Section: Radiodiagnosis

Original Research Article

PRE-OPERATIVE COMPUTED TOMOGRAPHY IN ACUTE ABDOMEN: EVALUATION AND SURGICAL CORRELATION CONDUCTED AT A TERTIARY CARE HOSPITAL

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Received *: 06/05/2026*
Received in revised form *: 27/05/2026*
Accepted *: 18/06/2026*

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DOI: 10.70034/ijmedph.2026.3.336

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (3); 2101-2107

ABSTRACT

Background: Acute abdomen is a common surgical emergency that requires rapid and accurate diagnosis to reduce morbidity and mortality. Clinical examination and laboratory investigations are important initial tools, but they may be insufficient to identify the exact cause, site, and severity of intra-abdominal pathology. Pre-operative computed tomography (CT) provides detailed cross-sectional imaging and helps in early diagnosis, detection of complications, and surgical planning. Present study was conducted to evaluate and surgically correlate pre-operative computed tomography in acute abdomen.

Materials and Methods: This hospital-based observational study included 90 patients presenting with clinical features of acute abdomen who underwent pre-operative CT followed by surgical intervention. Patients managed conservatively, those with incomplete records, and those who did not undergo surgery after imaging were excluded. CT findings were evaluated for the site, cause, and extent of pathology, including appendicitis, obstruction, perforation, inflammatory changes, free fluid, abscess, ischemia, and other intra-abdominal emergencies. The pre-operative CT diagnosis was compared with intra-operative findings, which were considered the reference standard.

Results: Among 90 patients, 54 (60.00%) were males and 36 (40.00%) were females. The most common age group was 31–40 years, comprising 22 patients (24.44%). Abdominal pain was present in all patients (100.00%), followed by vomiting in 54 (60.00%) and fever in 42 (46.67%). Acute appendicitis was the most common operative diagnosis, seen in 28 patients (31.11%), followed by intestinal obstruction in 16 (17.78%) and hollow viscus perforation in 14 (15.56%). Overall, CT findings were concordant with intra-operative findings in 82 patients (91.11%), while discordance was observed in 8 patients (8.89%). CT showed high diagnostic accuracy for acute appendicitis (95.56%), intestinal obstruction (95.56%), hollow viscus perforation (97.78%), and acute cholecystitis (97.78%).

Conclusion: Pre-operative CT is a reliable and highly accurate imaging modality for evaluating acute abdomen. It helps in identifying the underlying pathology, detecting complications, and guiding appropriate surgical management.

Keywords: Acute Abdomen; Computed Tomography; Pre-Operative Imaging; Surgical Correlation; Diagnostic Accuracy.

INTRODUCTION

The acute abdomen is a major surgical emergency characterized by sudden or rapidly progressive abdominal pain that may be associated with vomiting, fever, abdominal distension, guarding, rigidity, shock, or features of sepsis. It is not a single disease entity but a clinical syndrome produced by a

wide spectrum of inflammatory, obstructive, vascular, perforative, biliary, urological, and gynecological disorders. Because many of these conditions require urgent operative or interventional treatment, early identification of the underlying cause is essential. Delay in diagnosis may increase the risk of bowel ischemia, perforation, peritonitis, abscess formation, sepsis, and mortality. Therefore, the initial assessment of acute abdomen must be systematic, rapid, and directed toward distinguishing self-limiting conditions from life-threatening surgical emergencies.[1] Clinical evaluation remains the first step in the assessment of acute abdomen. A detailed history, careful abdominal examination, assessment of hemodynamic status, and relevant laboratory investigations help in forming an initial differential diagnosis. The site, onset, duration, radiation, and character of pain may provide important clues, while associated symptoms such as vomiting, fever, constipation, obstipation, urinary symptoms, menstrual history, or previous abdominal surgery may further guide diagnostic thinking. However, clinical findings are often nonspecific, overlapping, or altered by age, pregnancy, diabetes, immunosuppression, analgesic use, or delayed presentation. Several important conditions, including appendicitis, cholecystitis, mesenteric ischemia, bowel obstruction, and perforation, may be difficult to confirm on clinical grounds alone.[2]

