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ORIGINAL ARTICLE

Extra Burden on Urology Outdoor Due to Non Urology Flank Pain

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ABSTRACT

Background: Flank pain is one of common urological emergency. It can be result of various causes. Most commonly results from one of three causes: urinary tract infection (UTI), kidney stones, and musculoskeletal problems like a muscle strain or pinched nerve.

Objective: Determine frequency of none urological flank pain burden in urology outdoors.

Methods: This was prospective descriptive case study conducted at department of urology and transplantation at Jinnah Postgraduate Medical Center Karachi from September 2020 to December 2020. All patients with flank pain, who visited in urology outdoor, were included in study. All patients had detailed history and physical examination. Urinalysis and ultrasound abdomen were done in all patients. CT KUB was also done in patients who had abnormal ultrasound finding of kidney ureter and bladder.

Results: Total 100 patients were included in this study, 41 (41%) male while 59 (59%) patients were females. 45 patients had right sided pain, 34 had left sided while remaining 21 patients had bilateral flank pain and six patients had also lower urinary tract symptoms along with pain. 13 patients had positive renal punch on examination, 23 patients had positive straight leg rising sign and rest of the 64 patients' examination was unremarkable. 55 patients had urology related pathology on ultrasound, in 9 patients had non urological pathology and rest 36 patients it was unremarkable. CT KUB was done in all 55 patients who had positive findings on ultrasound showing pathology in kidney and ureter in which 47 patients CT scan had confirmed the diagnosis while in 8 patients it was in remarkable.

Conclusion: flank pain is not always secondary to renal origin. It has wide spectrum of alternative significant causes also.

Keywords: Flank pain, none urological, CT KUB

INTRODUCTION

In emergency hospital visits, urolithiasis is one the most common condition with which patients present which affect 2-3% of the general population.[1] Patients with symptomatic urolithiasis mostly present with symptom of flank pain [2] and along with it, nausea, vomiting, micturition symptoms and abdominal pain can also occur.[3] In an analysis done in US population, there was increase in prevalence of kidney stone disease.[4] In 2009, 1.3 million visits of emergency department were related to urolithiasis.[5] Among the differential diagnosis of flank pain after urolithiasis includes chollihtiais, hepatitis, testicular torsion, gynecological disorders, aortic aneurysm and reteroperitoneal mass and hemorrhage.[2] A good detailed history, through physical examination and urine detailed report with or without imaging are helpful in reaching the diagnosis[6] On routine basis, a ultrasonography is used as basic radiologic investigation to diagnosis urolithiasis and other detectable causes of flank pain which may further need computated tomography plain or contrast or intravenous pyelography.[7-10] Although CT scan is found to be gold standard investigation for diagnosing the urolithiasis but it costs both money and time.[11] Advising CT scan for a patient with flank pain in public sector hospital in developing country like Pakistan results in delay diagnosis for many days who may need urgent intervention, while on the contrary ultrasound is very quick procedure that can be performed at bedside also to see any pathology. Ultrasound has advantage over CT scan in terms of radiation exposure although its efficacy is operator dependent and less compared to CT scan. In Pakistan, where people don't have annual medical checkup, this causes huge number of patients coming to outdoor patient clinic when they develop symptoms. Just like in urology most of the patients come with flank pain irrespective of the cause. This study was designed to see the cause of the flank with which patients present in OPD confirming by radio-logically and urinalysis.

MATERIAL AND METHODS

This was prospective descriptive case study conducted at department of urology and transplantation at Jinnah Postgraduate Medical Center Karachi from September 2020 to December 2020. After approval from Institutional Review Board Committee, patients of either gender above 18 years of age presented with the complaint of flank pain in OPD were included in this study. All patients who had history of recurrent urinary tract infection, urolithiasis and prolapsed intervertebral disc disease or cholithiasis were excluded from the study. Informed written consent was taken from all patients after explaining prose and cones of the study. Patients demographics like age, sex were obtained. All patients had detailed history and physical examination. Urinalysis and ultrasound abdomen were done in all patients. CT KUB was also done in patients who had abnormal ultrasound finding of kidney ureter and bladder. Data entered and analyzed through SPSS 23.0 version.

