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Pattern of distribution of urinary tract stones in al mak nimir hospital in Shendi locality- Sudan

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ABSTRACT: Background: *Urinary tract stones are major problem of every day urological practice, knowing the pattern of distribution give a background about prevalence of urinary tract stones.* **Material & Methods:** *This is descriptive cross sectional study in period of (1/January/2022 to 6/October/2022). Study was conducted at referral cases presented to urological department in Al mak Nimir university hospital Shendi locality. The patients underwent a clinical assessment, which included history (a questionnaire) and clinical examination. 106 cases from data sheet of statistic department of Al mak Nimir university hospital.* **Results:** *The study revealed that urinary tract stones more common in age group (>50) years old, most of them presented by flank pain and the common complication is hydronephrosis mainly on the right side by (13.6%) and other complication by low percentage. Most of patients treated by ureteroscopy and more commonly presented for the first time.* **Conclusion:** *The outcome of this study showing that urinary tract stones occur mainly in male age above 50 years old, most of them presented by flank pain and the common complication is hydronephrosis mainly on the right side. Most of patients treated by ureteroscopy and more commonly presented for the first time.*

Key words: Urinary tract stones, Kidney stone disease, urolithiasis.

INTRODUCTION

Urinary tract stones are common and are the etiology for urinary tract infections and affect the kidneys causing hydronephrosis , renal failure , also are responsilble for ureteric colic and urinary retention which at the end it lead to renal dysfunction . (1) Kidney stone disease, also known as nephrolithiasis or urolithiasis, is a crystallopathy where a solid piece of material (kidney stone) develops in the urinary tract. Kidney stones typically form in the kidney and leave the body in the urine stream. Commonly presented asymptomatic and discovered accidently. If a stone grows to more than 5 millimeters (0.2 inches), it can cause blockage of the ureter, resulting in sharp and severe pain in the lower back or abdomen. A stone may also result in blood in the urine, vomiting, or painful urination. About half of people who have had a kidney stone will have another within ten years. (3)

Mankind has been afflicted by urinary stones since centuries dating back to 4000 B.C, and it is the most common disease of the urinary tract. The prevention of renal stone recurrence remains to be a serious problem in human health .The prevention of stone recurrence requires better understanding of the mechanisms involved in stone formation. Kidney stones have been associated with an increased risk of chronic kidney diseases, end-stage renal failure. However, the current treatment modalities are not efficient to prevent urolithiasis, and further research is required. (2)

MATERIALS AND METHODS

Results

Table (1) Showed the distribution of study population according to symptoms :

Symptoms	Frequency	Percentage
Asymptomatic incidental finding	1	0.5%
Flank pain	88	44.4%

Supra pubic pain	22	11.1%
Haematuria	7	3.5%
Fever	8	4.0%
Hesitancy	10	5.1%
Urgency	9	4.5%
Frequency	13	6.6%
Nocturia	9	4.5%
Burning micturition	31	15.7%
Total	198	100.0%

This table showed that(0.5%) Asymptomatic incidental finding of patients and (44.4%) of patients suffering from flank pain and (11.1%) of patients suffering from supra pubic pain and (3.5%) of patients suffering from haematuria and (4.0%) of patients suffering from fever and (5.1%)of patients suffering from Hesitancy and (4.5%) of patients suffering from urgency and (6.6%)of patients suffering from frequency and (4.5%) of patients suffering from nocturia and (15.7%) of patients suffering from burning micturition

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able (2) Showed the distribution of study population according to signs:

Signs	Frequency	Percentage
Flank tenderness	3	2.8%
Nothing signi 3 ficant	103	97.2%
Total	106	100.0%

This table showed that(2.8%) of patients suffering from flank tenderness and (97.2%) of patients had nothing significant.

Table (3) Showed the distribution of study population according to complication:

Complications	Fre33quency	Percentage
Right Hydronephrosis	16	13.6%
Left Hydronephrosis	13	11.0%
Bilateral Hydronephrosis	6	5.1%
UTI	9	7.6%
Urinary Retention	2	1.7%

Renal impairment	9	7.6%
No complication	63	53.4%
Total	118	100.0%

This table showed that (13.6%) of patients suffering from right hydronephrosis and (11.0%) of patients suffering from left Hydronephrosis and (5.1%) of patients suffering from bilateral Hydronephrosis and (7.6%) of patients suffering from UTI and (1.7%) of patients suffering from urinary retention and (7.6%) of patients suffering from Renal impairment and (53.4 %)of patients had No complication.