Imaging has therefore become an essential component of modern acute abdomen evaluation. Plain abdominal radiography has limited diagnostic value except in selected cases such as suspected bowel obstruction or free intraperitoneal air. Ultrasonography is useful because it is inexpensive, portable, radiation-free, and particularly valuable in hepatobiliary, urinary, pelvic, pediatric, and pregnancy-related conditions. Nevertheless, ultrasonography is operator dependent and may be limited by obesity, bowel gas, severe pain, and poor patient cooperation. Magnetic resonance imaging has an important role in selected groups, especially pregnant patients, but limited availability, longer acquisition time, and emergency workflow constraints restrict its routine use. In contrast, computed tomography provides rapid cross-sectional evaluation of the entire abdomen and pelvis, making it highly suitable for patients with undifferentiated acute abdominal pain.[3]

Pre-operative computed tomography is especially useful because it can identify the cause, site, extent, and complications of intra-abdominal pathology before surgical exploration. CT can demonstrate appendiceal inflammation, bowel obstruction with transition point, ischemic bowel changes, pneumoperitoneum, localized perforation, abscess, diverticulitis, pancreatitis-related complications, biliary inflammation, intra-abdominal collections, and alternative extra-intestinal causes of pain. It also helps surgeons decide whether the patient requires emergency laparotomy, laparoscopy, image-guided drainage, endoscopic intervention, or conservative management. In addition, CT assists in operative planning by defining anatomical location, disease severity, presence of contamination, vascular involvement, and associated complications. The use of contrast-enhanced CT is particularly important in acute abdomen because many surgical emergencies involve inflammation, vascular compromise, abscess formation, bowel wall enhancement abnormalities, or active bleeding. Intravenous contrast improves tissue characterization and allows better assessment of bowel perfusion, mesenteric vessels, solid organs, inflammatory masses, and postoperative or pre-operative complications. Although non-contrast CT may be adequate in selected conditions such as urinary calculi, contrast-enhanced CT is generally preferred when the diagnosis is uncertain and a broad range of abdominal pathologies must be considered. The choice of contrast protocol should be individualized according to renal function, allergy history, suspected diagnosis, hemodynamic condition, and institutional practice.[4] Among common surgical causes of acute abdomen, acute appendicitis remains an important indication for pre-operative imaging. CT helps confirm appendicitis, detect perforation, identify appendicular abscess or phlegmon, and differentiate appendicitis from mimicking conditions such as ileitis, diverticulitis, ureteric colic, ovarian pathology, or mesenteric adenitis. This is particularly valuable in patients with atypical clinical presentation, elderly patients, obese patients, and women of reproductive age, where diagnostic uncertainty is common. CT findings can also support appropriate selection between operative and non-operative strategies in selected uncomplicated or complicated cases.[5]

Acute calculous cholecystitis is another frequent cause of acute abdomen and may present with right upper quadrant pain, fever, nausea, vomiting, and leukocytosis. Ultrasonography is commonly the first-line investigation for gallbladder disease, but CT becomes important when the presentation is atypical, complications are suspected, or alternative diagnoses must be excluded. CT can identify gallbladder wall thickening, pericholecystic inflammation, perforation, emphysematous change, abscess, pancreatitis, or biliary complications. In emergency surgical practice, CT may therefore contribute to comprehensive assessment when patients present with diffuse or poorly localized abdominal pain.[6]

MATERIALS AND METHODS

This hospital-based observational study was conducted to evaluate and surgically correlate pre-operative computed tomography in acute abdomen. A total of 90 patients who underwent pre-operative CT examination followed by surgical intervention were included in the study. Patients presenting to the emergency or surgical department with clinical features suggestive of acute abdomen were evaluated. The study included both male and female patients across the eligible age groups who required urgent or

emergency surgical management after clinical assessment.

Inclusion criteria

Patients were included if they had clinical suspicion of acute abdomen, underwent pre-operative CT scan, and subsequently had operative findings available for comparison.

Exclusion criteria

Patients were excluded if they were managed conservatively, had incomplete clinical or radiological records, were unfit for CT examination, or did not undergo surgery after imaging.

Methodology

CT Imaging Technique

All patients underwent abdominal CT prior to surgery. CT was performed using a multidetector CT scanner. Scanning was done from the diaphragm to the pelvis. Plain and contrast-enhanced CT images were obtained when clinically indicated and when renal function permitted. Oral or rectal contrast was used selectively depending on the suspected pathology and institutional protocol. The CT images were assessed for the site and probable cause of pathology, presence of bowel obstruction or perforation, inflammatory changes, free fluid, pneumoperitoneum, abscess, ischemia, appendicitis, diverticulitis, pancreatitis-related complications, and other intra-abdominal emergencies.

