



**ORIGINAL RESEARCH PAPER**

**Radio-Diagnosis**

**ROLE OF USG AND CT IN EVALUATION OF ACUTE RIGHT ILIAC FOSSA PAIN.**

**KEY WORDS:** pain, appendicitis, usg, tb

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**ABSTRACT**

Sudden onset acute RIF pain sparks the diagnosis of Acute appendicitis in the mind of most clinicians, however a review of such patients using USG and CT as imaging modalities reveals that while appendicitis may be common, other common pathologies may mimic appendicitis and many of them can easily be diagnosed on routine USG abdomen performed on such patients, however USG may not be conclusive in all patients and CECT abdomen usually helps in identifying most of the other causes.

**INTRODUCTION:**

USG is typically the first modality used to evaluate RIF pain. A diagnosis of acute appendicitis can be made if a dilated, aperistaltic loop arising from caecum is visible with surrounding periappendiceal fat stranding (using high resolution high frequency probes). Sometimes an appendicolith may also be visible. However absence of such features cannot rule out Acute appendicitis. Other causes of RIF pain for example uretric obstruction, mesenteric adenitis, intususception and in females a hemorrhagic cyst or a ruptured ectopic may be readily diagnosed by USG. When no pathology could be identified on USG or the diagnosis remains in suspicion typically a CECT abdomen with IV contrast is done. CT may reveal any of the above diagnosis including appendicitis that may not be visible on USG (eg retrocaecal) or any other pathology. Alternatively the confirmation of a normal appendix on CT virtually rules out appendicitis as the cause of pain, which is rarely possible on USG.

**METHODS:** Patients presenting to emergency department (during 2020-2021) of SKIMS with RIF pain were evaluated initially using USG abdomen. Those with a conclusive diagnosis on USG were not evaluated further. Where the diagnosis was not established on USG or USG failed to find anything significant a CECT abdomen with IV contrast was done (low osmolar). No oral contrast was used. Findings were documented and evaluated subsequently.

**RESULTS:** A total of 226 patients were evaluated in this study.

**Table 1: Age distribution of patients with RIF pain**

Age	No of patients
<18	72
18-30	67
30-45	51
>45	36

The table clearly reveals that children and young adults accounted for most cases of RIF pain.

**Table 2: Gender Distribution of patients**

Gender	No of patients
Male	97

Female	129
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Females more frequently presented with the complaints of acute RIF pain

**Table 3: Causes of RIF pain as identified on USG:**

Cause identified on USG	No of patients
Acute appendicitis	59
Ureteric obstruction	19
Mesenteric Adenitis	12
Intususception	9
Ovarian cyst/mass	21
Ectopic pregnancy	8
Inconclusive	98

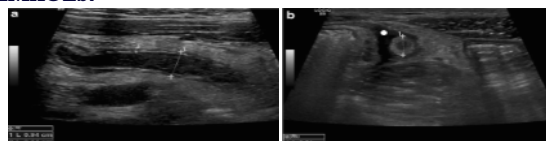
Despite the best of efforts USG remained inconclusive in 98 patients out of 226. These patients underwent CECT abdomen

**Table 4: Causes of RIF pain as identified on CECT**

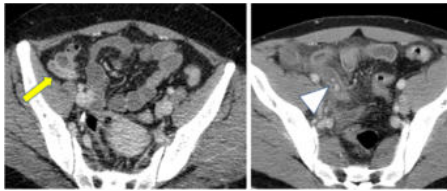
Causes identified on CECT	No of patients (Out of 98)
Acute appendicitis	46
IBD/TB like thickening of ileum and caecum	11
Bowel ischemia	5
Acute pyelonephritis	6
Right sided diverticulitis	4
Mass	13
Epiploic appendagitis	1
No radiologic abnormality with normal appendix	12

Appendicitis was once again the most common abnormality identified on CT. However certain rare causes of RIF pain such as pyelonephritis, ischemia and diverticulitis were also identified on CT.

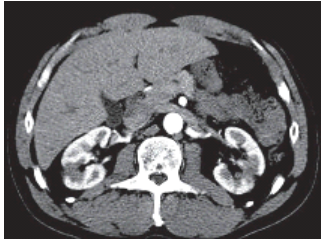
**IMAGES:**



**Figure 1: acute appendicitis as seen on usg**



**Figure 2: acute appendicitis as seen on ct**



**Figure 3: acute pyelonephritis as a mimicker of acute appendicitis**



**Figure 4: Epiploic appendagitis as seen on CT**

**DISCUSSION:**

While most of the cases of acute RIF pain were conclusively diagnosed on USG (57%) yet a significant proportion of cases remained. Most of the diagnoses on USG were those of acute appendicitis. Intussusception was easily identified with a target sign on USG particularly among children. Ureteric obstruction was usually indirectly inferred from Hydronephrosis seen in kidney and sometimes with identification of calculus in the ureter. Ovarian cyst particularly the hemorrhagic variety was identified as a cause in many young woman. The diagnosis of ectopic pregnancy was confirmed with a positive Beta hcg and an adnexal mass while as rupture of the ectopic pregnancy was diagnosed with presence of hemorrhagic fluid in the peritoneum.

Those cases with equivocal USG underwent CECT abdomen. Acute appendicitis not visible on USG was confirmed on CECT in 46 patients. Other causes such as Thickening of terminal ileum, bowel ischemia with non opacification of gut wall, masses, diverticulitis, and even acute pyelonephritis were identified as causes of RIF pain. Few patients however revealed no cause attributable to RIF pain on CECT. (approx 10%)

**Conclusion:**

Acute appendicitis is the most common cause of right lower quadrant pain, but other diagnoses should also be considered. USG is an effective tool for screening and can elucidate the cause in approximately 57 -60 % of patients and save them from the radiation exposure of CT. CECT is an extremely useful imaging modality for the investigation of right lower quadrant pain and can help in identifying the cause in most of the remaining patients

**Conflicts of Interest:**None

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