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# Evaluation of Pattern of Abdominal Surgical Emergencies

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**Abstract** | **Original Research Article**

***Objective:*** In this study our main goal is to evaluate the pattern of abdominal surgical emergencies. ***Method:*** This cross-sectional descriptive study was carried out Department of Surgery, Rangpur Medical College Hospital, Rangpur from 12months (January 2018 to December 2018). Total of 250 admitted patients of acute abdominal conditions requiring emergency surgery in department of Surgery, Rangpur Medical College Hospital, Rangpur were included in this study. ***Results:*** During the study, according to verification of clinical diagnosis 92.74% cases the clinical diagnosis coincides with per-operative(confirmatory) diagnosis.92.74% cases the clinical diagnosis coincides with per-operative(confirmatory) diagnosis.Among the patients with plain X-ray of abdomen, multiple air fluid level present in 60 cases, among the patients with ultrasonogram of whole abdomen, acute appendicitis found in 18 cases and among the patients, complete blood count shows neutrophilic leukocytosis is about 118 cases. ***Conclusion:*** From our study we can conclude that, non-traumatological abdominal surgery emergencies represent a non-neglected proportion of admission in surgery, patients concerned are mostly young adults with predominance of male or female.The most incriminated pathology is the acute appendicitis. Adhesion, colonic growth and sigmoid volvulus are the frequent etiology of Intestinal obstruction.

**Keywords:** Acute abdomen, bowel obstruction, emergency surgery.



## INTRODUCTION

In low- and middle-income countries, at least 60% of the surgical operation performed are for emergency, contrary of widespread report has been shown that the provision of treatment which is often life saving for those patients can be the advice [1].

Emergency surgery can be defined as unscheduled surgery [2]. Surgical emergencies represent more than 50% of surgical admissions and constitute a major part of the surgeons' workload in most parts of the world. Proportion of non-trauma surgical emergencies is reported to be between 30% and 57% with more than half requiring surgical intervention. This is higher than 30%-50% of trauma patients who will require emergency surgery [3]. Non-traumatological abdominal surgical emergencies represented 19.8% of admission in surgery department. Principle etiology of non-traumatological abdominal surgical emergencies were appendicitis (47.8%), peritonitis (21.2%) and intestinal obstruction (19.2%) [4]. Fifty six patient had a clinical diagnosis of appendicitis and out of them 44 patients underwent appendicectomy within the first 24 hours [5].

Bowel obstruction is one of the most common causes of abdominal pain in the elderly (12-25%) and is second only to biliary disease is an indication for emergency abdominal surgery. The etiology of small bowel obstruction is predominantly surgical adhesions (50-70%) followed by incarcerated hernia (15%) [6]. In contrast, in patients younger than 60 years acute appendicitis is the most common surgically correctable cause, accounting for approximately 25% of cases [7].

