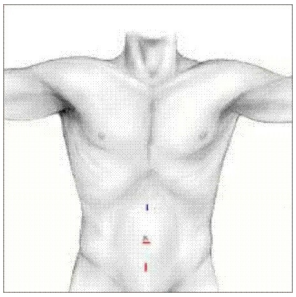
ORIGINAL PROF-842



PYELOPALSTY;
COMPARISON OF RESULTS OF REPAIR WITH AND WITHOUT STENTS

DR. MUMTAZ RASOOL, FCPS
Al-Fateh Manzil,
81-A Shadab Colony, Baghdad Road,
Bahawalpur.

DR. SHAFQAT ALI, FCPS
Associate Professor & Head,
Department of Urology,
QAMC-BVH, Bahawalpur.

DR. ABID HAMEED SHEIKH, MS
Paediatric Surgeon,
BVH, Bahawalpur.

Dr. Iftikhar Ahmed, FCPS
Senior Registrar Urology,
B V Hospital Bahawalpur

ABSTRACT … Objectives: To evaluate the outcome of pyeloplasty for congenital pelviureteric junction obstruction and comparison of results between repair with stents and without stents. **Data source:** Patients admitted to the department of Urology with congenital pelviureteric junction obstruction regardless of age were entered in this study. **Design of study:** Prospective. **Setting:** Department of Urology ,Quaid-I-Azam Medical College /Bahawal Victoria Hospital, Bahawalpur. **Period:** From April 1999 to December 2002. **Material & Methods:** A total of 30 patients were grouped into A and B. Either dismembered or non-dismembered pyeloplasty were performed in either group, both with and without D.J. Stents. **Results:** The results in our study show that there is no gross difference of outcome in pyeloplasty whether done over D.J. Stent or without stents. Dismembered pyeloplasty resulted in better outcome. **Conclusions:** Open pyeloplasty is the "Gold Standard " treatment option for congenital pelviureteric junction obstruction. The use of D.J.Stents is not necessary in every repair.

Key words: PUJ, Pelviureteric junction, Pyeloplasty, D.J.Stents; Double-J- Stents.

INTRODUCTION

Obstruction of pelviureteric junction is the most common congenital abnormality of ureter. Recent improvements in prenatal ultrasonography now allow most of the cases to be diagnosed in utero[1,2,3,4].Obviously, for patient of any age, a reconstructive procedure is always indicated whenever overall renal function is compromised because of involvement in a solitary kidney or bilateral disease[5]. Ureteropelvic junction obstruction may not become apparent until middle age or later[6]. However, the majority of affected patients can in fact benefit from reconstructive intervention[7]. When intervention is indicated, the procedure of choice is generally an open repair of PUJ, that is pyeloplasty[8].

True obstruction of PUJ should be treated surgically, because of anatomic variations; no single procedure is

sufficient for all situations in which surgery is indicated[9]. Dismembered pyeloureteroplasty is the popular operation when there is dyskinetic segment or proximal ureter is hooked over lower pole blood vessel[10]. Pelvic flap procedures are ideally suited for cases in which the PUJ has remained dependant despite of significant pelvic dilatation[9].

The use of stenting catheters and proximal diversion at the time of pyeloplasty has been the subject of debate. Excellent results have been reported both with and without stents and diversion[10]. Stents and nephrostomy tubes, once considered integral part of pediatric reconstructive surgery are now rarely placed[10,11,12]. Most paediatric urologist now believe that routine use of stents and nephrostomy tubes is no longer indicated and is reserved for complicated cases[13,14].

Present study was conducted to evaluate outcome of pyeloplasty, with and without stents, at the Department of Urology, B.V. Hospital, Bahawalpur.

HISTORICAL BACK GROUND

The first mention of obstructed kidney was made in 1641 by Tulp and in 1746 by Glass on postmortem examination. Trendlenberg performed the first dismembered pyeloplasty in 1886 and Kuster in 1891.This technique was later modified by Nesbit, Anderson and Hynes in 1941.