Table (4) Showed the distribution of study population according to family history of urinary tract stone :

Family history	Frequency	Percentage
Positive family history	7	6.6%
Negative family history	99	93.41%
Total	106	100.0%

This table showed that (6.60%) had positive family history of urinary tract stone, and study group showed that (93.40 %) had negative family history of urinary tract stone.

Table (5) Showed the distribution of study population according to diagnostic tool of urinary tract stone :

Diagnosis	Frequency	Percentage
X-ray KUB	6	4.8%
Ultrasound	15	12.0%
IVU	2	1.6%
CT-KUB	102	81.6%
Total	125	100.0%

This table showed that (4.8%) of patient diagnosis by KUB X- ray and (12.0%) patient diagnosis by ultrasound and (81.6 %) of patient diagnosis by CT- KUB , while patients diagnosed by IVU(1.6%) .

Figure: (1) Show the distribution of study population according to site of stone:

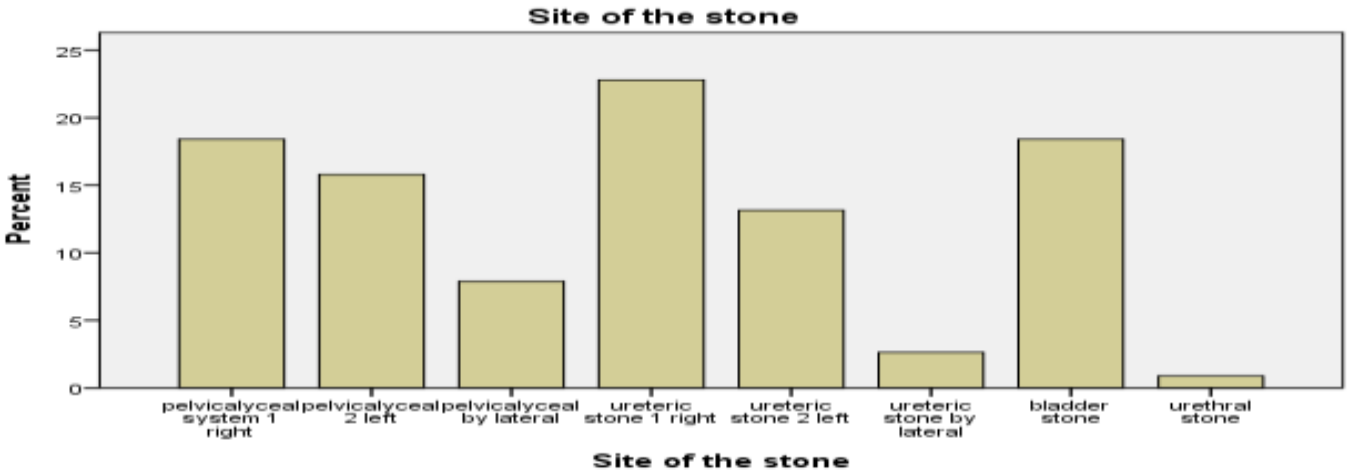
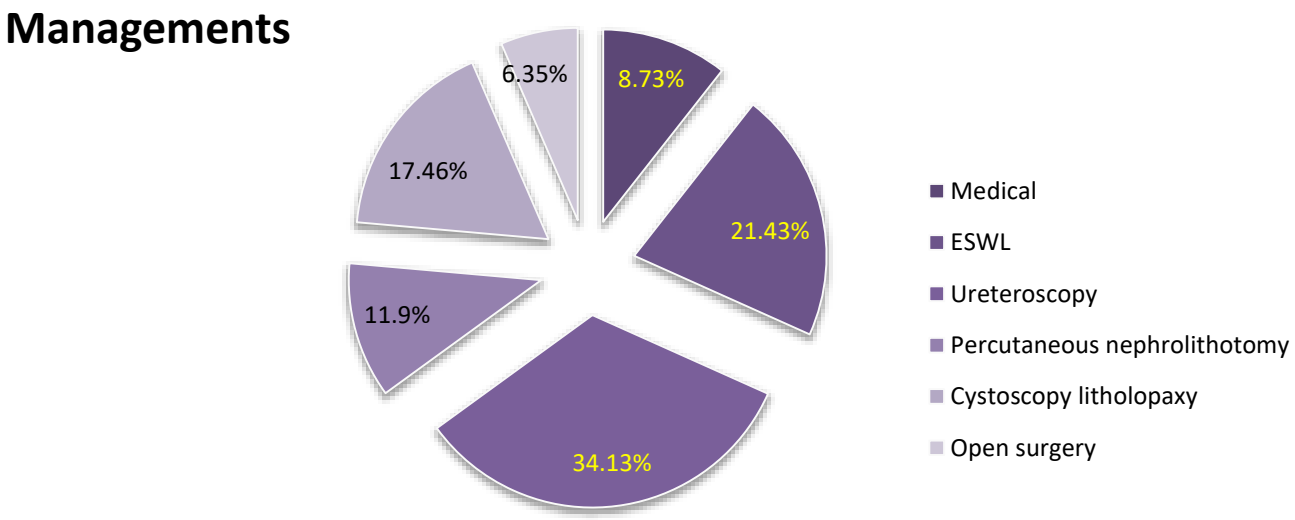