Image Interpretation

CT images were reviewed by radiologists experienced in abdominal imaging. The CT diagnosis was recorded before surgery and compared with intra-operative findings, which were considered the reference standard. Relevant clinical details, laboratory findings, CT findings, operative diagnosis, and final diagnosis were documented for each patient.

Surgical Correlation

All 90 patients underwent operative management after pre-operative CT evaluation. Intra-operative findings were recorded by the surgical team and compared with the CT diagnosis. The agreement between CT diagnosis and surgical findings was analyzed to assess the diagnostic usefulness of CT in acute abdomen.

Data Collection

The following variables were collected: age, sex, presenting symptoms, clinical diagnosis, CT findings, pre-operative CT diagnosis, type of surgery performed, intra-operative findings, and final diagnosis. The diagnostic accuracy of CT was evaluated by comparing imaging findings with operative findings.

Statistical Analysis

Data were entered into a spreadsheet and analyzed using appropriate statistical methods. Categorical variables were expressed as frequencies and percentages. The sensitivity, specificity, positive predictive value, negative predictive value, and diagnostic accuracy of CT were calculated where applicable. Agreement between CT findings and operative findings was assessed using standard statistical tests. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The age and sex distribution of the study population is shown in Table 1. Of the 90 patients included in the study, 54 (60.00%) were males and 36 (40.00%) were females, indicating a male predominance among patients presenting with acute abdomen. The most commonly affected age group was 31–40 years, comprising 22 patients (24.44%), followed by the 41–50 years age group with 19 patients (21.11%) and the 21–30 years age group with 18 patients (20.00%). Patients aged ≤20 years accounted for only 7.78% of the study population, whereas those aged >60 years constituted 12.22%. Among males, the highest proportion was observed in the 31–40 years age group (14.44%), while among females the same age group accounted for 10.00% of cases. Statistical analysis demonstrated no significant difference in age distribution between male and female patients ($p = 0.998$), indicating that the occurrence of acute abdomen was relatively similar across age groups regardless of gender. (Table 1)

The clinical features observed among patients are presented in Table 2. Abdominal pain was the universal presenting complaint and was reported in all 90 patients (100.00%). Vomiting was the second most common symptom, occurring in 54 patients (60.00%), followed by fever in 42 patients (46.67%). Guarding or rigidity was observed in 33 patients (36.67%), while abdominal distension and constipation/obstipation were noted in 24 (26.67%) and 21 (23.33%) patients, respectively. CT-surgical concordance remained consistently high across all clinical presentations. Among patients presenting with vomiting, CT findings agreed with operative findings in 50 of 54 cases (92.59%). Similarly, concordance rates were 95.24% among patients with fever, 93.94% among those with guarding or rigidity, 87.50% among patients with abdominal distension, and 90.48% among patients presenting with constipation or obstipation. Statistical analysis revealed no significant association between any individual clinical feature and the likelihood of CT-surgical concordance (all p-values >0.05). (Table 2)

The final operative diagnoses are summarized in Table 3. Acute appendicitis was the most common surgical diagnosis, identified in 28 patients (31.11%). Intestinal obstruction was the second most frequent diagnosis, accounting for 16 patients (17.78%), followed by hollow viscus perforation in 14 patients (15.56%). Acute cholecystitis was diagnosed in 10 patients (11.11%), while complicated acute pancreatitis and mesenteric ischemia were observed in 6 (6.67%) and 5 (5.56%) patients, respectively. Diverticulitis/colitis and intra-abdominal abscess each accounted for 4 cases (4.44%). Gynecological causes of acute abdomen were the least common, occurring in 3 patients (3.33%).(Table 3)

Table 4 demonstrates the correlation between pre-operative CT diagnosis and intra-operative findings. Overall, CT findings were concordant with operative findings in 82 of 90 patients, yielding an overall concordance rate of 91.11%. Discordance was observed in only 8 patients (8.89%). The highest concordance rates were observed in diverticulitis/colitis and intra-abdominal abscess, where CT accurately diagnosed all cases, resulting in a concordance rate of 100.00%. Intestinal obstruction demonstrated a concordance rate of 93.75%, while acute appendicitis and hollow viscus perforation each showed concordance rates of 92.86%. Acute cholecystitis was correctly diagnosed in 90.00% of cases. Lower concordance rates were observed for complicated acute pancreatitis (83.33%) and mesenteric ischemia (80.00%), reflecting the diagnostic challenges associated with these conditions. The lowest concordance rate was seen in gynecological acute abdomen, where CT correctly identified only 2 of 3 cases (66.67%).(Table 4)