Non dismembered pyeloplasty with flap technique was introduced by Schwyzer in 1923, which was later modified by Foley's in 1937. Culp and Deweerd included spiral flap in 1951 and vertical flap by Scardino in 1953. For any technique, the resultant anastomosis should be widely patent and performed in a watertight fashion without tension. The reconstructed PUJ should allow a funnel shaped dependent drainage between pelvis and ureter.

MATERIAL & METHODS

This prospective study was conducted at the Department of Urology, B.V .Hospital, Bahawalpur including the patients operated for PUJ obstruction during the period April 1999 to Dec 2002.Patients of all age groups and of both sex were included in this study. In-patients where ultrasonography suggested PUJ obstruction, excretory urography was obtained routinely. Laboratory investigations like complete blood picture, urine routine examination, serum creatinine were done. Excretory urography is indicated to further elucidate preoperatively renal pelvic anatomy. Retrograde ureteric catheterization and retrograde urography was done to confirm lower ureteric patency and to determine length of obstructed PUJ segment. Dynamic renal scan was only required in patients where excretory urography did not show sufficient dye excretion. Renal units of PUJ obstruction with less than 10% of total uptake or 10 ml per minute GFR were not included in this study. Percutaneous nephrostomy was performed to decompress these obstructed renal units. If after three weeks of decompression the particular renal unit did not show improvement in function on renal scan, nephrectomy was advised.

PROCEDURE

Both dismembered and non-dismembered pyeloplasties were performed depending upon the size of pelvis and degree of dilatation, as assessed on urography. Anderson Hynes reduction pyeloplasty was performed in patients whose urography and pre-operative findings showed extra renal globular dilated pelvis with PUJ obstruction of small segment. Flap procedures, both vertical and spiral were performed in patients whose urography showed smaller pelvis with PUJ obstruction of longer segment.

Patients were divided in two groups; Group A included patients of pyeloplasty with peroperative insertion of DJ stent irrespective of type of repair applied. These patients were catheterized for seven days to prevent reflux of urine. DJ Sent was removed 4-6 weeks postoperatively.

Group B included patients without stents after pyeloplasty irrespective of technique used. In this group, temporary stenting with silastic 6-8 Fr tube was practiced. This tube was removed before the last few stitches of repair.

Complications were noted in immediate postoperative period and on followup. In both groups patients were

discharged on 8th postoperative day after removal of skin stitches. Initial follow-up was at 15 days for a month then monthly for three months. Excretory urography was obtained at three months. DTPA scan was only required if urography showed insufficient function of particular renal unit. Total follow-up period was 15 months.

RESULTS

Total number of patients in this study were 30. Each group (Group A or Group B) included 15 patients as shown in Table-I.

Table-I.

Group	Type of repair	No of pts
Group A	Pyeloplasty +DJS	15
Group B	Pyeloplasty without stenting	15

The age range at presentation was between 15 months to 31 Years with mean age of 16 Years. The presenting complaints were dull, continuous lumbar pain, dysuria, flank mass, recurrent UTI, lumbar pain with hematuria and asymptomatic, who were diagnosed to have PUJ obstruction on ultrasonography for other abdominal complaints as shown in Table-II.

Table-II.

Presenting complaints	No of pts	%age
Lumbar abdomen	16	53.5%
Mass abdomen	4	13.3%
Recurrent UTI	4	13.3%
Hematuria + secondary stone	3	10%
Incidental	3	20%

Bilateral disease was found in two patients, associated findings along with PUJ obstruction were pyonephrosis in two patients, secondary stones formation in three patients.