RESULTS

Total 100 patients were included in this study who came in outdoor patient department with the complaint of flank pain after meeting the criteria. Out of 100 patients, 41 (41%) male while 59 (59%) patients were females. Out of 100 patients who presented with the complaint of flank pain, 45 patients had right sided pain, 34 had left sided while remaining 21 patients had bilateral flank pain and six patients had also lower urinary tract symptoms along with pain. On examination out of 100 patients, 13 patients had renal punch positive, 23 patients had positive straight leg rising sign and rest of the 64 patients' examination was unremarkable. The results are shown in table 1.

Ultrasound abdomen was done in all patients to see the renal pathology as well as the other visceral pathology in which 55 patients had kidney and ureter related pathology, in 9 patients' liver and gall bladder related pathology and rest 36 patients it was unremarkable. CT KUB was done in all 55 patients who had positive findings on ultrasound showing pathology in kidney and ureter in which 47 patients CT scan had confirmed the diagnosis while in 8 patients it was in remarkable. Following are the results which shown in table 2.

Urinalysis and culture and sensitivity was sent in all patients which were found to be positive in 20 and 16 patients respectively. Leading cause of patients who presented in OPD was urolithiasis

(41%) followed by PID (19%). Out of 100 patients who presented in urological OPD, 57 patients had urological disease while in 43 patients had non urological diseases as shown in below table 3 with comparison in between them.

Table 1 Showing total number of patients with gender distribution and mean age with co morbid.

Groups	Urological patients	Non urological patients
Gender		
Male	27	14
Female	30	29
Age (years)		
Total patients	32.54 + 12.37	38.86 + 14.79
Male	33.30 + 13.81	41.53 + 14.39
Female	31.90 + 11.22	37.96 + 15.08
Co-morbid		
DM	3	
HTN	2	
IHD	1	
CLD	1	
Clinical Symptoms and Signs.		
Flank Pain (Laterality)		
Right	25	17
Left	24	13
Bilateral	8	13
LUTS	5	--
Renal Punch	13	--
SLR	--	21

Table 2: Showing radiological findings of ultrasound abdomen and CT scan.

Ultrasound Abdomen n=100 (Done in all patients)		CT Scan (Patients with positive findings of kidney (n=55) and ureter pathology on Ultrasound)	
Normal	36	Normal	8
Renal Stone	28	Renal Stone	25
Hydronephrosis with	16	Hydronephrosis with	16
hydroureter	6	hydroureter sec. to ureteral	
Renal fullness	3	stone	3
Renal Cyst	2	Renal cyst	2
Renal Mass	6	Renal Mass	1
Gall Stone	3	Ovarian Cyst	
Liver Pathology			

Table 3: Showing diagnosis in urological and non-urological patients (n=100).

Urological patients (n=57)		Non urological patients (n=43)	
Urolithiasis	41	Gall Stone	6
Urinary tract	11	Liver Pathology	4
infection	3	PID	19
Renal simple Cyst	2	Ovarian Cyst	1
Renal Mass		Muscular Spasm	13

