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Study of Clinical Profile of Unilateral Hydronephrosis

KEYWORDS

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ABSTRACT *This is a clinical study of 30 cases of hydronephrosis admitted to Govt Medical College Miraj Hospital. Our aim is to study the clinical profile of unilateral*

hydronephrosis,common causes and various modes of clinical presentation regarding age and sex, various diagnostic modalities,and various treatment modalities, prognostic factors and complications.This study includes selection of patients with clinical suspicion of hydronephrosis on a randomized and a prospective basis..Patients with hydronephrosis with PUJ obstruction, ureteric calculus, congenital anomalies of ureter and ureteric stricture are included in this study. Patients with hydronephrosis related with benign enlargement of prostate and lower abdominal malignancies were not included in this study.Patients with moderate to severe grade hydronephrosis were considered for surgical treatment. Patients with pelviureteric junction obstruction leading to severe hydronephrosis, reconstructive surgery was considered. In patients with hydronephrosis of long duration and with non functioning kidney nephrectomy was considered. . In this study, 20 (67%) patients with unilateral hydronephrosis were due to Ureteric calculus, 7 (23%) patients had stones at the pelviureteric junction. 3 (10%) patients were diagnosed with Congenital Pelviureteric Junction obstruction (PUJ) leading to hydronephrosis.Highest incidence of hydronephrosis was seen in third decade with Males to females in ratio 2:1.Commonest symptom was pain, mass in abdomen confined to lumbar region

INTRODUCTION

The term hydronephrosis[1] is derived from *hydornephros* (Greek,Kidney) and *osis*) and is generally defined as dilatation of the renal pelvis and calices resulting from intermittent and incomplete obstruction to the flow of urine. Obstructive uropathy is a term used to describe the architectural changes in the urinary tract that impairs outflow of urine such that proximal pressure must be raised to transmit the usual flow through the point of narrowing. Such changes, may or may not be associated with renal parenchymal damage. Depending on the site of obstruction to the urinary flow the hydronephrosis may be unilateral or bilateral. A unilateral hydronephrosis occurs when the obstruction is above the level of the bladder. Causes may be present either outside the ureter, in the wall of the ureter or lumen of the ureter. The female to male ratio of unilateral hydronephrosis, most commonly caused by idiopathic pelviureteric[2] junction obstruction or calculus is 2:1, the right side being more commonly affected[2].UPJ obstruction is the most common cause of hydronephrosis in neonates. It may result from abnormal development of smooth muscle at UPJ[3]. Although reported to be congenital, UPJ obstruction also can be secondary to infection, extrinsic compression or more commonly intrinsic scar. Congenital causes are likewise, either extrinsic or intrinsic.[12] The intrinsic causes are thought to be abnormal muscle fibres[13] at UPJ or mucosal folds. Whereas extrinsic causes include retroperitoneal bands,kinks and occasionally aberrant vessels4. Many environmental and metabolic disturbances leading or contributing to stone formation have been identified.[17] It is possible to diagnose the cause of stone disease in more than 95% of patients. The most dramatic or miraculous achievement has resulted from the introduction of percutaneous nephrolithotomy(PCNL) and extracorporeal shock wave lithotripsy (ESWL).[5]

METHODOLOGY

This is a study of 30 cases of hydronephrosis admitted to Surgery wards during the period from November 2010 to October 2012.It includes selection of patients with clinical suspicion of hydronephrosis..The patients were selected after they are diagnosed as having unilateral hydronephrosis after careful history taking thorough general and per abdominal examination and appropriate specific investigations.Patients with hydronephrosis related with PUJ obstruction, ureteric calculus, congenital anomalies of ureter and pelvis and ureteric stricture are included in this study. Patients with hydronephrosis related with benign enlargement of prostate and lower abdominal malignancies were not included in this study.All relevant and routine investigations were done in these cases to establish diagnosis. Depending on the severity of symptoms and findings on ultrasound,intravenous urogram and CT IVP, patients with moderate to severe grade hydronephrosis (III and IV) were considered for surgical treatment.With mild to moderate hydronephrosis, particularly with mid and lower ureteric calculus measuring 6mm or less were first given a trial of conservative treatment in the form of analgesics, antispasmodics and urinary antibiotics. Those patients with urinary tract obstruction with hydronephrosis in whom medical treatment failed were considered for surgical line of treatment.Those patients who presented with acute or chronic renal failure due to obstructive uropathy were initially subjected to undergo medical management for the correction of kidney function (Haemodialysis).In patients with pelviureteric junction obstruction leading to severe hydronephrosis, reconstructive surgery was considered. In patients with hydronephrosis of long duration and with non functioning kidney nephrectomy was considered. Patients with grade II hydronephrosis and removable stones were considered for open surgeries with stent insertions (double J ureteral stent).Postoperative follow up was meticulously done.For patients with stents in situ regular follow up and stent removal was done after 6 weeks