The diagnostic performance parameters of CT for common causes of acute abdomen are shown in Table 5. CT demonstrated excellent sensitivity, specificity, predictive values, and overall accuracy across most diagnostic categories. For acute appendicitis, CT achieved a sensitivity of 92.86%, specificity of 96.77%, positive predictive value (PPV) of 92.86%, negative predictive value (NPV) of 96.77%, and overall accuracy of 95.56%. Similar performance was observed for intestinal obstruction, with a sensitivity of 93.75%, specificity of 95.95%, and accuracy of 95.56%.

For hollow viscus perforation, CT showed a sensitivity of 92.86%, specificity of 98.68%, and accuracy of 97.78%, confirming its value in detecting perforation and associated complications. Acute cholecystitis also demonstrated high diagnostic performance, with a sensitivity of 90.00%, specificity of 98.75%, and accuracy of 97.78%. Although the sensitivity of CT was relatively lower for complicated acute pancreatitis (83.33%) and mesenteric ischemia (80.00%), both conditions demonstrated perfect specificity (100.00%), indicating that positive CT findings were highly reliable for diagnosis. Furthermore, the overall accuracy remained high at 98.89% for both conditions. CT achieved perfect diagnostic performance for diverticulitis/colitis and intra-abdominal abscess, with sensitivity, specificity, PPV, NPV, and accuracy all reaching 100.00%. In contrast, gynecological causes of acute abdomen exhibited the lowest sensitivity (66.67%) and PPV (66.67%), although specificity (98.85%) and overall accuracy (97.78%) remained high. (Table 5)

Table 1: Age and sex distribution of patients

Age group	Male, n (%)	Female, n (%)	Total, n (%)
≤20 years	4 (4.44%)	3 (3.33%)	7 (7.78%)
21–30 years	11 (12.22%)	7 (7.78%)	18 (20.00%)
31–40 years	13 (14.44%)	9 (10.00%)	22 (24.44%)
41–50 years	12 (13.33%)	7 (7.78%)	19 (21.11%)
51–60 years	8 (8.89%)	5 (5.56%)	13 (14.44%)
>60 years	6 (6.67%)	5 (5.56%)	11 (12.22%)
Total	**54 (60.00%)**	**36 (40.00%)**	**90 (100.00%)**

p-value = 0.998, not significant.

Table 2: Clinical presentation of patients with acute abdomen

Clinical feature	Present, n (%)	CT-surgical concordance among patients with feature, n (%)	p-value
Abdominal pain	90 (100.00%)	82 (91.11%)	NA
Vomiting	54 (60.00%)	50 (92.59%)	0.709
Fever	42 (46.67%)	40 (95.24%)	0.276
Guarding / rigidity	33 (36.67%)	31 (93.94%)	0.705
Abdominal distension	24 (26.67%)	21 (87.50%)	0.435
Constipation / obstipation	21 (23.33%)	19 (90.48%)	1.000

Table 3: Final intra-operative diagnosis

Final operative diagnosis	Number of patients	Percentage
Acute appendicitis	28	31.11%
Intestinal obstruction	16	17.78%
Hollow viscus perforation	14	15.56%
Acute cholecystitis	10	11.11%
Complicated acute pancreatitis	6	6.67%
Mesenteric ischemia	5	5.56%
Diverticulitis / colitis	4	4.44%
Intra-abdominal abscess	4	4.44%
Gynecological acute abdomen	3	3.33%
Total	**90**	**100.00%**

Table 4: Correlation of pre-operative CT diagnosis with intra-operative findings

Final operative diagnosis	Total cases	CT diagnosis concordant, n (%)	CT diagnosis discordant, n (%)
Acute appendicitis	28	26 (92.86%)	2 (7.14%)
Intestinal obstruction	16	15 (93.75%)	1 (6.25%)

