture of the anastomotic site required re-do pyeloplasty. The other two patients who had a ureteric stricture responded to balloon dilatation. In addition, they also reported a mean hospital stay 2.6 days in the stented patients while mean hospital of the non-stented patients was 7 days.In our study of 40 patients who underwent pyeloplasty, the stent group did not develop stricture of anastomotic site while non stented group developed stenosis in 2 (10%) patients. The hospital stay in stented group is 3 days while in non stented group is 6 8 days. The disadvantages of double J stent include that it can cause stent related complications such as urinary tract infection and provoke obstruction of the ureter by irritating the mucosa of the ureter or the renal pelvis [17]. Lee et al analyzed 20 cases with pelviureteric junction obstruction, which underwent pyeloplasty with or without diversion and no significant difference in complication rates between the groups [21].

In this study, we found no significant deference between stented group and non-stented group regarding improvement in hydronephrosis, improvement in symptoms and renal function. One in non-stented group developed stenosis at anastomosis line and needed re-do pyeloplasty over double J stent and went uneventful during postoperative and follow up period. Smith et al reported that urinary tract infection occurred in 3 of 52 stented cases (6%) versus 01 of 65 non-stented cases (2%). Prolonged drainage or urinoma occurred only in non-stented cases (3%, or 5% each)[22]. While in our study urinary tract infection in 3 of 20 stented cases (15%) versus 1 of 20 non-stented cases (5%). Prolonged drainage occurred in non-stented group in 2 of 20 cases (10%). Perinephric drain was removed earlier on 2nd day in stented group while 5th to 7th day in non-stented group. Hospital stay was also shorter(3 days) in stented and 6 to 8 days in non-stented group. In the study of Smith et al, overall rate of urological complications in each group was similar i.e 12% in stented and 15% in the non-stented[22]. This was also seen in our study.

CONCLUSION:

In comparison of double J stent group and without double J stent group during dismembered pyeloplasty with PUJ obstruction, we found no significant difference in resolution of hydronephrosis or over all postoperative complications. Therefore, the choice of an internal ureteral stent for postoperative drainage should be left to surgeon's preference.

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