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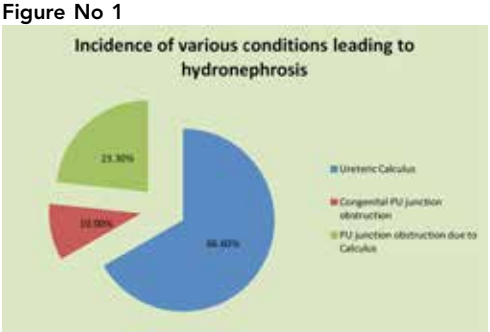
Results

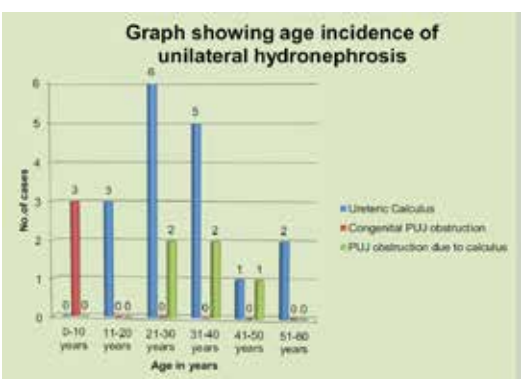
In this study out of 30 cases admitted 20 (67%) patients were due to Ureteric calculus, 7 (23%) with stones at the pelviureteric junction. 3 (10%) were diagnosed as congenital Pelviureteric Junction obstruction (PUJ) leading to hydronephrosis.

Figure No 1



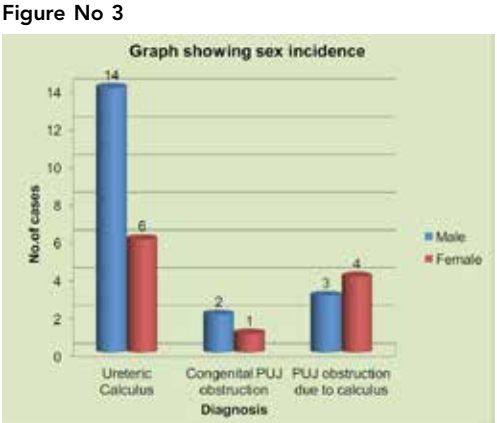
In the present study, the youngest patient affected was of 1 year and the oldest was 75 years of age.Most patients affected with Ureteric calculus (11/20) and PUJ calculus (4/7) were in the third to fourth decades of their life while all cases of Congenital PUJ obstruction in this study were less than 3 years of age.

Figure No 2



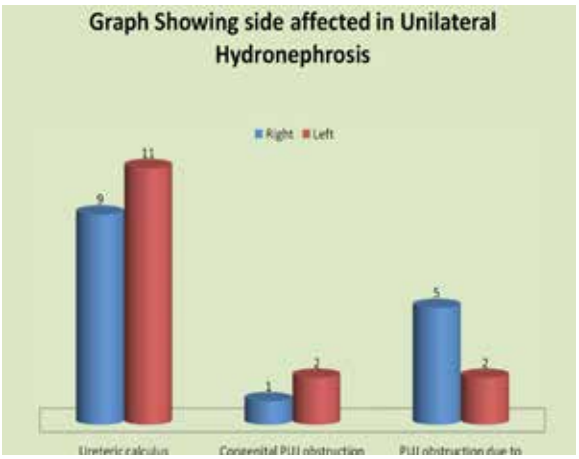
In the present study, unilateral hydronephrosis was more common in males (63.3%) as compared to females (36.7%). Males accounted for 70%,67% and 43% of the total cases in the disease categories of Ureteric Calculus, Congenital PUJ obstruction and PUJ obstruction due to calculus respectively.

Figure No 3



In the present study, both sides (Right and Left) were equally affected overall. However unilateral hydronephrosis due to Ureteric calculus was more common on the left side, that due to Congenital PUJ obstruction was moreommon on the left side and that due to PUJ calculus was more common onthe right side.