Hollow viscus perforation	14	13 (92.86%)	1 (7.14%)
Acute cholecystitis	10	9 (90.00%)	1 (10.00%)
Complicated acute pancreatitis	6	5 (83.33%)	1 (16.67%)
Mesenteric ischemia	5	4 (80.00%)	1 (20.00%)
Diverticulitis / colitis	4	4 (100.00%)	0 (0.00%)
Intra-abdominal abscess	4	4 (100.00%)	0 (0.00%)
Gynecological acute abdomen	3	2 (66.67%)	1 (33.33%)
Total	**90**	**82 (91.11%)**	**8 (8.89%)**

p-value = 0.808, not significant

Table 5: Diagnostic performance of CT for common causes of acute abdomen

Diagnosis	Sensitivity	Specificity	PPV	NPV	Accuracy	p-value
Acute appendicitis	92.86%	96.77%	92.86%	96.77%	95.56%	1.000
Intestinal obstruction	93.75%	95.95%	83.33%	98.61%	95.56%	0.625
Hollow viscus perforation	92.86%	98.68%	92.86%	98.68%	97.78%	1.000
Acute cholecystitis	90.00%	98.75%	90.00%	98.75%	97.78%	1.000
Complicated acute pancreatitis	83.33%	100.00%	100.00%	98.82%	98.89%	1.000
Mesenteric ischemia	80.00%	100.00%	100.00%	98.84%	98.89%	1.000
Diverticulitis / colitis	100.00%	100.00%	100.00%	100.00%	100.00%	1.000
Intra-abdominal abscess	100.00%	100.00%	100.00%	100.00%	100.00%	1.000
Gynecological acute abdomen	66.67%	98.85%	66.67%	98.85%	97.78%	1.000

DISCUSSION

In the present study, 90 patients with acute abdomen underwent pre-operative CT followed by surgical intervention. Males constituted 54 patients (60.00%) and females 36 patients (40.00%), showing male predominance. The largest age group was 31–40 years, accounting for 22 patients (24.44%), followed by 41–50 years in 19 patients (21.11%). This indicates that acute abdomen requiring surgery was more frequent in young and middle-aged adults. Rafiq et al. (2019), in a prospective MDCT study of 64 patients with acute abdomen, reported a different sex distribution with 36 females and 28 males, and an age range from 7 to 79 years; their common diagnoses were acute pancreatitis (21.80%), appendicitis (15.60%), and bowel obstruction (12.50%). Compared with their study, the present study showed male predominance and a higher proportion of appendicitis (31.11%), suggesting that the pattern of acute abdomen varies according to study population and surgical case selection.[7]

In the present study, abdominal pain was present in all 90 patients (100.00%), followed by vomiting in 54 patients (60.00%), fever in 42 patients (46.67%), guarding/rigidity in 33 patients (36.67%), abdominal distension in 24 patients (26.67%), and constipation/obstipation in 21 patients (23.33%). However, none of these symptoms showed a statistically significant association with CT-surgical concordance, as all p-values were >0.05. This supports the fact that clinical presentation alone may not reliably identify the exact pathology in acute abdomen. Rosen et al. (2003), in a study of 536 emergency patients with non-traumatic abdominal pain, found that pre-CT and post-CT diagnoses were concordant in only 200 patients (37.00%), and CT reduced planned hospital admissions from 402 to 312 patients and immediate surgery from 67 to 25 patients. In comparison, the present study showed CT-surgical concordance in 82 of 90 patients (91.11%), confirming the important role of CT in improving diagnostic certainty before operative intervention.[8]

Acute appendicitis was the most common final intra-operative diagnosis in the present study, seen in 28 patients (31.11%), followed by intestinal obstruction in 16 patients (17.78%) and hollow viscus perforation in 14 patients (15.56%). Acute cholecystitis accounted for 10 patients (11.11%), while complicated pancreatitis and mesenteric ischemia were less frequent, seen in 6.67% and 5.56% respectively. Laméris et al. (2009), in the OPTIMA diagnostic accuracy study of 1021 patients with acute abdominal pain, reported that 661 patients (65.00%) had an urgent final diagnosis, and CT detected urgent diagnoses with a sensitivity of 89.00%, compared with 70.00% for ultrasonography. Their study also identified appendicitis as one of the most important urgent causes of acute abdominal pain. The present study is comparable because appendicitis was also the leading operative diagnosis, although the proportion was higher due to inclusion of only surgically managed patients.[9]

The overall CT-surgical concordance in the present study was 91.11%, with CT correctly matching intra-operative findings in 82 of 90 patients. Discordance was observed in 8 patients (8.89%). Weir-McCall et al. (2012) evaluated pre-operative CT in patients with acute abdomen who underwent laparotomy and reported that out of 69 patients, only 9 showed significant discrepancy between CT diagnosis and intra-operative findings, giving an initial diagnostic accuracy of 87.00%; after consultant radiologist review, the accuracy increased to 94.00%. The present study's concordance rate of 91.11% lies between these two values, supporting that CT is highly reliable in pre-operative assessment, while also showing that radiologist experience and careful image review can further improve diagnostic accuracy.[10]

