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COMPARATIVE STUDY BETWEEN LATERAL FLANK AND DORSAL LUMBOTOMY APPROACH OF PYELOPLASTY IN MANAGEMENT OF PELVIURETERIC JUNCTION OBSTRUCTION IN PEDIATRIC AGE GROUP

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ABSTRACT

INTRODUCTION

Ureteropelvic junction (UPJ) obstruction is by far the most common cause of pediatric hydronephrosis, occurring in 1 per 1000-2000 newborns. Widespread use of antenatal ultrasonography and the advent of modern imaging techniques have resulted in earlier and more common diagnosis of hydronephrosis. Before the advent of ultrasonography, congenital hydronephrosis presented throughout childhood and even adulthood with various symptoms such as abdominal or flank pain, recurrent urinary tract infections (UTIs), abdominal mass, renal stones, and hematuria.

AIMS AND OBJE CTI V ES

the safety and efficacy of lateral flank pycloplasty in comparison with the dorsal lumbotomypycloplasty in management of pelviureteric junction obstruction, good operative procedure in respect of post-operative complication. post-operative complications and its management. Know which procedure is suitable for which group of patient.

MATERIALS AND METHODS

It was a prospective randomized study performed to patients, presenting with pelviureteric junction obstruction. IPGME& R, SSKM HOSPITAL KOLKATA-700020. In the present study, 100 cases were included. Analysis was made on the basis of percentages, mean values, standard deviation, t-test and proportion/chisquare test of significance. The study comprises of 100 patients of pelviureteric junction obstruction admitted to indoors, OPD and casualty of IPGME& R, SSKM HOSPITAL, and KOLKATA. Preoperative History, investigations, operative data and postoperative course were recorded prospectively in a computerized database and in standardized data format.

RESULT

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In our study showed that association between Post-op abdominal Distension in two groups was statistically significant. (P-value: 0.02699). Difference between Hospital Stay in two groups was statistically significant. (P-value: <0.0001). Association between Wound Infection in two groups was statistically significant. (P-value: 0.00268). Association between Seroma formation in two groups was statistically significant. (P-value: 0.0117). Association between Persistance of Abdominal lump in two groups was not statistically significant. (P-value: 0.09212).

CONCLUSION

Post-operative morbidity, wound infection and seroma formation all are low in dorsal lumbotomy approach. Overall, the complication rates were not significantly different for the 2 approaches .Further evaluation of cosmesis and pain control, and future studies with larger numbers of patients and longer follow up may show more divergent outcomes.

KEYWORDS

Lateral Flank, Dorsal Lumbotomy, Pyeloplasty, Pelviureteric Junction

INTRODUCTION

Ureteropelvic junction (UPJ) obstruction is by far the most common cause of pediatric hydronephrosis, occurring in 1 per 1000-2000 newborns. Widespread use of antenatal ultrasonography and the advent of modern imaging techniques have resulted in earlier and more common diagnosis of hydronephrosis. Before the advent of ultrasonography, congenital hydronephrosis presented throughout childhood and even adulthood with various symptoms such as abdominal or flank pain, recurrent urinary tract infections (UTIs), abdominal mass, renal stones, and hematuria.

Since the first reconstruction of an obstructed kidney in the late 1800s by Trendelenburg, surgery for UPJ obstruction has evolved significantly. In 1936, Foley described the results of 20 pyeloplasties using the so-called YV-plasty repair. [1] In 1946, Anderson and Hynes published their experience with an operation that included complete transection of the upper ureter, subsequent spatulation of the distal ureter, and trimming of the redundant pelvis. [2] This highly successful technique has become the standard for surgical repair used today, even in robotic pyeloplasties.

An explosion of information has been available relating directly to the pathogenesis, diagnosis, and treatment of UPJ obstruction. The decision between observation, medical prophylaxis, and surgical intervention mostly depends on how inefficient ureteropelvic urine transport is, and determining this inefficiency may not be straightforward because various biologic, mechanical, and clinical factors must be considered. The effects of the obstructive process on renal function must also be considered.

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AIMS AND OBJE CTI V ES

1. To assess the safety and efficacy of lateral flank pycloplasty in comparison with the dorsal lumbotomypycloplasty in management of pelviureteric junction obstruction.
2. To know the good operative procedure in respect of post-operative complication.
3. To know the immediate and late post-operative complications and its management.
4. To know which procedure is suitable for which group of patient.

MATERIAS & METHODS

STUDY DESIGN: It will be a prospective randomized study performed to patients, presenting with pelviureteric junction obstruction.