Figure No 4



In present study, more than 45% of cases were from lower socioeconomic strata including farmers and labourers. Housewives were the second major sufferers in this study.

Occupation	No. of cases	Percentage
Farmer	8	26.66
Labourer	6	20
Student	5	16.66
Housewife	6	20
Business	1	3
Job	1	3
Others(Children)	3	10

Chart No 1

In this study, all the patients presented with pain in abdomen. Majority of the patients (>65%) presented with pain in abdomen of duration of less than one month, while 23% patients had pain for duration between 1 to 3 months. Only 10% patients had chronic pain of more than 3 months duration.Pain was situated in the lumbar region radiating to loin in case of ureteric stones. In case of hydronephrosis due to pelviureteric junction obstruction pain was dull aching and localized to lumbar region. Pain was the chief complaint of all patients of unilateral hydronephrosis in this study, followed by frequency of micturition. All patients of Congenital PUJ obstruction presented with pain in abdomen and mass in the lumbar region. In 10% cases, mass was palpable which was firm to cystic in consistency,mobility was present in all the cases. Mass was ballotable in all cases. In 46.67% of cases tenderness was present in renal angle. Fullness in the renal angle was seen in 16.67% cases.

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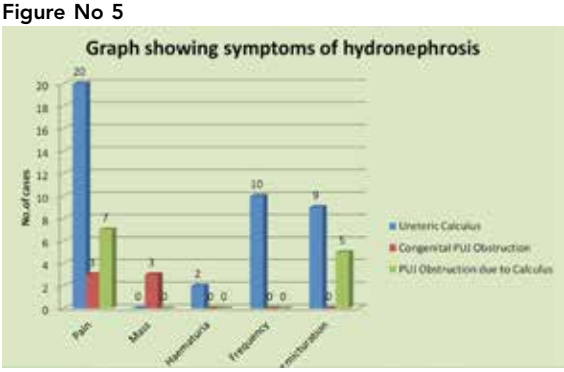
Figure No 5



KUB X-ray was done only for clinical cases suspicious for stones.

Stones were detected in 75 to 80% of cases.IVU examination was done in 40-45% of cases.2 patients with grossly deranged renal function test were subjected to a

DTPA scan to know the differential function for both the kidneys. All the patients with congenital PUJ obstruction were subjected to a DTPA scan as a part of their routine work up to assess kidney function and obstruction. CT IVP was done in 6 patients.

In this study, 6 patients were managed conservatively while 24 patients were treated surgically.Trial of conservative treatment was given to patients with solitary lower Ureteric stones measuring 6mm or less with Grade I to grade II hydronephrosis.All patients with PUJ obstruction, either due to stone or congenital were treated surgically.

Ureterolithotomy for Ureteric calculus and pyelolithotomy for PUJ calculus was done in a total of 71% of cases.

Discussion

In this study out of 30 cases admitted 20 (67%) patients were due to Ureteric calculus, 7 (23%) with stones at the pelviureteric junction. 3 (10%) were diagnosed as congenital Pelviureteric Junction obstruction (PUJ) leading to hydronephrosis.

According to JC Anderson$_{15}$ In a 17 year review of 172 patients of

Hydronephrosis, 70% were due to calculus,20% due to stones at the pelviureteric junction 10% were diagnosed as congenital Pelviureteric Junction obstruction.Incidence was most commonly seen in third and fourth decade. According to JC Anderson15 incidence of hydronephrosis was most common in third and fourth decade,the male:female ratio of Congenital PUJ obstruction is 5:2 $_3$ and the left side is more commonly affected (5:2 ratio)16. In present study male:female ratio was 2:1 and the left side was more commonly.Kinn AC10, suggested that recurrent flank pain seems to be the best indication of the need for surgery. In the year 1966 Stem R Ikoma6 et al, showed that surgical reconstruction of the ureteropelvic junction is a safe and successful procedure.In year 2000, Houben CH, Wischermann A11, observed that pyeloplasty in infants is a low risk procedure.In the present study Anderson Hynes dismembered pyeloplasty was done in 25% of cases.Poulsen EU7 et al, in their study concluded that newer modalities known as minimal invasive surgery must give comparably good results in order to be an acceptable alternative to traditional dismembered pyeloplasty. In year 2000 Ringel A9 et al studied that indications for stent insertion should be carefully considered in each patient. Late complication of ureteral stents is frequent and appears in 1/3rd of patients. In this study late complication of stents were not known and stents in all patients were removed cystoscopically 6 weeks after the surgery$_9$

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