

Role of USG and MDCT in Diagnosis of Acute Appendicitis

Dr. Ganesh M Shivanna¹, Dr. C. Raychaudhuri²

¹2ndYear Resident, Radiology Department, SBKS Medical Institute & Research Centre, Sumandeep Vidyapeeth, Vadodara, India
ganeshmshivanna[at]gmail.com

²Professors & HOD, Radiology Department, SBKS Medical Institute & Research Centre, Sumandeep Vidyapeeth, Vadodara, India

Abstract: Introduction: Appendicitis is the inflammation of the appendix. It is a disease of the young, with most of the cases occurring between the ages of 10 and 29 yrs. Acute appendicitis is the most common surgical cause of acute abdomen. There is no doubt that early diagnosis with prompt surgical intervention is the goal and to achieve this, most of the time clinical symptoms and laboratory findings are sufficient but unfortunately on many occasions these classical findings are rare so we have to rely on ultrasonography and CT scan for the diagnosis. Aims and Objectives: Early Diagnosis of appendicitis by using Ultrasonography and Multi detector Computed Tomography. To compare and evaluate the role of Ultrasound and Computed Tomography in diagnosis of appendicitis. Materials and Methods: This study aims at establishing co-relation between ultrasonography and multi detector computed tomography scan for the patients referred by the clinicians from our hospital and from outside to Radiology Department of Dhiraj General Hospital suspected having appendicitis. Result: Out of 20 cases which were studied, 16 were positively detected on usg, while CT scan had positively detected all 20 cases. Hence MDCT is better modality for diagnosis of acute appendicitis. Conclusion: In an endemic country like ours, there is wide spectrum of presentation of appendicitis, so familiarity in knowing the radiological features help in early diagnosis of appendicitis. This helps in medical and surgical intervention.

Keywords: USG, MDCT, Appendicitis

1. Introduction

- Inflammation of the appendix is known as Appendicitis and is a disease of the young age(10-40yrs) presenting with acute abdominal pain and vomiting. It is the most common surgical cause of acute abdomen.
- Clinical symptoms and laboratory findings are sufficient to diagnose but unfortunately on many occasions these classical findings are not present and we have to rely on ultrasonography and CT scan for the final diagnosis in order to rule out ureteric colic.
- Sonography is a noninvasive, rapid, widely available, and relatively inexpensive mode and it does not produce ionizing radiation but is highly operator-dependent requiring high level of skill and expertise. It may also be difficult in some situations where there is overlying gas, fat and severe pain.
- CT can depict the appendix, the periappendiceal tissues, and other intra abdominal structures very effectively.
- The only disadvantage of CT scan is that it involves exposure to radiation and is expensive.
- This study involves to compare the effectiveness of ultrasound and CT Scan in early diagnosis of appendicitis to provide early treatment so that morbidity and mortality can be reduced.

2. Aim & Objectives

- Early Diagnosis of appendicitis and its complication by using Ultrasonography and Multi detector Computed Tomography.
- To compare and evaluate the role of Ultrasound and Computed Tomography in diagnosis of appendicitis.

3. Materials and Methods

- This study aims at establishing co-relation between ultrasonography and multi detector computed tomography scan of 10 patient having RIF tenderness referred by the clinicians to radiology department at Dhiraj General Hospital.
- Study was done on GE Logiq P9 USG machines with high frequency probes using graded compression and color Doppler. And 16 slice Siemens Emotion CT machine and automatic pressure injector was use for my study.

Inclusion Criteria:

Patients male or female of any age group with suspected appendicitis coming to Dhiraj General Hospital

Exclusion Criteria:

- Patients who are not willing for the study.
- Patients who having high urea and creatinine were not taken up for my study.
- Pregnant females are not included in this study.

4. Summary and Conclusion

- Out of 20 cases which were studied,16(80%) were positively detected on USG, while CT was able to diagnose all 20 cases(100%) along with their complications.
- Hence MDCT is the gold standard for accurate diagnosis of acute appendicitis and its complication
- SEX PREDILECTION: There were total 20 patients. There were 11 (55%) male patients, 9(45%) female patients.

Detection of acute appendicitis disease by different modalities:-

Out of 20 cases which were studied, 16 were positively detected on USG, while CT scan had positively detected all 20 cases along with their complications and other intra abdominal pathology .

Age distribution:In our study the most common age group was 11-20 years(10 patients.50%) followed by 21-30 years age group(6 patients 30%).

Case 1:

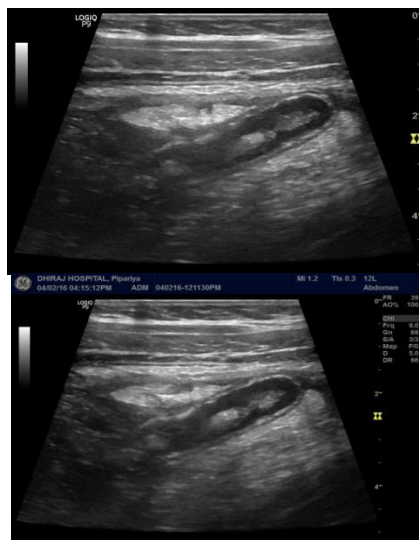


Figure 1 & 2: USG showing blind ended, non compressible, aperistaltic tubular structure in RIF region, suggestive of acute appendicitis



Figure 3 & 4: On color doppler, inflamed appendix reveals increased vascularity. (acute phase of inflammation).

Case 2:



Figure 5: CT post contrast axial view reveals enhancing tubular structure in RIF with surrounding fat stranding suggestive of acute appendicitis

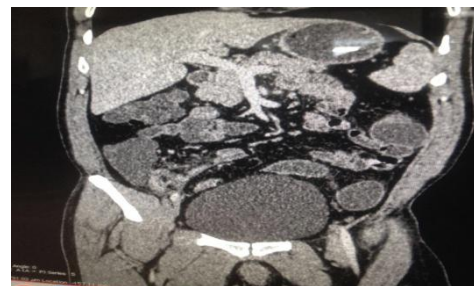


Figure 6: Coronal reformatted view shows enhancing tubular structure in relation to the cecum suggesting appendicitis

Case 3:



Figure 7: CT axial post contrast shows enhancing collection in RIF region with surrounding fat stranding due to ruptured appendix

References

- [1] B D Chaurasia's Human Anatomy Regional and applied. Dissection and Clinical 4th edition. Verniform Appendix,256-258
- [2] Wangenstein OH, Bruige RE, Dennise, Ritchie WP studies in the etiology of acute appendicitis. The significance of the structure and function of the vermiform appendix in the given of appendicitis Ann Surg 1937; 106:910-942.
- [3] Wagner JM, McKinney WP, Carpenter JL. Does this patient have appendicitis? JAMA 1996; 276: 1589-1594.
- [4] Laméris W, Van Randen A, Go PMNYH, et al. Single and combined diagnostic value of clinical features and laboratory tests in acute appendicitis. AcadEmerg Med 2009; 16: 835-842.

- [5] Puylaert JB. Acute appendicitis: US evaluation using graded compression. Radiology 1986; 158: 355–360.
- [6] Jeffrey RB, Laing FC, Townsend RR. Acute appendicitis: sonographic criteria based on 250 cases. Radiology 1988; 167: 327–329.