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Original Research Paper

Ureterorenoscopy : A Revolution in Management of Ureteric Calculi

Medical Science

KEYWORDS :

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ABSTRACT

Introduction:- *Urinary stones have been found in mankind since ancient times, and the earliest recorded cases were or kidney and urinary bladder stones detected in Egyptian mummies dated to 4800 BC. The damaging effect of the stone is the result of obstructive nephropathy with dilatation of the pelvi-caliceal system or urinary tract consequently leading to urinary stasis and severe infection. This may resulted ultimately the fibrosis and non-functioning kidney.*

Objectives:- To evaluate patients with ureteric calculi with regards to the incidence, age, sex, clinical presentation, site, side, management with ureterorenoscpy and their complications.

Methods:- *A prospective study carried out by Department of Surgery at NETAJI SUBHASH CHANDRA BOSE Medical College, and Hospital MEERUT for a period of 1 year. 50 Patients were selected after they were diagnosed as having ureteric calculi. The patients were treated by URETERORENOSCOPY and the outcome was monitored. Statistical analysis of the data was done for obtaining results.*

Results:- *The majority of the patients were males with peak age group in the second and third decade accounting for 70% of the cases. Pain in abdomen or loin tenderness was the most common presenting symptom, seen in 100% cases. 2 patients had bilateral calculi, 27 patients had calculus on right side, 21 had on left. 68% of the stones in lower ureter, 28% Mid ureter whereas only 4% was present in the upper ureter. URS was performed as surgical intervention in all cases with no major complication.*

Conclusion:- *With the advancement in minimal invasive techniques the requirement for open surgery is decreasing and endourological procedures are becoming the means of surgical intervention. Complications are minimal with surgical expertise for endourological procedures.*

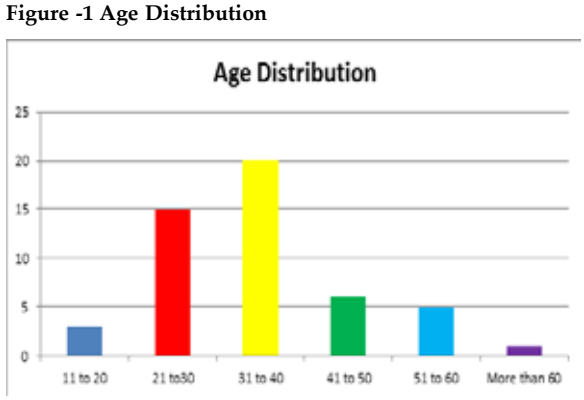
Introduction:- Urolithiasis is common and affects most of the patients in their prime age of life which cause a significant morbidity and loss of functioning [1]. The severity of the condition can be judged from the fact that 10% of the patients harboring the stone in urinary tract, lose their kidney either by nephrectomy or as a result of subsequent damage to the kidney. The damaging effect of the stone is the result of obstructive nephropathy with dilatation of the pelvi-caliceal system or urinary tract consequently leading to urinary stasis and severe infection. This may resulted ultimately the fibrosis and non-functioning kidney. Until 1980s, urinary calculi were a major health problem, with significant proportion of patients requiring extensive surgical procedures and a sizable minority losing their kidney. During the past 2 decades, ureterorenoscopy (URS) has dramatically changed the management of ureteral calculi[2]. There have been tremendous technical improvements, including miniaturization of endoscopes, and enhancement of optical quality and tools and the introduction of disposables. As a result, URS has had a great impact on active stone removal and is being performed throughout the world with increasing frequency.

Material and methods:- This study was conducted in Department of surgery at Netaji Subhash Chandra Bose Medical College, Meerut over a period of one year & 50 consecutive cases was taken with following criteria, patients aging from 10 yr to 70 yr. with symptoms of ureteric calculus or with investigation reports indicating diagnosis of ureteric calculus. Informed consent from patient's attendant was taken for study. A detailed history was taken under the heading of present medical history and past history. Patients were fully examined under the heading of general physical examination, systemic examination and local examination. Patient underwent radiological investigation for confirmation of diagnosis. Ultimately these patients were subjected to URS (Ureterorenoscopy) for therapeutic purpose. Rigid ureteroscope was used. Unpaired T-Test at 95% & 99% confidence level was used to find out the statistical significance.

Results:-

In the present study, the age of patients ranged between 17 and 65 years. The maximum number of cases of ureteric calculus was found to be in the age group between 31 and 40 years, i.e., 20 cases.

Figure -1 Age Distribution



In this study majority of patients were males (33) with male to female ratio of 1.9:1.