Findings on Urography were;

1. External dilated pelvis with PUJ obstruction in22 patients
2. Internal pelvis with PUJ obstruction in 08 patients,

Per operative findings were;

a. Stenosed PUJ in 14 patients (46.6%)
b Aberrant vessels in 09 patients(30%)
c Adhesions and bands in 07 patients (23.3%)

Anderson Hynes dismembered reduction pyeloplasty was performed in 20 patients and in 10 patients of this type of repair, DJ stents were placed intra operatively. Culp spiral flap pyeloplasty was done in 06 patients and in three patients DJ stents was placed. Scardino vertical flap pyeloplasty was done in four patients and in two patients stents were placed in Table .III.

Table III

Type of repair	Group A	Group B	No of pts	%
Dismembered pyeloplasty	10	10	20	70%
Non Dismembered pyeloplasty	5	5	10	30%
Total	15	15	30	100%

Postoperative complications in both groups of patients were noted as shown in Table-IV.

Table IV

Complication	Group A	Group B
Urinoma formation	1	1
Wound infection	1	2
Suprapubic pain	3	-
Hematuria	1	1
Re-stenosis	1	1

DISCUSSION

The presentation of PUJ obstruction is age dependent for infants and children who do not undergo ultrasonography. Although the problem is congenital but may not become apparent until much later in life. Obstruction of PUJ is probably the most common congenital abnormality of the ureter[3,4,5.]

The age of presentation in our study varied between 15 months to 31 years with mean age of 16 years. The male to female ratio in our study was 2.3:1 which correlates with documentation in international literature as males are more affected than females and left kidney is more frequently involved than right, bilateral disease have been noted in 10-25% of cases [12,13,14,15]. In another study the age range noted was 05 months to 82 years, with mean age of 41 years while in a nationally conducted study the age range was 02 years to 68 years with male to female ratio of 1.2:1 and more frequently affected side was right[16].

Presenting complaints noted in our study were almost similar to national and international studies. The delayed presentation is due to non availability of prenatal ultrasonography and ignorance of mild symptoms[16,17].

Currently the most informative study for determining the presence of PUJ obstruction is ultrasonography and diuretic renal scan[17,18]. Renal sonography is also useful screening test for such symptom complex as recurrent urinary tract infection, recurrent abdominal pain, hematuria with abdominal mass. Excretory urography is indicated to further elucidate preoperative renal pelvic anatomy. Renal ultrasound, excretory urography and renal scan can surely detect PUJ obstruction preoperatively[18].

In our study the diagnosis was made on the basis of ultrasonography, excretory urography, retrograde pyelography and in ambiguous cases with diuretic renal scan. Radiographic studies should be performed with the goal of determining both anatomic site and functional significance of an apparent obstruction. Excretory urography remains the cornerstone of radiographic diagnosis of PUJ obstruction. Ultrasonography is valuable initial diagnostic study where renal function is inadequate to perform intravenous urography or kidney is not visualized in urography. Nuclear scan is helpful in quantification of diagnosis and demonstration of exact site and nature of obstruction prior to surgical intervention[3,5,18,19].

Once PUJ obstruction has been documented pyeloplasty should be performed immediately in normal or moderately reduced functioning renal units. If more than 10% of total renal function is demonstrated on renal scan, pyeloplasty rather than nephrectomy should be done. The end result of any proper pyeloplasty is a patent funnel shaped dependent PUJ. Currently the Anderson Hynes dismembered pyeloplasty is the most popular, frequently used and successful technique. When aberrant artery is encountered, dismembered pyeloplasty with relocation and re-anastomosis of PUJ on other side of aberrant vessels is successful[10,15,17,19]. Flap techniques are reserved in dependent PUJ obstruction[8].

In our study, the obstructions were found to be caused by aberrant vessels in 30% of cases, stenosed ureteric segment in 46.6% and adhesions/bands were found in23.3% of patients. In comparison to this, in many national and international studies rates found for similar pathological processes were 25-56%,21-45%, 20-35% respectively[11,15,20,21,22].

Recently endourologic therapies like endopyelotomy or endoluminal balloon dilatation and laproscopic pyeloplasty techniques are being addressed in international literature. The long-term success rates of these techniques are less than the rates reported for open pyeloplasty[5,6,21,22,23,24,25].

