

Clinical presentations of urolithiasis: a prospective study in Referral Centre

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Abstract: Background: Urinary calculi are commonly diagnosed as a consequence of an episode of renal-ureteral colic or gross hematuria. Clinical manifestations are characterized by lumbar pain of sudden onset that may be accompanied by nausea and vomiting, gross or microscopic hematuria.

Objectives: To study clinical trends of urolithiasis in the rural population.

Material and methods: The present prospective randomized study was conducted on 80 patients with clinically and radiologically suspected cases with urinary calculi in the department of Surgery, Maharishi Markandeshwar Institute of Medical Sciences and Research Mullana- Ambala during the period of two years (Oct 2010- Sep 2012). All the cases with urinary calculi were admitted. Detailed history including present complaints were taken. General physical examination as well as systemic examination was done in all the cases. Investigations including routine as well as special investigations were performed and all the cases were managed according to preset proforma. All the data obtained was recorded and analysed according to the preset proforma.

Results: Majority of patients in present study were admitted with the complaint of pain (96.3%), burning micturition (85%) and fever (77.5%). 30% patients had gross haematuria and around 11.25% of patients were admitted as acute retention of urine. All patients in present study when physically examined had shown the tenderness of varying severity according to the location and site of the Urinary calculi. In majority (41.3%) tenderness was present in Rt flank/ iliac fossa. Suprapubic tenderness was present in only 12.5% of cases.

Conclusion: These patients mostly present with acute episodes of pain and burning micturition. Haematuria is less common way of presentation here. This study was an attempt to highlight the prevalence of urolithiasis in this belt and warrants the more exhaustive research in this regards.

I. Introduction

Stone formation is usually a result of urinary super saturation. Decreased fluid intake and consequent urine concentration are among the most important factors influencing stone formation. The hot arid areas, diet, physical activity and corporeal overweight could be other reasons.^{1,2} The most important principle of metaphylaxis of stones is decreasing the concentration of litho-genetic substances in the urine and increasing the urinary excretion of inhibitors of urinary stone formation. Any variation in urine saturation grade, urine pH and the concentration of crystallization inhibitors can break the normal existing balance and lead to urolithiasis.³

Urinary calculi are commonly diagnosed as a consequence of an episode of renal-ureteral colic or gross hematuria.⁴ Clinical manifestations are characterized by lumbar pain of sudden onset that may be accompanied by nausea and vomiting, gross or microscopic hematuria.² Concomitant with the increasing prevalence of urolithiasis is the growing utilization of imaging for diagnosis, treatment planning, and post treatment follow-up.

Material and methods: The present prospective randomized study was conducted on 80 patients with clinically and radiologically suspected cases with urinary calculi in the department of Surgery, Maharishi Markandeshwar Institute of Medical Sciences and Research Mullana- Ambala during the period of two years (Oct 2010- Sep 2012). All the cases with urinary calculi were admitted. Detailed history including present complaints were taken. General physical examination as well as systemic examination was done in all the cases. Investigations including routine as well as special investigations were performed and all the cases were managed according to preset proforma. All the data obtained was recorded and analysed according to preset proforma.

II. Results

The present study was a prospective randomized study consisted of 80 patients of clinically and radiologically evaluated cases with urinary calculi in the department of Surgery, Maharishi Markandeshwar Institute of Medical Sciences and Research Mullana- Ambala for the period of two years (oct 2010 to sept 2012). In this study an attempt has been made for the evaluation of clinical trends.

Table 1: Distribution of presenting symptoms

S.No	Symptom	No. of cases	Percent
1	Pain	77	96.3
2	Burning micturition	68	85
3	Haematuria	24	30
4	Pyuria	7	8.75
5	Urinary Retention	9	11.25
6	Frequency	25	35
7	Urgency	8	10
8	Fever	62	77.5
9	Chills	21	26.5
10	Rigors	18	22.5

Majority of patients in present study were admitted with the complaint of pain (96.3%) followed by burning micturition (85%) and fever (77.5%). 30% of patients had gross haematuria and around 11.25% of patients were admitted as acute retention of urine.