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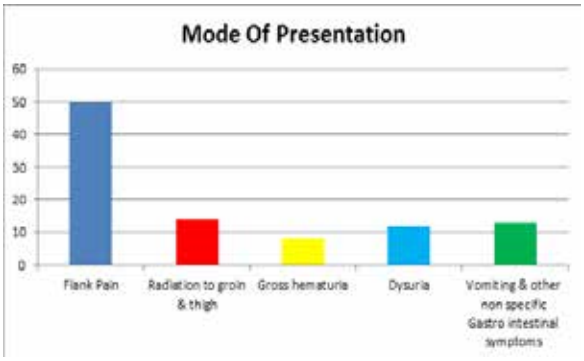
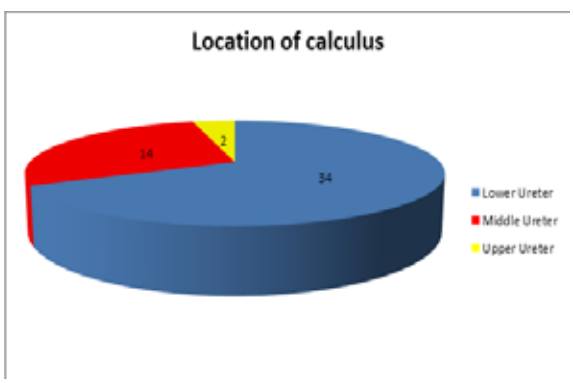
Figure -2 Mode of Presentation



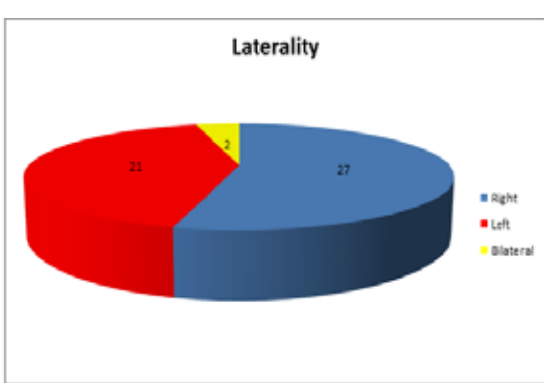
All the patients presented with pain abdomen. 28% of the patients had radiation of pain from lumbar region to the groin, genital or to the thigh. 16% of the patients had hematuria. Burning micturition (24%) and vomiting & other non-specific gastro-intestinal symptoms (26%)

Figure -3 Location of Calculus



The current study has an incidence of 68% of the stones in lower ureter 28% in mid ureter & only 4% was present in the lower ureter.

Figure -4 Laterality of Calculi



In the study only 2 patients had bilateral calculi. 27 patients had Right sided calculi whereas 21 patients had left sided calculi. All the patients were subjected to URS. DJ stenting was done in 60% cases whenever decided necessary in cases of ureteral edema secondary to an impacted calculus, ureteral injury, and upward migration of stone fragments, ureteric stricture or stenosis, abandoned cases or surgeon's preference.

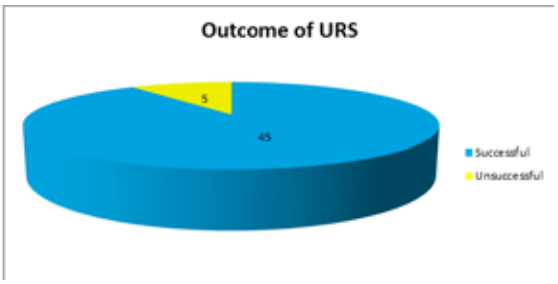


Figure -5 Outcome of URS

In 90% of the cases URS was able to achieve stone free retrieval. However in 10% of cases URS was unsuccessful & needed alternative method of retrieval. 8 cases developed minor complications, severe pain was seen in 6% cases, 4% developed gross hematuria, 2% cases developed fever & UTI was seen in 4% cases as complication. No major complication was encountered in present series. In this study duration of post operative stay ranged from 1 days to 7 days. Maximum patients were discharged on 2nd post operative day i.e. 60%.

Discussion:- Urolithiasis is very common and affects most of the patients in their prime age of life which cause a significant morbidity and loss of functioning[1]. The new generation small bore rigid and semi-rigid fiberoptic ureteroscopes have become integral to the modern management of ureteric calculi. Open ureterolithotomy is rare except in a select subgroup of patients i.e. those with complex calculus disease associated with anatomic abnormalities. Ureteroscopy has become as effective as open surgery with little attendant morbidity [3,4]. Early intervention and relief of an obstruction precludes the development of renal obstructive complications. The commonest age group reported by most of the series for the presentation of ureteric calculi is between 20-40 years[5]. Soucie et al 1994[6], Pearle et al 2005[7] have reported that stone disease typically affected adult men more commonly than adult women. Our study has similar report. Reid Morse 1991[8], have reported incidence of 17% in the upper 1/3rd of the ureter, 11% in middle 1/3rd of the ureter and 72% in the lower 1/3rd of the ureter. Our study has similar report. Pain, burning micturition, haematuria and non specific symptoms like vomiting are the most common modes of presentation in ureteric calculus. Bromwich et al 2007[9], Dhinakar 2007[10], Geavlete et al 2010[11] studied the outcome of URS in their studies and find out stone free rate as 96%, 71.6% & 83.5% respectively. In our study all 50 cases underwent URS with successful stone free rate of 90%. In rest 10% of cases URS was unsuccessful either due to migration of stone in renal pelvis, URS couldn't reach up to the stone either due to stricture or stenosis in distal ureter or due to location of stone in upper ureter.

Conclusion:-

1) Ureteric calculi showed a peak incidence in the 2nd and 3rd decade accounting for 70% of the cases.

2) Ureteric calculi were seen in as young as 17 years and as old as 65 years.

3) Male preponderance was noted with male to female ratio of 1.9:1.

4) Pain in loin was the main presenting symptom in 100% of the patients.

5) Highest incidence of ureteric calculi was found in the lower 1/3rd of ureter (68%).

6) URS was performed as surgical interventions in all cases with successful stone free rate of 90%.

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