Currently, most urologists rely on dismembered pyeloplasty for its universal applicability. In our study, 70% of pyeloplasties were of dismembered reduction Anderson Hynes type with success rate of 99%.

Stents and nephrostomy tubes once considered integral part of PUJ surgery are now rarely placed . Stents have disadvantage of becoming blocked leading to prolonged urinary leak. Stents also act as foreign bodies causing

compromised vascularity and fibrosis at anastomotic site[3,10,20]. These stents should be preferred in PUJ reconstruction of solitary kidney. For adult patients pyeloplasty commonly performed over ureteral catheter, which can be simply removed before last few sutures are placed. The indwelling stent is removed 4-6 weeks postoperatively. The indications for placement of stents or nephrostomy tube intra operatively remain controversial and may be different in pediatric and adult practices. Most pediatric urologists avoid routine use of stents and nephrostomy tubes[26]. For adults, placement of soft inert, self retaining internal stents are recommended in cases of active inflammation or secondary repairs, which are justifiably removed 4-6 weeks postoperatively[27,28,29]. These stents help reduce urinoma formation, shorten hospital stay and prevent kinking of ureter in early postoperative period. Disadvantage of routine use of stents is local necrosis of arterial wall due to pressure and bursting of suture line due to back pressure caused by blockage of stents[8,14,22].

The complications noted in our study were urinoma formation, wound infection, supra pubic pain almost in equal frequency in both groups under study. One of our stented patient required revision pyeloplasty and other non stented required nephrectomy, while both were found to have recurrence of PUJ narrowing. Both groups in our study resulted in pain relief in 98%. Renal function improved and remained stable in 92% & deteriorated in 07% of patients. In younger patients, absence of UTI, absence of palpable mass were favorable indicators after pyeloplasty. Therefore our study concludes that pyeloplasty is the most effective and permanent treatment of PUJ obstruction. Newer endoscopic techniques currently used must be carefully assessed against the gold standard of pyeloplasty because success rates for endopyelotomy and pyeloplasty are 88% and 93% respectively while hospital stay is essentially equal and endopyelotomy is much costly procedure than pyeloplasty[8,14,22,28].

In follow up, ultrasonography is recommended at 4-6 weeks, excretory urography and renal scan at 03 months post operatively. Repeat checks at 01 and 02 years while repeat diuretic renal scan is required only if there is recurrent PUJ obstruction[29]. In our study, the patients were initially followed fortnightly then monthly and after DJ stent removal patients were followed at three monthly intervals for 15 months and observed for any complication.

CONCLUSION

This study concludes that open pyeloplasty with dismembered or non-dismembered type is treatment of choice in pelviureteric junction obstruction. Our study proves that the use of stents in pyeloplasty is not justified as a routine. In our study complications in both groups were comparable and no gross difference was observed in stented or non stented pyeloplasties.

REFERENCES

1. Murphy LJT: **The history of urology.** Charles Thomas, Springfield, iii, 1972: ;p197.

2 Robson WJ, Rudy SM, Johnston JH: **Pelviureteric obstruction in infancy.** J Paediatr Surg. 1976; 11:57-60.

3 Valayer J, Adda G: **Hydronephrosis due to pelviureteric junction in infancy.** Br J Urol, 1982;54:451-454.

4. Bejjani B; Belman AB: **Ureteropelvic junction obstruction in newborn and infants.** J Urol, 1982; 128: 770.

5 Smith AD: **Should open pyeloplasty be abandoned?** J Urol, 1997 Feb;157(2):476-8.

6. Arun N; Kekre NS; Nath V; Gopalakrishnan G: **Is open Pyeloplasty is still justified?** Br J Urol, 1997 Sep;80(3);379-81.

7 Schoeffer AJ, Grayhack JT: **Surgical management of ureteropelvic junction obstruction.** In Walsh PC gittes RF;5th Edition philadelphia, WB Saunders CO,1986.

