

Non Contrast CT Evaluation of Lumbar Pain Presenting in Medical Emergency

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Abstract

Objective: To evaluate the value of non contrast CT in patient with lumbar pain.

Methods: 1432 patient with lumbar pain, presenting in Medical emergency of Allied Hospital were taken, all of them under went Ultrasound abdomen and CT Abdomen. CT abdomen was conducted on optima 660, 128 slice CT scanner. **Results:** CT showed that out of 1231 patients 998 had either

of multiple renal, ureteric and / or vesicle stones. 110 had normal scan and 123 had alternate or incidental diagnosis. Patient with multiple pathologies were excluded from the study which was 201 patients. **Conclusion:** In comparison with ultrasound CT was superior in detecting Ureteric stones and more correct in renal stones. CT was also superior in detecting alternate or incidental diagnosis.

INTRODUCTION

The routine use of contrast is unnecessary for the majority of abdominal CT scans performed in the Emergency Department.¹

Noncontrast thin-slice abdominal CT was the most accurate imaging method to determine the renal stone. Noncontrast abdominal CT gives accurate information for selecting patients who may benefit from additional treatment and for planning follow-up.¹

Non-contrast CT scanning is reasonably sensitive and highly specific for the diagnosis of acute appendicitis in adult ED patients, and its accuracy appears similar to that of contrast-enhanced CT scanning.² While there is a disagreement in the interpretation of oral contrast- enhanced and unenhanced CT scans.

In 21% of these Emergency Department patients with nontraumatic acute abdominal pain, this was almost always due to interobserver variability, rather than increased accuracy secondary to contrast enhancement³

OBJECTIVES

Evaluate the value of non contrast CT in patient with lumbar pain

MATERIAL AND METHODS

Duration of study Jan 1, to June 30, 2013: Patients-Total 1432 patient were taken in the study, who presented in the Medical Emergency Department for Lumbar pain. The patients were taken with convenient sampling and all were presenting through the emergency department of Allied Hospital, Faisalabad.

Method-Scanner used was GE Optima 660 128 slice. All the patients were scanned with a Spiral helical protocol, from the dome of diaphragm till

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the pubic symphysis regions. Non contrast CT was done and reconstructed in axial and coronal planes. 5mm slice interval with 1mm slice thickness was used. Volume rendered images were also taken.

RESULTS

201 patients were excluded from the study due to multiple pathologies CT showed that out of 1231 patients 998(81%) had either of multiple renal, ureteric and / or vesicle stones.

110 had normal scan-8.9 % and 123 (9.1 %) had alternate or incidental diagnosis. The alternate diagnosis included Acute Appendicitis-n=33 – 2.6 %, Cholecystitis n=37 – 3 %, Ovarian cysts n=23- 1.8 %, Uterine fibroids n=22-1.7 % , Pancreatitis n=4-0.3%, GI inflammatory diseases(diverticulitis , Appendigitis , ileitis) n= 4-0.3 % .

Figure-1
Right Renal Stone in Coronal Sections CT

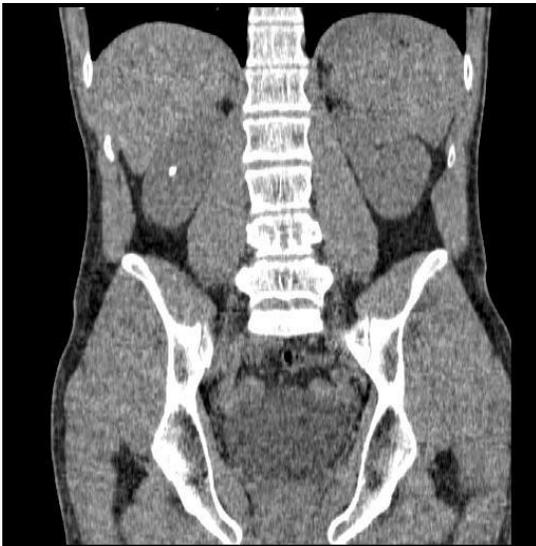


Figure-2
Acute Appendicitis – non Contrast CT



DISCUSSION

Patients with suspected renal colic have traditionally been evaluated with plain abdominal radiography (KUB), intravenous urography (IVU) and ultrasound (US). Computed tomography (CT) and magnetic resonance imaging (MRI) are the more recent imaging techniques available for the assessment of these patients. Plain abdominal radiography may be sufficient to diagnose ureteric stone in patients with known calculous disease . The sensitivity of KUB in other patients is poor with reported sensitivities of 58%-62%. KUB should not be used alone or in the selection of patients for undergoing non-contrast CT evaluation. It may be a valuable component of the IVU or US assessment of acute flank pain. Non-contrast CT is the imaging modality of choice in the initial evaluation of acute flank pain with high sensitivity (97%) and specificity (96%) for ureterolithiasis. Nearly all stones are opaque on CT, and stone size can be accurately measured with this technique. Perinephric and/or periureteric strandings, hydronephrosis and hydroureter are the other CT signs of ureteric obstruction. Non-contrast CT is equal to IVU in diagnosis of obstruction and is more reliable in

detecting the presence of ureterolithiasis. The technique is also useful in the diagnosis of flank pain due to other causes such as appendicitis, diverticulitis, and torsion of ovarian masses. Non-contrast CT is safer than IVU since no contrast media is used.⁴

Ct abdomen has large role in GI related disease, there is marked improvement in CT diagnosis of GI disease, in appendicular disease, diverticulitis and other GI infective etiologies. Our study is in direct correlation to these international studies^{3,4,5}. Although the diagnosis of left colonic diverticulitis has been traditionally based on clinical evaluation, laboratory tests, conventional radiography, and colonoscopic findings, CT now plays a major role in the diagnosis of this disease. Some recent authors advocate using CT not only to establish the diagnosis but also to identify those patients who are at high risk for developing complications or recurrence after a first episode of acute diverticulitis. Abscess formation is a major determinant in the prognosis and treatment of diverticulitis as is the visualization of extracolonic contrast or gas on CT. Criteria unrelated to imaging have been reported to correlate with the outcome of acute diverticulitis. Patients with a recurrent attack of diverticulitis may be at high risk (60%) for developing complications, and elective surgery has been proposed as the preferred treatment for this group. Young men may be more prone to recurrence and complications after conservative treatment of diverticulitis, although this opinion is controversial.

CONCLUSION

CT has a large role in abdominal pain and can detect renal as well as GI related pathologies with confidence. This should be used as a routine for abdominal pain evaluation as it has a higher sensitivity and specificity.

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