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Research Article

**ANALYSIS OF DIAGNOSTIC ACCURACY OF COMPUTED
TOMOGRAPHY FOR ACUTE APPENDICITIS PATIENTS**Dr Hafiz Abdul Basir¹, Dr Hooria Shahzad², Dr Anoosh Fatima Gilani³¹Bahawal Victoria hospital, Bahawalpur, ²Medical officer at RHC Dullanwala, ³Shalamar Medical and Dental College.

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Abstract:

Introduction: Appendix is a small pouch attached to the beginning of large intestine. Appendicitis, an inflammation of the appendix, is the most common acute surgical condition of the abdomen.

Objectives: To determine diagnostic accuracy of computed tomography in the diagnosis of acute appendicitis keeping histopathology as a gold standard.

Materials and methods: This Cross sectional study was conducted in Bahawal Victoria Hospital, Bahawalpur during October 2018 to March 2019. The data was collected from 100 patients. The data was collected through non probability consecutive sampling. All patients presenting with clinical features suspicious of acute appendicitis as specified in the operational definition were included in this study. Age group 18-45 years and either gender was selected for this analysis.

Results: The study was conducted on 100 patients suspected of having acute appendicitis. The mean age of the sample was 29.5 ± 6.7 years. The range of age in our study was 23 years with minimum age of 19 years and maximum age of 42 years. On grouping the sample in different age groups, we observed that 26.2% of patients were in the age group up to 25.00 years, 47.1% were in the age group 25.01 to 35.00 years and 26.7% of patients were in the age group 35.01 to 45.00 years.

Conclusion: It is concluded that CT is a highly sensitive and specific tool for the detection of acute appendicitis. As such, it is a useful radiological marker for diagnosis of acute appendicitis in adults and further studies are recommended to confirm its usefulness.

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INTRODUCTION:

Appendix is a small pouch attached to the beginning of large intestine. Appendicitis, an inflammation of the appendix, is the most common acute surgical condition of the abdomen. Almost 10% of the general population develops acute appendicitis with maximal incidence in the second and third decades of life [1]. Surgical removal of such inflamed appendix is the most commonly performed emergency operation in the world and has long been considered the standard procedure of treatment of appendicitis. Its peak incidence is between the ages of 10 and 30 years. Differential diagnosis of appendicitis is often a clinical challenge because appendicitis can mimic several abdominal conditions [2].

Traditionally, acute appendicitis has always been a clinical diagnosis based on patient history, physical examination, and laboratory testing. A high percentage of negative appendectomies (20%) was considered reasonable, based on the premise that delay would inevitably lead to perforated appendicitis and thus increased morbidity and even mortality [3]. This classical practice is currently being abandoned by most surgeons, as negative appendectomies are no longer considered acceptable. They carry a substantial morbidity, increase hospital costs and may be avoided by using preoperative radiological imaging or diagnostic laparoscopy.

There has been a continuous search for complementary diagnostic methods to limit the number of “unnecessary” appendectomies without delaying the diagnostic and therapeutic process and without increasing perforation rates [4]. Preoperative imaging has gained wide acceptance due to the improved diagnostic accuracy, with computed tomography (CT) outperforming ultrasound (US) in most studies. The diagnostic modalities, however, that are considered to be the most accurate for making the diagnosis appendicitis, such as CT and laparoscopy, also have negative repercussions. Computed tomography exposes the patient to considerable ionizing radiation, and laparoscopy is an invasive procedure performed under general anesthesia and

thus carries a risk of morbidity [5]. Thus, use of imaging modalities such as ultrasonography (US) and computerized tomography (CT) has helped to decrease the rates of perforation, morbidity and mortality, in addition to shortening the length of hospital stay [6].

Objectives:

To determine diagnostic accuracy of computed tomography in the diagnosis of acute appendicitis keeping histopathology as a gold standard.

MATERIALS AND METHODS:

This Cross sectional study was conducted in Bahawal Victoria Hospital, Bahawalpur during October 2018 to March 2019. The data was collected from 100 patients. The data was collected through non probability consecutive sampling. All patients presenting with clinical features suspicious of acute appendicitis as specified in the operational definition were included in this study. Age group 18-45 years and either gender was selected for this analysis.

All patients having suspected acute appendicitis clinically with symptoms as defined in the operational definition and fulfilling the inclusion criteria was subjected to CT Scan examination. Once done with CT, all the patients was subjected to appendectomy and biopsy was obtained. All the above mentioned information was recorded on a pre-designed proforma.

Statistical analysis:

The collected data was entered in SPSS version 20 and analyse through it, study variable was CT findings and Histopathology report. Frequency and percentage was calculated for categorical variables like gender.

RESULTS:

The study was conducted on 100 patients suspected of having acute appendicitis. The mean age of the sample was 29.5 ± 6.7 years. The range of age in our study was 23 years with minimum age of 19 years and maximum age of 42 years. On grouping the sample in different age groups, we observed that 26.2% of patients were in the age group up to 25.00 years, 47.1% were in the age group 25.01 to 35.00 years and 26.7% of patients were in the age group 35.01 to 45.00 years.

Table 1: AGE-WISE DISTRIBUTION OF SAMPLE

	n	Range	Minimum	Maximum	Mean	Std. Deviation
Age of the patient	191	23.00	19.00	42.00	29.5136	6.73198
Age Groups			Frequency		Percent	
	Up to 25.00 years				50	26.2
	25.01 to 35.00 years				90	47.1
	35.01 to 45.00 years				51	26.7
	Total				191	100.0

Table 02: FREQUENCY OF ACUTE APPENDICITIS ON CT

Acute Appendicitis on CT		Frequency	Percent
	Positive	111	58.1
	Negative	80	41.9
	Total	191	100.0

DISCUSSION:

The clinical appreciation of a patient with suspected appendicitis remains challenging as it is complicated by nonsurgical diseases that mimic appendicitis. The accuracy of the clinical diagnosis is approximately 80%, which corresponds to a negative appendectomy rate of around 20%. This flaw in diagnostic accuracy has traditionally been accepted as it was considered most important to perform an early operation. Quality assurance focused on perforated appendicitis rather than negative appendectomy rates [7]. This practice has become less accepted for several reasons: the morbidity and costs associated with a negative appendectomy are substantial, and there is ample evidence that preoperative imaging can reduce the negative appendectomy rate, and lessen the use of hospital resources. Even though some institutions have reported contradictory results, preoperative imaging for all patients with suspected appendicitis is gaining support [8]. Another reason for abandoning indiscriminate explorations for suspected appendicitis is new insights into the natural history of appendicitis. These challenge the belief that the perforated appendicitis rate is inversely related to the negative appendectomy rate and thus avoidable by urgent appendectomy [9]. Perforated appendicitis rates are not influenced by in-hospital delay and have not decreased with the increasing use of CT imaging. Evidence suggesting that resolving appendicitis is common can clarify this phenomenon [10].

CONCLUSION:

It is concluded that CT is a highly sensitive and specific tool for the detection of acute appendicitis. As such, it is a useful radiological marker for diagnosis of acute appendicitis in adults and further studies are recommended to confirm its usefulness.

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