8 Culp OS, Deweerd JH: **A pelvic flap operation for certain types of uretero-pelvic strictures. Preliminary report.** Proe Staff Meet Mayo Clinic, 1951;26:483-488.

9 Scardino PL, Prince CL: **Vertical flap ureteropelvioplasty: Preliminary report.** South Med J, 1953;46:325.

10. Nguren DH,Aliabadi H,Ercole CJ,Gonzalez R: **Non**

intubated Anderson Hynes repair of ureteropelvic junction, observation in 60 patients. J Urol, 1989;142:704.

11 Kay R: **Procedures for ureteropelvic junction obstruction.** In Novick, A.C; Steam SB, Pontes JE (Eds); Stewats operative Urology, 2nd Edition, Baltimore, Williams & Wilkins, 1989.

12 Bernstein GT, Mandel J, Lobowitz RL Bauer SB, Colodny AH, Retik AB: **Ureteropelvic junction obstruction in the neonates.** J Urol, 1988;140:1216.

13 Foley FEB: **New plastic operation for stricture at ureteropelvic junction.** J Urol, 1937;38:643.

14 Shaul DS, Cunnigham JA, Lowe P, Skaist LB, Hardy BE: **Infant pyeloplasty is a low risk procedure.** J Paediatr Surg, 1994 Feb;29(2):343-7.

15 Clark WR, Malek RS: **Ureteropelvic junction obstruction, observation on a classic type in adults.** J Urol, 1987;138:276.

16 Qamar S,Khaleeq UR,Amanullah, Farrukh AK: **Pyeloplasty; Experience at Mayo Hospital, Lahore.** The Professional, 1999;6(3):P379-382.

17 O'Reilly PH: **Functional outcome of pyeloplasty for ureteropelvic junction obstruction; Prospective study in 30 consecutive cases.** J Urol, 1989;142:273.

18 Koff SA, Thrall JH, Keyes JW Jr: **Diuretic radionucleoide urography: A non invasive method for evaluating nephroureteral dilatation.** J Urol, 1979;122:451.

19. Ross JH; Kay R, Knipper NS, Stream SB: **The absence of crossing vessel in association with ureteropelvic junction obstruction detected by prenatal ultrasonography.** J Urol, 1998 Sep;160(3 pt-2):973-75.

20 Stephens FD: **Ureteropelvic hydronephrosis and the "aberrant "renal vessels.** J Urol, 1982;128:984.

21 Dansurer H; Ackermann DK; Bohlen DF, Studer UE; **Endopyelotomy for primary ureteropelvic junction obstruction. Risk factors determine success rate.** J Urol, 1998 Jan;56-61.

22 Jabbour ME; Goldfischer ER; Klima WJ; Stravodimos KG, Smith AD: **Endopyelotomy after failed pyeloplasty, the long term results.** J Urol, 1998 Sep;160(3-1): 690-02.

23 J. Paul Yurkanin, Gerhard J. Fucho: **Laproscopic dismembered pyeloureteroplasty: A single institution's 3-year experience.** J Endourol, 2004;18:765-769.

24 Kaouk JH, Kuang W, Gill IS: **Laproscopic dismembered tabularized flap pyeloplasty:** A novel technique. J Urol, 2002; 167:229.

25 Casale P. et al: **Comparison of dismembered and non dismembered laproscopic pyeloplasty in the pediatric patients.** J Endourol, 2004;18:875-878.

26 Allen TD: **Congenital ureteral strictures.** J Urol, 1970;104:196.

27 Schwyzer A. **New pyeloureteral plastic operation for hydronephrosis.** Surg Clin North AM;1923;03:1441.

28 Zincke H, Kelalis PP, and Culp OS: **Ureteropelvic obstruction in children.** Surg Gynaecol Obstet; 1974;139:873.

29 Perlmutter AD, Kroovaud RL, Lai YW: **Management of ureteropelvic obstruction in the first year of life.** J Urol;1980;123:535.