STUDY AREA: IPGME& R, SSKM HOSPITAL KOLKATA-700020.

SAMPLE SIZE: in the present study, 100 cases will be included.

STATISTICAL METHODS: Analysis will be made on the basis of percentages, mean values, Standard deviation, t-test and proportion/chisquare test of significance.

THE FRAME OF STUDY: The study comprises of 100 patients of pelviureteric junction obstruction admitted to indoors, OPD and casualty of IPGME& R, SSKM HOSPITAL, and KOLKATA.

DATE MAINTENANCE: Preoperative History, investigations, operative data and postoperative course were recorded prospectively in a computerized database and in standardized data format.

ANALYSIS OF DATA: Statistical analysis was performed with SPSS software (version 16.0; SPSS Chicago, llinois) using the Fisher exact test, test, and Mann-whitney Utest and $P<0.05$ was considered statistically significant. Correlation among different continuous variables was assessed by the Pearson correlation coefficient test. It was considered strong if the correlation coefficient (r) was > 0.5 or «-0.5.

EXCLUSION CRITERIA

1. Uncorrectable coagulopathy
2. Active urinary tract infection
3. Intestinal obstruction
4. Significant abdominal wall infection
5. Massive haemoperitoneum or haemoretroperitoneum generalised peritonitis and suspected malignant ascites.
6. Morbid Obesity
7. Extensive prior abdominal, pelvic or renal surgery

INCUSION CRITERIA

Children with clinical with radiological symptomatic PUJ obstruction.

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RESULT

Our study showed that difference between age in two groups was not statistically significant. (P-value: 0.3511). Association between sex in two groups was not statistically significant. (P-value: 0.68309). Association between diagnosis in two groups was not statistically significant. (P-value: 0.6292). Association between side in two groups was not statistically significant. (P-value: 0.68030). Association between Urosepsis in two groups was not statistically significant. (P-value: 0.81736). Association between Associated Abnormality in two groups was not statistically significant. (P-value: 0.50498).

We found that association between Palpable Lump in two groups was not statistically significant. (P-value: 0.81217). Association between Dietl'S Crisis in two groups was not statistically significant. (P-value: 0.5382). Difference between USG KUB in two groups was not statistically significant. (P-value: 0.9422). Difference between DTPA Scan in two groups was not statistically significant. (P-value: 0.8881). Difference between DTPA Scan in two groups was not statistically significant. (P-value: 0.6336). Difference between Operative time in two groups was statistically significant. (P-value: <0.0001). Association between DJ Stent in two groups was not statistically significant. (P-value: 0.77943).

In our study showed that association between Post-op abdominal Distension in two groups was statistically significant. (P-value: 0.02699). Difference between Hospital Stay in two groups was statistically significant. (P-value: <0.0001). Association between Wound Infection in two groups was statistically significant. (P-value: 0.00268). Association between Seroma formation in two groups was statistically significant. (P-value: 0.0117). Association between Persistance of Abdominal lump in two groups was not statistically significant. (P-value: 0.09212).

We found that the association between DJ Stent Related Complication (Migration) in two groups was not statistically significant. (P-value: 0.07864). Association between DJ Stent Related Complication (Urosepsis) in two groups was not statistically significant. (P-value: 0.5382). Association between Morbidity in two groups was statistically significant. (P-value: 0.00003). Association between Incisional Hernia in two groups was statistically significant. (P-value: 0.0010).

DISCUSSION

Present study was conducted in the epartment of Pediatric Surgery in IPGMER and SSKM Hospital, West Bengal. 100 patients were selected, 50 patients operated through Flank approach as Group-A and 50 patients operated through Dorsal lumbotomy approach as Group-B.

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In our study, The mean age (mean± s.d.) of patients was 2.6280 ± 1.7019 years with range 0.6000 - 10.0000 years and the median age was 2.1000 years in Group-A. In Group-B, The mean age (mean± s.d.) of patients was 2.9980 ± 2.2142 years with range 0.6000 - 10.0000 years and the median age was 2.2000 years. Difference of mean age in two groups was not statistically significant. Thus age was matched in two groups. There was no statistically significant difference in age distribution between the groups. [Numerical variables between groups compared by t-test; (p=0.3511)].

Pankaj Halder et al found that 61 patients were males and 23 patients were females. The mean age at the time of operation was 43 months (range 2 months to 11 years). [3]

We found that 31(62.0%) patients were female and 19((38.0%) patients were male in group-A. 29(58.0%) patients were female and 21((42.0%) patients were male in group-B. This association was not statistically significant (p=0.68309).