Figure: (2) Show the distribution of study population according to management:



Discussion

The study revealed that urinary tract stones more common in age group(>50) years old (46.2 %), while in previous study done by Mohaned Siddig and Osman Babiker revealed that urinary tract stones are more common in age 40-50 years old . The study find that urinary tract stones more common in male than female, male (59.4 %) and female (40.6%) and this is same as that mentioned in literature review. The study find that the commonest symptom of urinary tract stones is flank pain which constitute (44.4%), followed by burning micturation (15.7%), then suprapubic pain (11.1%) , frequency (6.6%) , hesitancy (5.1 %) , nocturia (4.5%) , urgency (4.5 %) , fever (4.0%), haematuria (3.5%)

, and lastly one Patient (0.5%) was asymptomatic .In literature review the flank pain is the commonest presentation but about other symptoms there are some differences from that mensioned in literature review . (2.8%) of the cases has flank tenderness , where the rest with no significant sign ,and this goes with that mentioned in literature review. For the complications of urinary tract stones , I found that the commonest is hydronephrosis mainly in the right kidney (13.6%), while (11.0 %) in the left kidney , and (5.1%) bilateral , then followed by renal impairment (7.6%) and UTI (7.6%), finally urinary retention in (1.7%). This result was different from that in literature review where UTI is the commonest followed by hydronephrosis then renal impairment and urine retention. (20.8%) has recurrence of urinary tract stones while the patients who diagnosed with urinary tract stones for the first time are (79.2%) of the cases , this result is not consistent with literature review in which two third of the patients has recurrence . Positive Family history of urinary tract stones are (6.6%) and the rest of the study cases are negative (93.40%) while in literature review 25% of the cases has positive family history. Most of the study cases diagnosed by CT-KUB (82%) followed by ultrasound (12.0 %), while (4.8%) diagnosed by Xray –KUB and (1.6%) of the patient diagnosed by IVU, this result is consistent with literature review in which the golden standard investigation is CT-KUB. Urinary tract stone are found in different sites in urinary pathway and study revealed that most of it is ureteric stone mainly in the right (19.1%) , while (15.7 %) in the left ureter and (7.8%) bilateral . followed by pelvicalyceal system mainly in the right (21.7%) , (13.9%) in the left , (2.6%) bilateral renal stones ,and bladder stone in (18.3 %) of the cases but only one case (0.9%) diagnosed with urethral stone . The result is consistent with that in literature review where common sites for stone impactions are PUJ, at pelvic prim and VUJ , but less common in urinary bladder and urethra . (34.1%) of the patients underwent ureteroscopy , and (21.4%) had ESWL, while cystoscopy in (17.5 %) , and (11.9%) of the patients has treated by PCNL , (8.7%) of the cases received medical treatment, and those patients received surgical treatment constitute (6.3%) . and this is consistent with that mentioned in literature review.

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