DISCUSSION

Pakistan ranks among the most populated countries of the world and majority of the population live below the poverty line. Due to limited health facility, public sector hospitals are always over burden with thousands of patients every day. Similarly, everyday hundreds of patients come visits urology OPD with different complaints. Flank pain is one of the most common clinical presentation which may be present in number of urinary and non-urological diseases with same pattern. Majority of the patients come with the complaint of flank pain, which may be or may not be urological in origin. This is because of the many visceral organ and body wall receptors share same pathway as kidney for transmitting pain.[12] such kind of overlapping of pain needs imaging for differentiating the urological diseases from the non-urological diseases. Initially, plain abdominal radiographs along with intravenous pyelography (IVP) have been used as standard radiological modality for the establishing the diagnosis of acute flank pain.[13] But due to its some disadvantages, it is rarely used now a days. Although in the rural areas of Pakistan where medical facilities are inadequate, IVP is still used for diagnosis of renal colic. Since more than three decades, ultrasound has been used as the primary imaging modality in patients presenting with flank pain. In experienced hands, its results are as good as of IVP for the detection of cause of hydroureter.[14] In present study, all patients who presented with flank pain, had done ultrasound abdomen as a primary radiological imaging modality while CT plain and contrast was done in those patients who had positive finding on ultrasound relating to urological diseases. Out of 100 patients, 64 had found to have flank pain positive finding on ultrasound, 55 patients had positive findings relating to urological diseases while 9 patients had non urological ultrasound findings. Our finding of ultrasound were almost consistent with international studies. In present stud, ultrasound was used as the primary diagnostic radiological tool for assessing all the patients with flank pain and its sensitivity and specificity was comparable with reported literature.[15,16,17] It has been seen that ultrasound was found to have a good sensitivity in picking kidney pathology which is confirmed with CT scan but had less specificity compared to CT scan and our results are comparable to international study although that was done in patients who presented in emergency department. Ultrasonographical findings are more importantly operator dependent, the more experience the radiologist is, the more will be correct diagnosis of patients will be. This is one of the main reason that ultrasonography is not always accurate and sometime ultrasound done by inexperienced radiologist or trainee radiologist that results in returning back of patient with incorrect the diagnosis and needed emergency hospitalization As it has been well established that CT KUB is used as the gold standard toll for correctly diagnosing the patients with flank pain (renal colic).[18]But it is more costly and time consuming than ultrasound where CT facility is not common. Although CT scan has drawback of radiation exposure when compared to ultrasound but it has greatest advantage of diagnosing different diseases other than urological disease up to 10% of the patients, many of which carry significant morbidity.[19,20,21] It has been seen in especially in young patients who present with symptoms consistent with renal stone had hematuria on urinalysis they did not get done any imaging.[22,23]In such patients deciding whether patients need further imaging or not had to be based on accuracy of test and consequences of missing the pertinent diagnosis which might need urgent intervention especially in older patients. Blood in urine with patient renal stone is due to disruption of urothelium due to irritation of stone either in pelvis or during movement from kidney to external meatus.[24] Its presence does not always confirm the stone disease but it also helps in patients diagnosing urinary tract infection and other kidney diseases. In our study, 20 patients had abnormal urinalysis showing positive nitrites, red blood cells and leukocytes which were later confirmed with positive urinary culture in 16 patients. It has been topic of debate that patients comes with flank pain what investigation should be advise either ultrasound or CT scan for exact diagnosis of the disease. For patient with previous history of renal stone disease or strong family history, CT scan can be advised which not only confirm the urolithiasis but also detect other causes also responsible for flank pain.[25] Sometimes the more life threatening disease like abnormal aortic aneurysm may present like flank pain which can have grievous outcome if remains undiagnosed. It has been observed that regarding bedside US, there is limited research on patients with flank pain. It was seen in a study by urologist that bedside ultrasound was helpful in reaching the diagnosis of patients present with flank pain[26] but in our study, all ultrasound were done by the trainee radiologist of varying experience on same day. In public sector hospital every day hundreds of ultrasound are being done which is similar in our case. There are some limitation in present study. First, we had not advice in every patient CT scan which could better compare the true sensitivity and specificity of ultrasound over CT scan. Secondly ultrasound was not done by the single radiologist which might have affected the interpretation of ultrasound findings. Thirdly, there was decreased number of patients in the study and done in single center.

CONCLUSION

Presentation flank pain is not always secondary to renal cause. It has wide spectrum of alternative significant causes also. Careful history, physical examination and relevant investigation help in the exact diagnosis of patients presenting with flank pain.

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