Pankaj Halder et al found that Prenatal detection was 7(0.09%). We found that antenatally detected hydronephrosis was 22(22%) patients. [3]

According to diagnosis, 10(20.0%) patients had antenatally detected hydronephrosis and 40((80.0%) patients had postnatally detected hydronephrosis in group-A but 12(24.0%) patients had a antenatally detected hydronephrosis and 38((76.0%) patients had postnatally detected hydronephrosis in group-B. This association was not statistically significant (p=0.6292).

32(64.0%) patients had left and 18((36.0%) patients had right in group-A. 30(60.0%) patients had left and 20((40.0%) patients had right in group-B. This association was not statistically significant (p=0.68030).

13(26.0%) patients in group-A and 12(24.0%) patients in group-B had urosepsis but this association was not statistically significant (p=0.81736).

6(12.0%) patients in group-A and 4(8.0%) patients in group-B had associated abnormality but this association was not statistically significant (p=0.50498).

11(22.0%) patients in group-A and 12(24.0%) patients in group-B had palpable lump but this association was not statistically significant (p=0.81217).

7(14.0%) patients in group-A and 5(10.0%) patients in group-B had dietl's crisis but this association was not statistically significant (p=0.5382).

The mean USG KUB (mean± s.d.) of patients was 39.5600 ± 8.2243 AP diameter with range 26.0000 - 58.0000 AP diameter and the median USG KUB was 40.0000 AP diameter in Group-A. In Group-B, The mean USG KUB (mean± s.d.) of patients was 39.6800 ± 8.2942 AP diameter with range 26.0000 - 58.0000 AP diameter and the median USG KUB was 40.0000 AP diameter. Difference of mean USG KUB in two groups was not statistically significant (p=0.9422).

The mean DTPA Scan (mean± s.d.) of patients was 24.3400 ± 7.0497 mm with range 12.0000 - 40.0000 mm and the median DTPA Scan was 23.5000 mm in Group-A.

The mean DTPA Scan (mean± s.d.) of patients was 24.5400 ± 7.1320 mm with range 12.0000 - 40.0000 mm and the median DTPA Scan was 24.5000 mm in Group-B. Difference of mean DTPA Scan in two groups was not statistically significant (p=0.8881).

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The mean DTPA Scan (SRF) (mean± s.d.) of patients was 28.0800 ± 8.4149 ml/min with range 10.0000 - 45.0000 ml/min and the median DTPA Scan (SRF) was 28.0000 ml/min in Group-A.
The mean DTPA Scan (SRF) (mean± s.d.) of patients was 27.2600 ± 8.7291 ml/min with range 10.0000 - 45.0000 ml/min and the median DTPA Scan (SRF) was 28.0000 ml/min in Group-B.
Difference of mean DTPA Scan (SRF) in two groups was not statistically significant (p=0.6336).
JOHN S. WIENER et al [4] found that dorsal lumbar incision (108.5 minutes) was statistically significantly faster than the flank approach (144.4 minutes). Hospital stay was approximately 2 days shorter in infants who had a dorsal lumbar (25.7 hours) versus a flank incision (73 hours)
Pankaj Halder et al found that the average duration on of hospital stay was 3.9 (range 2-13)days.[3]
Braga et al [5] found that mean operative time was signif- icantly longer for laparoscopy (178 minutes) compared to flank incision (144) and dorsal lumbotomy. Mean hospital stay was significantly shorter for laparoscopy (2.3 days) compared to flank incision (3.6) and dorsal lumbotomy.
The mean Operative time (mean± s.d.) of patients was 86.8200 ± 18.2731 min with range 50.0000 - 120.0000 min and the median operative time was 85.0000 min in Group-A.
The mean Operative time (mean± s.d.) of patients was 58.6600 ± 16.2124 min with range 40.0000 - 90.0000 min and the median operative time was 52.0000 min in Group-B.
Difference of mean Operative time in two groups was statistically significant (p <0.0001).
In our study, 42(84.0%) patients in group-A and 43(86.0%) patients in group-B DJ Stent was introduced. This was not statistically significant (p=0.77943).
7(14.0%) patients in group-A and 1(2.0%) patients in group-B had post-op abdominal distension but this association was statistically significant (p=0.02699).
The mean Hospital Stay (mean± s.d.) of patients was 7.3200 ± 1.6218 days with range 5.0000 - 10.0000 days and the median Hospital Stay was 7.0000 days in Group-A.
The mean Hospital Stay (mean± s.d.) of patients was 5.0600 ± 1.2357 days with range 3.0000 - 8.0000 days and the median Hospital Stay was 5.0000 days in Group-B.
Difference of mean Hospital Stay in two groups was statistically significant (p <0.0001).
Our data confirm the findings of earlier reports and demonstrate that the dorsal lumbar approach may result in shorter operative times and length of hospitalization compared to a flank approach.
Braga et al showed that complications included 3 readmissions for pyelone- phritis (laparoscopy 2, flank incision 1), 3 cases of urinary leakage (laparoscopy 2, flank incision 1) and 2 cases of worsening of hydronephrosis after stent re- moval (both DL).[5]
19(38.0%) patients in group-A and 6(12.0%) patients in group-B had Wound Infection but this association was statistically significant (p=0.00268).
12(24.0%) patients in group-A and 3(6.0%) patients in group-B had seroma formation but this association was statistically significant (p=0.0117). Our study showed that wound infection and seroma formation was significantly higher in group-A.
5(10.0%) patients in group-A and 1(2.0%) patients in group-B had persistence of abdominal lump but this association was not statistically significant (p=0.09212).