Table 2: Distribution of presenting symptoms- Pain

Location	No. of cases	Percent
Radiation (back, groin, loin)	70	87.5
Unilateral Flank pain	48	60.0
Bilateral Flank pain	16	16.3
Unilateral Ureteric (Inguinal fossa pain)	13	16.3
Bilateral Ureteric (Inguinal fossa pain)	0	0
Suprapubic pain	8	10.0
Total	77	77(96.3)

Among all patients who presented with pain, majority (87.5%) of them showed pain radiation to back, groin or loin. Most of them were having unilateral pattern (60.0%) and only few cases presented as bilateral pain. Approximately 10% patients of vesical calculi presented with supra-pubic pain.

Table3: Mean and SD of Pulse, Systolic, Diastolic, RR and Temp.

	Pulse/min	B.P Systolic	B.P Diastolic	RR /min	TEMP/ .F
Mean	82.0	130.0	84.8	21.3	96.5
SD	6.8	12.3	10.5	1.6	10.0

Table 4: Distribution of physical findings (sign) – site of Tenderness

Site	No. of cases	Percent	Chi square(χ^2)	P value
Tenderness B/L flank/ iliac fossa	20	25	12.8	.01; p<0.05
Tenderness LT flank/ iliac fossa	17	21.3		
Tenderness RT flank/ iliac fossa	33	41.3		
Suprapubic tenderness	10	12.5		
Total	80	100		

All patients in present study when physically examined, showed tenderness of varying severity according to the location and site of the Urinary calculi. In majority (41.3%) tenderness was present in Right flank/ iliac fossa. Suprapubic tenderness was present in only 12.5% of cases.

Table5 : Distribution of physical findings (sign) – severity of Tenderness

Severity	No. of cases	Percent	Chi square(χ^2)	P value
Mild	29	36.0	0.48	0.79
Moderate	27	34.0		
Severe	24	30.0		

Table 6: Distribution of physical findings (signs) other than tenderness

Signs	No. of cases	Percent	Chi square(χ^2)	P value
Abdomen distension	2	2.5	48.9	.00; p<0.0
Guarding	23	28.8		
Rigidity	1	1.3		
Ballotment	33	41.3		
Bimanual Palpation	25	31.3		
Renal Angle fullness	24	30.0		

Apart from tenderness, among other physical findings, ballottement of kidney was noted in 41.3% whereas kidneys were bimanually palpable in 31.3% of cases. Renal angle fullness was noted in 30% of the cases, whereas abdominal distension was present only in 2.5% of cases.

III. Discussion

Majority of patients in present study were admitted with the complaint of pain (96.3%). Pain was fixed dull aching in cases of renal calculi and was localized to back, lumbar region. Pain was intermittent and colicky in cases of ureteric calculi and radiating to groin. Suprapubic dull aching pain was commonly seen in cases of bladder calculi. Pain in urethra and tip of penis was felt in cases of urethral calculi. Clinical manifestation of urinary calculi are an episode of renal –ureteral colic or gross haematuria, lumbar pain of sudden origin may be accompanied by nausea and vomiting.^{4,5}

In the present study, pain was the most common complaint noticed in 96.3% patients of urolithiasis which is in concurrence with the study conducted by Drach. According to Drach the physical examination is negative in acute stone episode except tenderness and rigidity over the region of calculus. He has further stated that hydronephrotic or pyonephrotic kidney may be palpable.⁶

In the study conducted by Sepahi MA the main clinical presentations were fever, pain, irritability, dysuria and haematuria which is also similar to the results obtained by the present study.⁷

In the study done by Ali SH, haematuria was present in 44.6% patients and pain in 28.4% patients which is not in concurrence with the present study. This could be due to the consanguinity which was recorded in 72% cases.⁸

Spivacow FR et al showed that the renal colic was the most frequent presentation seen in 72% cases which is in concurrence with the present study.⁹

Safaei et al evaluated the clinical features and metabolic and anatomic risk factors of urolithiasis in children. In this study, a total of 84 children (35 girls and 49 boys) were treated for urolithiasis. The most common presentations were urinary tract infection, restlessness, and abdominal pain.¹⁰

IV. Conclusion

These patients mostly presented with acute episodes of pain and burning micturition. Haematuria was less common way of presentation in the present study. This study was an attempt to highlight the prevalence of urolithiasis in this belt and warrants the more exhaustive research in this regard.

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