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A Retrospective Analysis of Indications for Emergency Laparotomy in Patients with Acute Abdomen at a Tertiary Care Centre

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ABSTRACT

Background: Emergency laparotomy is a life-saving procedure performed in patients presenting with acute abdominal conditions. Knowledge of the common indications is essential for timely diagnosis and management.
Objectives: To evaluate the spectrum of indications for emergency laparotomy in acute abdomen and analyze their distribution among patients.
Materials and Methods: This retrospective observational study was conducted in the Department of General Surgery of a tertiary care hospital. Data were collected from patient case sheets, emergency admission registers, and operation theatre records of patients who underwent emergency laparotomy between January 2025 and December 2025. A total of 180 patients were included. Demographic details, clinical presentation, and operative findings were recorded. Data were expressed as frequencies and percentages.
Results: Out of 180 patients, the majority were males (65%) with a mean age of 42 ± 14 years. Perforation peritonitis (40%) was the most common indication for emergency laparotomy, followed by intestinal obstruction (30%), appendicular pathology (15%), and abdominal trauma (10%). Other causes accounted for 5% of cases. Most patients belonged to the third to fifth decades of life.
Conclusion: Perforation peritonitis remains the leading indication for emergency laparotomy in acute abdomen. Early diagnosis and prompt surgical intervention are crucial for improving patient outcomes.

Keywords: Emergency laparotomy, acute abdomen, perforation peritonitis, intestinal obstruction, surgical emergencies.

INTRODUCTION

Emergency laparotomy is a critical surgical procedure performed in patients presenting with acute abdominal conditions that require immediate operative intervention. It remains one of the most common life-saving procedures in general surgery and is associated with significant morbidity and mortality, particularly in resource-limited settings where delayed presentation is frequent **(1)**.

The term "acute abdomen" encompasses a wide range of clinical conditions characterized by sudden onset abdominal pain, often requiring urgent diagnosis and management. Common indications for emergency laparotomy include perforation peritonitis, intestinal obstruction, appendicular pathology, intra-abdominal sepsis, and abdominal trauma. The pattern and frequency of these indications vary geographically depending on factors such as socioeconomic status, nutritional conditions, prevalence of infectious diseases, and accessibility to healthcare facilities **(2)**.

Perforation peritonitis is one of the leading causes of emergency laparotomy in developing countries, often resulting from peptic ulcer disease, typhoid perforation, or tuberculosis. Delay in diagnosis and treatment significantly increases the risk of sepsis and mortality. Intestinal obstruction, another major indication, may arise due to adhesions, hernias, malignancies, or volvulus, and requires timely surgical intervention to prevent bowel ischemia and necrosis **(3)**.

Emergency laparotomy carries a higher risk compared to elective procedures due to factors such as poor preoperative optimization, presence of sepsis, fluid and electrolyte imbalance, and associated comorbidities. Early recognition of the underlying pathology and prompt surgical management are crucial in improving patient outcomes and reducing complications **(4)**.

Retrospective studies analyzing the indications for emergency laparotomy provide valuable insights into the prevailing patterns of surgical emergencies. Such studies help in identifying common causes, planning resource allocation, and improving clinical decision-making in emergency surgical care. Understanding the distribution of indications also aids in developing preventive strategies and optimizing patient management protocols **(5)**.

Therefore, the present study was undertaken to evaluate the spectrum of indications for emergency laparotomy in a tertiary care centre and to analyze their distribution among patients presenting with acute abdominal conditions.

MATERIALS AND METHODS:

Study Design

This study was a retrospective observational study conducted to analyze the indications for emergency laparotomy in patients presenting with acute abdominal conditions.

Study Setting

The study was carried out in the Department of General Surgery of a tertiary care teaching hospital, which caters to a large number of emergency surgical cases from both urban and rural populations.

Study Period

Data were collected retrospectively over a period of one year, from January 2025 to December 2025.

Study Population

The study included all patients who underwent emergency laparotomy during the study period.

Sample Size

A total of 180 patients who fulfilled the inclusion criteria were included in the study. The sample size was determined based on the availability of complete medical records.

Inclusion Criteria

- Patients undergoing emergency laparotomy for acute abdominal conditions
- Patients of all age groups and both genders
- Patients with complete clinical and operative records

Exclusion Criteria

- Patients undergoing elective laparotomy
- Patients with incomplete or missing data
- Cases managed conservatively without surgery

Data Collection

Data were collected retrospectively from hospital records, including patient case sheets, emergency admission registers, and operation theatre records.

Data Management

All data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 20.0.