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3(6.0%) patients in group-A and no patients in group-B had DJ Stent Related Complication (Migration) but this association was not statistically significant (p=0.07864).
7(14.0%) patients in group-A and 5(10.0%) patients in group-B had DJ Stent Related Complication (Urosepsis) but this association was not statistically significant (p=0.5382).
In our study, 28 patients had post-operative morbidity in flank approach and 8 patients had post-operative morbidity in dorsal lumbotomy approach.
14(28.0%) patients having Incisional Hernia in flank approach and 2(4.0%) patients having Incisional Hernia in dorsal lumbotomy approach

CONCLUSION

The dorsal lumbar approach for dismembered pyeloplasties in children is an effective treatment of primary uretero pelvic junction obstruction with a low rate of complications. In children 1 to 12 years old we found operative time to be significantly faster than the flank approach. This approach also resulted in shorter hospital stays for infants. Post-operative morbidity, wound infection and seroma formation all are low in dorsal lumbotomy approach. Overall, the complication rates were not significantly different for the 2 approaches .Further evaluation of cosmesis and pain control, and future studies with larger numbers of patients and longer followup may show more divergent outcomes.

REFERENCE

1. Andrea Cestari, Nicolo Maria Buffi, Giuliaralista, MattiaSangalli, EmanueleScapaticci, Fabio Fabbri, Massimo Lazzeri, PatrizioRigatti, Giorgio Guazzoni (2010): Various approaches in pycloplasty in paediatric age group; EUROPEAN UROLOGY 58(2010) 711-718.
2. Klingler HC, Remzi M, Janetschek G, Kratzik C, Marberger MJ (2003): Comparison of anterior subcostal, dorsal lumbotomy& flank approaches of pycloplasty in PUJ obstruction EurUrol 2003; 44: 340-5.
3. Halder P, Mukhopadhyay B, Mandal KC, Shukla R, Kumar R, Mishra L. Dorsal lumbotomy approach for pediatric dismembered pyeloplasty. Pediatrics & Health Research. 2017;2:1-3.
4. WIENER JS, ROTH DR. Outcome based comparison of surgical approaches for pediatric pyeloplasty: dorsal lumbar versus flank incision. The Journal of urology. 1998 Jun 1;159(6):2116-9.
5. Braga LH, Lorenzo AJ, Bägli DJ, Mahdi M, Salle JL, Khoury AE, Farhat WA. Comparison of flank, dorsal lumbotomy and laparoscopic approaches for dismembered pyeloplasty in children older than 3 years with ureteropelvic junction obstruction. The Journal of urology. 2010 Jan 1;183(1):306-11.

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Table: Distribution of Diagnosis and Side in two groups

		GROUP-A	GROUP-B	TOTAL
Diagnosis	**Antenatal**	10	12	22
	Row %	45.5	54.5	100.0
	Col %	20.0	24.0	22.0
	Postnatal	40	38	78
	Row %	51.3	48.7	100.0
	Col %	80.0	76.0	78.0
	TOTAL	50	50	100
	Row %	50.0	50.0	100.0
	Col %	100.0	100.0	100.0
Side	**Left**	32	30	62
	Row %	51.6	48.4	100.0
	Col %	64.0	60.0	62.0
	Right	18	20	38
	Row %	47.4	52.6	100.0
	Col %	36.0	40.0	38.0
	TOTAL	50	50	100
	Row %	50.0	50.0	100.0
	Col %	100.0	100.0	100.0