For acute appendicitis, CT showed excellent diagnostic performance in the present study, with sensitivity of 92.86%, specificity of 96.77%, PPV of

92.86%, NPV of 96.77%, and accuracy of 95.56%. Doria et al. (2006), in a meta-analysis of imaging for appendicitis, reported pooled CT sensitivity and specificity in adults of 94.00% and 94.00%, respectively. The findings of the present study are closely comparable, with slightly lower sensitivity but higher specificity. This indicates that CT was very effective in confirming appendicitis and excluding other mimicking conditions, which is clinically important for reducing negative appendectomy and planning appropriate surgery.[11]

In intestinal obstruction, the present study showed CT sensitivity of 93.75%, specificity of 95.95%, PPV of 83.33%, NPV of 98.61%, and accuracy of 95.56%. Suri et al. (1999), in a comparative study of plain radiography, ultrasound, and CT in intestinal obstruction, reported CT sensitivity of 93.00%, specificity of 100.00%, and accuracy of 94.00% for diagnosing obstruction. The present results are almost identical in sensitivity and accuracy, although specificity was slightly lower. This confirms that CT is highly useful not only for detecting obstruction but also for identifying the level and probable cause, which directly influences surgical planning.[12]

For hollow viscus perforation, CT in the present study showed sensitivity of 92.86%, specificity of 98.68%, PPV of 92.86%, NPV of 98.68%, and accuracy of 97.78%. Hainaux et al. (2006) evaluated MDCT in gastrointestinal tract perforation and reported that MDCT predicted the site of perforation correctly in 73 of 85 patients (86.00%); significant CT predictors included concentrated extraluminal air bubbles, bowel wall thickening, and focal bowel wall defect. Compared with their study, the present study showed higher overall diagnostic accuracy for perforation, probably because operative confirmation was available in all included patients and the main diagnostic endpoint was presence of perforation rather than exact localization of the perforation site.[13]

In acute cholecystitis, CT showed sensitivity of 90.00%, specificity of 98.75%, PPV of 90.00%, NPV of 98.75%, and accuracy of 97.78% in the present study. Fagenholz et al. (2015), in a study of 101 patients with acute cholecystitis who underwent both CT and ultrasonography, found that CT was more sensitive than ultrasound for diagnosing acute cholecystitis, with sensitivity of 92.00% versus 79.00% ($p = 0.015$). The present study's CT sensitivity of 90.00% is very close to their result. This suggests that although ultrasonography is commonly used as the first-line investigation for gallbladder disease, CT remains highly valuable in acute abdomen cases where symptoms are atypical or multiple abdominal pathologies are possible.[14]

Mesenteric ischemia showed relatively lower sensitivity in the present study, with CT sensitivity of 80.00%, specificity of 100.00%, PPV of 100.00%, NPV of 98.84%, and accuracy of 98.89%. This means that when CT was positive for mesenteric ischemia, it was highly reliable, but some cases may still be missed, especially in early ischemia. Menke et al. (2010), in a systematic review and meta-analysis of multidetector CT for acute mesenteric ischemia, reported pooled sensitivity of 93.30% and specificity of 95.90%. Compared with their pooled data, the present study showed lower sensitivity but higher specificity, which may be due to the small number of mesenteric ischemia cases in this study, only 5 patients (5.56%). The lower sensitivity in gynecological acute abdomen (66.67%) and perfect results in diverticulitis/colitis and intra-abdominal abscess should also be interpreted cautiously because these groups had very small sample sizes.[15]

CONCLUSION

Pre-operative computed tomography was found to be a highly effective imaging modality in the evaluation of acute abdomen, showing strong correlation with intra-operative findings. In this study, CT diagnosis was concordant with surgical findings in 82 out of 90 patients (91.11%), with an overall discordance of only 8.89%. CT demonstrated high diagnostic accuracy for common causes such as acute appendicitis, intestinal obstruction, hollow viscus perforation, and acute cholecystitis. Therefore, pre-operative CT plays an important role in early diagnosis, surgical decision-making, and appropriate management planning in patients presenting with acute abdomen.

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