Statistical Analysis

Continuous variables were expressed as mean ± standard deviation (SD) and Categorical variables were expressed as frequencies and percentages

Ethical Considerations

Approval was obtained from the Institutional Ethics Committee

RESULTS:

A total of 180 patients underwent emergency laparotomy during the study period. The study population showed a male predominance (65%), with the majority of patients belonging to the third to fifth decades of life, indicating higher incidence of acute abdominal emergencies in the active age group. (Table 1)

Table 1: Demographic Characteristics (n = 180)

Variable	Category	Value
Age (years)	Mean ± SD	42 ± 14
Gender	Male	117 (65%)
	Female	63 (35%)

Perforation peritonitis (40%) was the most common indication for emergency laparotomy, followed by intestinal obstruction (30%), together accounting for the majority of cases. (Table 2)

Table 2: Indications for Emergency Laparotomy

Indication	Number (n)	Percentage (%)
Perforation peritonitis	72	40%
Intestinal obstruction	54	30%
Appendicular pathology	27	15%
Abdominal trauma	18	10%
Others	9	5%

The highest number of cases was observed in the 21–40 years age group (40%), followed by 41–60 years (35%), suggesting that emergency laparotomy is more common in middle-aged individuals. (Table 3)

Table 3: Age-wise Distribution of Patients

Age Group (years)	Number (n)	Percentage (%)
<20	**18**	**10%**
21–40	**72**	**40%**
41–60	**63**	**35%**
>60	**27**	**15%**

Most indications were more common in males, particularly perforation peritonitis and trauma, which may be attributed to lifestyle factors and delayed healthcare-seeking behavior. (Table 4)

Table 4: Gender-wise Distribution of Indications

Indication	Male (n)	Female (n)
Perforation peritonitis	50	22
Intestinal obstruction	35	19
Appendicular pathology	18	9
Abdominal trauma	12	6
Others	2	7

DISCUSSION:

Emergency laparotomy remains a cornerstone in the management of acute abdominal conditions and continues to be associated with considerable morbidity and mortality. In the present study, perforation peritonitis (40%) was identified as the most common indication for emergency laparotomy. This finding is consistent with several studies conducted in developing countries, where delayed presentation, infectious etiologies, and limited access to healthcare contribute to a higher incidence of gastrointestinal perforations (6,7).

Perforation peritonitis is frequently associated with conditions such as peptic ulcer disease, enteric fever, and tuberculosis. Late presentation often leads to widespread peritoneal contamination, resulting in sepsis and increased postoperative complications. Similar observations have been reported in previous studies, emphasizing the need for early diagnosis and prompt surgical intervention (8).

In the present study, intestinal obstruction (30%) was the second most common indication for emergency laparotomy. The causes of obstruction are multifactorial, including postoperative adhesions, obstructed hernias, malignancies, and volvulus. Previous studies have also reported intestinal obstruction as a major contributor to emergency abdominal surgeries, highlighting its clinical significance (9,10). Early recognition and timely surgical management are crucial to prevent complications such as bowel ischemia and perforation.

Appendicular pathology accounted for 15% of cases in this study. Although many cases of acute appendicitis are managed early, delayed presentation or complications such as perforation and abscess formation necessitate emergency laparotomy. This finding is comparable to other studies where appendicular disease forms a significant proportion of emergency surgical interventions (11).

Abdominal trauma contributed to 10% of emergency laparotomy cases. The higher incidence among males may be attributed to increased exposure to risk factors such as road traffic accidents and occupational hazards. Similar trends have been observed in previous studies, where trauma is a significant cause of emergency surgical admissions, particularly in younger male populations (12).

The present study also demonstrated a male predominance (65%), which is consistent with findings from other studies. This may be due to behavioral, occupational, and social factors that predispose males to conditions such as trauma and delayed healthcare-seeking behavior (13). The majority of patients were in the third to fifth decades of life, representing the most active age group, which aligns with previous literature (14).

Understanding the pattern of indications for emergency laparotomy is essential for improving surgical preparedness, resource allocation, and patient outcomes. Retrospective studies such as this provide valuable insights into disease patterns and help guide clinical decision-making in emergency settings.

However, this study has certain limitations. Being retrospective in nature, it is subject to potential biases such as incomplete data and lack of standardized management protocols. Additionally, the absence of long-term follow-up limits the assessment of postoperative outcomes and complications.

CONCLUSION:

Emergency laparotomy remains a vital surgical intervention in the management of acute abdomen. Perforation peritonitis is the most common indication, followed by intestinal obstruction and appendicular pathology. The majority of patients were middle-aged males. Early diagnosis and prompt surgical management are essential to reduce morbidity and improve outcomes. Understanding the pattern of indications can help in better planning of emergency surgical services.

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