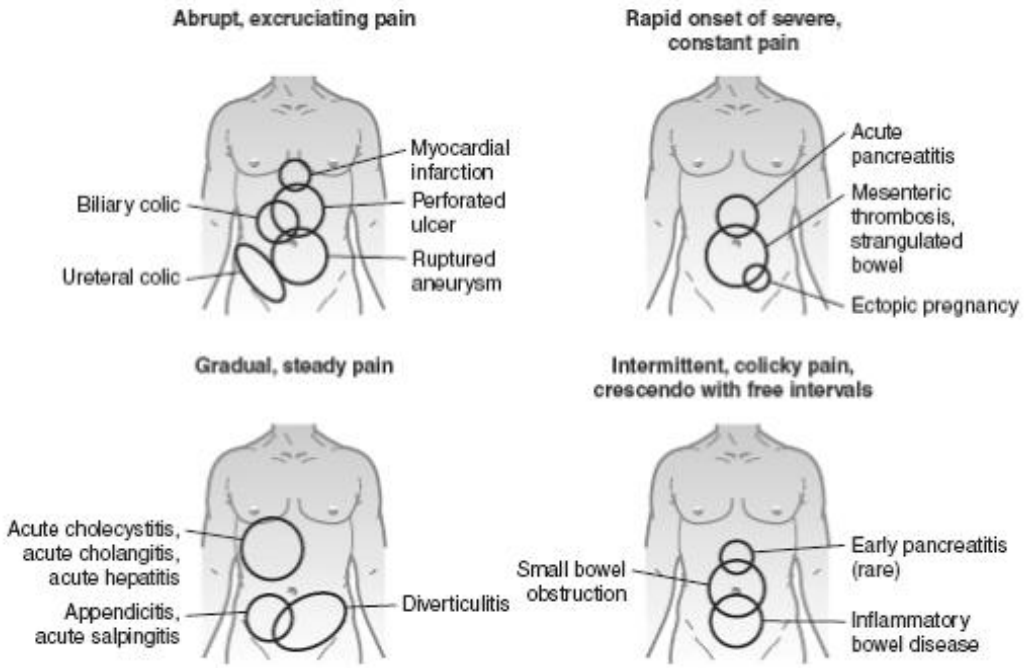


**Fig-1: The location and character of pain are helpful in the differential diagnosis of the acute abdomen [8]**

As acute abdomen is common presentation of surgical emergency, early diagnosis of surgical diseases and emergency surgical intervention is done. Different clinical series available have identified the pattern of abdominal surgical emergencies in elderly and children. But there is no data available in relation to the abdominal surgical emergencies in adults. In this study our main goal is to evaluate the pattern of abdominal surgical emergencies**.**

## OBJECTIVE

**General objective**

- To assess the pattern of abdominal surgical emergencies.

**Specific objective:**

- To identify lab findings of investigations
- To detect per-operative findings of the patients.

## METHODOLOGY

| | |
|---|---|
| Type of study | Cross sectional descriptive study. |
| Place of study | Department of Surgery, Rangpur MedicalCollege Hospital, Rangpur |
| Study period | 12months (January 2018 to December 2018). |
| Study population | Total of 250 admitted patients of acute abdominal conditions requiring emergency surgery in department of Surgery, Rangpur Medical College Hospital, Rangpurwere included in this study. |
| Sampling technique | Purpose sampling. |

**Inclusion Criteria**

- Age between 18-60 years of both sexes.
- Patients with abdominal complaints requiring emergency surgery.
- Chronic abdominal pain with an acute attack.
- Positive findings in USG and X-ray abdomen.

**Exclusion Criteria**

- Patient presented with acute abdomen of traumatic origin.
- Elective surgery not linked to an emergency surgery assessment.
- Acute abdomen due to Obstetric and Gynecological causes.
- Invasive abdominal procedure within the previous 30 days.

## METHOD

Detailed information was obtained in each case according to protocol. Complete history was taken either from patient or accompanying attendants. Though physical examination was done, relevant investigations & operation notes were collected. All the information was recorded in the fixed protocol.

**Statistical Analysis**

Collected data was classified, edited, coded & entered into the computer using computer software SPSS (Statistical Package for Social Science Versions 24.0).

## RESULTS

In Table-1 shows sociodemographic characteristic of the patients where 50% of the emergency patients were in the age group 18-30 years and 73.8% were female. The following table is given below in detail:

**Table-1: Sociodemographic characteristic of the patients**

| **Age group** | **Number (n)** | **Percentage (%)** |
|---|---|---|
| 18-30 years | 124 | 50 |
| 31-45 years | 52 | 20.97 |
| 46-60 years | 72 | 29.03 |
| **Sex** | **Number (n)** | **Percentage (%)** |
| Male | 183 | 73.8 |
| Female | 65 | 26.2 |
| Occupation | Number | Percentage (%) |
| Employed | 30 | 12.10 |
| Unemployed | 10 | 4.03 |
| Business | 15 | 6.05 |
| Farmer | 40 | 16.13 |
| Student | 88 | 35.48 |
| Housewife | 39 | 15.73 |
| Day labourer | 26 | 10.48 |

In Figure-2 shows distribution of the patients according to verification of clinical diagnosis where 92.74% cases the clinical diagnosis coincides with per-operative (confirmatory) diagnosis. The following figure is given below in detail:

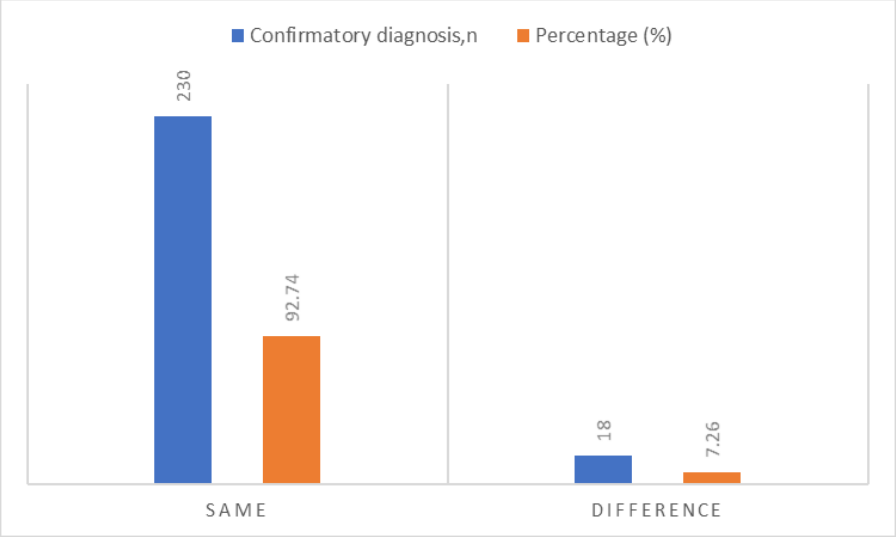


**Fig-2: Distribution of the patients according to verification of clinical diagnosis**

In table-2 shows pattern of abdominal surgical emergencies where acute appendicitis was 42.34%, intestinal obstruction followed by 24.60%, perforation of GCHV, 19.76% and it was statistically significant ($p < 0.05$). The following table is given below in detail:

**Table-2: Pattern of abdominal surgical emergencies (n=248)**

| Disease | Number | Percentage | $X^2$value at 95% CI | Probability |
|---|---|---|---|---|
| Acute Appendicitis | 105 | 42.34 | 41.33 | P<0.05* |
| Intestinal Obstruction | 61 | 24.60 | | |
| Perforation of GCHV | 49 | 19.76 | | |
| Appendicular abscess | 07 | 2.82 | | |
| Burst Appendicitis | 14 | 5.64 | | |
| Empyema Gall bladder | 12 | 4.84 | | |

n- Number of patients
CI – Confidence Interval
In $X^2$ test of significance of difference *=P<0.05

In Figure-3 shows distribution of patients on the basis of findings of investigations whereamong the patients with plain X-ray of abdomen, multiple air fluid level present in 60 cases, among the patients with ultrasonogram of whole abdomen, acute appendicitis found in 18 cases and among the patients, complete blood count shows neutrophilic leukocytosis is about 118 cases**.**The following figure is given below in detail:

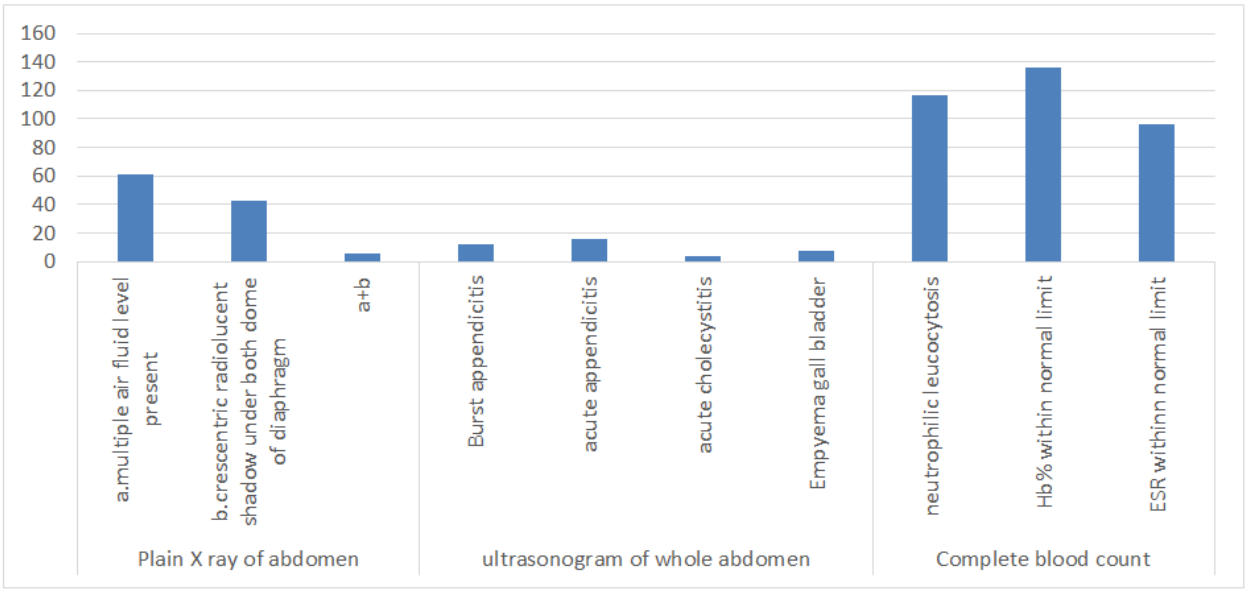


**Fig-3: Distribution of patients on the basis of findings of investigations**

In Table-3 shows distribution of patients on the basis of time interval between admission and Operations where 57.26% cases operation was done within 24 hours of admission. The following table is given below in detail:

**Table-3: Distribution of patients on the basis of time interval between admission and Operations (n-248)**

| Time interval between admission and operation | Number (n) | Percentage (%) |
|---|---|---|
| 6 hours | 08 | 3.23 |
| 12 hours | 38 | 15.32 |
| 24 hours | 142 | 57.26 |
| 48 hours | 37 | 14.92 |
| 72hours | 23 | 9.27` |

In Figure-4 shows distribution of patients on the basis of per-operative findings. Among the patient with appendicular lesion, obstructive appendicitis is about 55, among the perforated cases anterior wall of duodenal perforation is the commonest (32), among the intestinal obstruction, sigmoid colon is the common site of obstruction (16). The following figure is given below in detail:

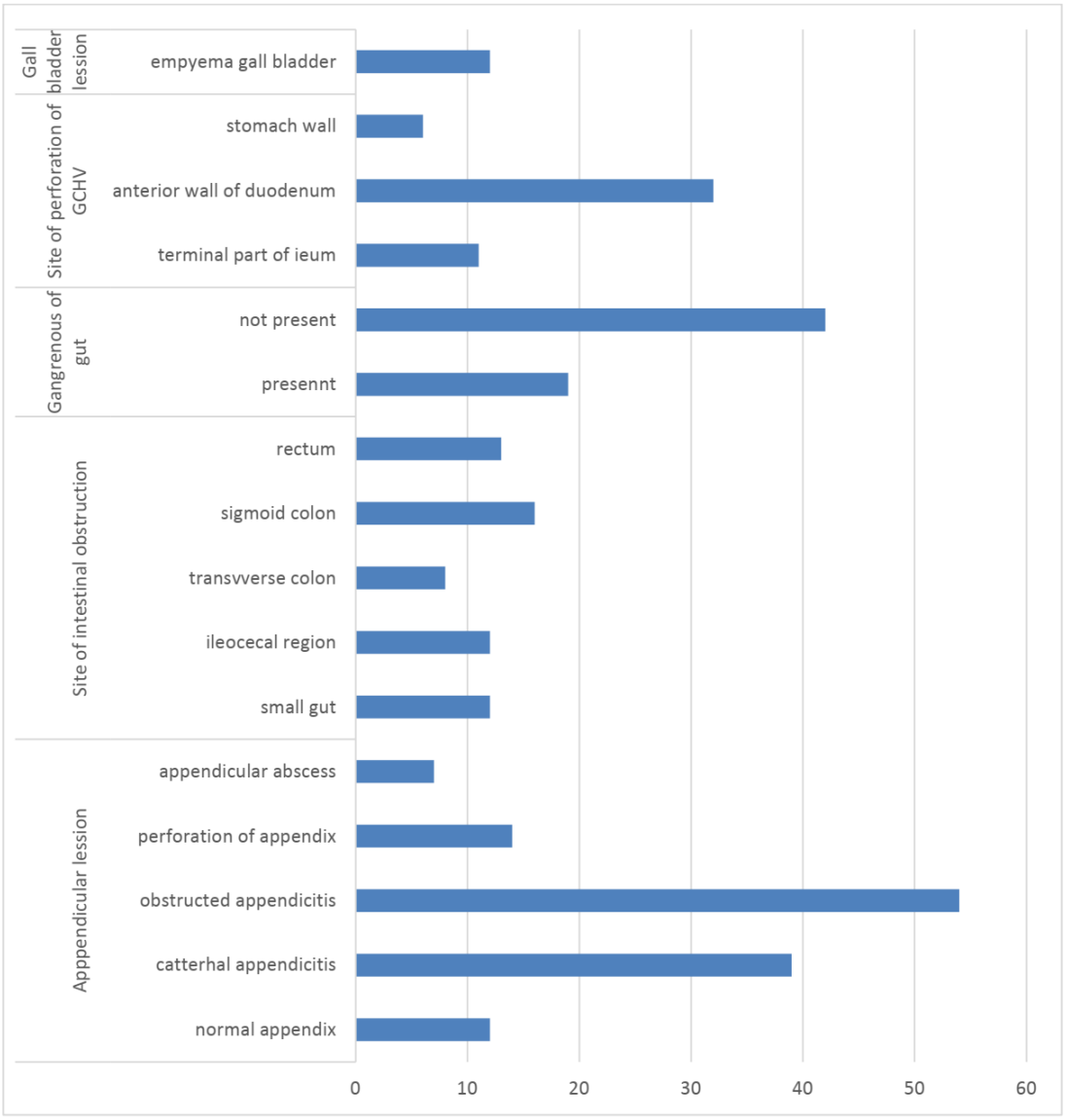


**Fig-4: Distribution of patients on the basis of per-operative findings**

In Table-4 shows causes of Intestinal obstruction (n -61) colonic growth (37.70%), volvulus (27.87%) and bands and adhesion (21.31%) were the most common causes of intestinal obstruction. The following table is given below in detail:

**Table-4: Causes of Intestinal obstruction (n -61)**

| Intestinal Obstruction | Number | Percentage (%) |
|---|---|---|
| Colonic growth | 23 | 37.70 |
| Bands and adhesion | 13 | 21.31 |
| Volvulus | 17 | 27.87 |
| Obstructed Inguinal hernia | 6 | 9.84 |
| Intussusception | 2 | 3.28 |

## DISCUSSION

In this study age distribution was 18-30 years 124(50%), 31-45 years 52 (20.97%) and 46-60 years 72 (29.03%). Here age was statistically significant ($p<0.05$) with abdominal surgical emergencies. Here mean age was 35.35. A similar study was conducted by one study showed highest incidence was found in patients between 21-30 years i.e.27.81% [6]. Another study Ajay Malviya *et al*., showed highest incidence (27.64%) of acute non traumatic emergency was seen in 21-30 years age group [9]. Similar trend of age was noted other study [10].

In this current study male were 183 (73.8%) and female 65 (26.2%) and male female ratio was almost 2.82:1. A similar study was conducted where he

found male were 70 (71.43%) and 28(28.57%) females with a male: female ratio of 2.5:1. 11 [11]. Another report conduct a similar study where he found a total of 586 patients presented with non-traumatic acute abdomen of which there were 412 (70.30%) males and 174 (29.63%) females with Asian General Hospital male to female ratio of 2.3:1 [10].

In this study occupation distributed among the patient were student 35.48% (n-88), farmer 16.13% (n-40), housewife 15.73% (n-39), employed 12.10% (n-30), day laborer 10.48% (n-26), business 6.05% (n-15) and unemployed 4.03% (n-10).

In this study the socioeconomic status of respondents were lower class 62.10% (n-154) middle class 37.90% (n-94). The socioeconomic status of respondents was statistically non-significant with abdominal surgical emergencies.

Acute appendicitis was found to be the most common abdominal surgical emergency in our study which was 105(42.34%) followed by Intestinal obstruction 61(24.60%), Perforation of Gas Containing Hollow Viscus (GCHV) 49(19.76%), Appendicular abscess 07(2.82%),Burst Appendicitis 14(5.64%), Empyema Gall bladder 12(4.84%).The result is statistically significant ($p<0.05$). However appendicitis was found to be the leading cause in several studies [3, 12]. A similar study was conducted by one study Abdurrahman Z et all where he found that the most common surgical emergencies are acute appendicitis 52% (n-122), followed by Intestinal obstruction 26% (n-62), Perforation of Peptic Ulcer [13].

Disease 09% (n-21) and others 13% (n-31). Another study was found emergency surgery for acute abdomen constituted two-thirds of non-trauma operations with acute appendicitis/ruptured appendix (28%) & Intestinal obstruction (28%) being the most diagnosis [3]. Another study was conducted where he found that Appendicitis is a common surgical emergency & in this series represented about 9.4% (n-56) performed which is the highest in general surgical emergencies [5]. Another study found the most frequent etiology is the acute appendicitis 47.8% followed by acute peritonitis, acute intestinal ischemia with respectively 21.2% and 10.2% [4].

Acute appendicitis was the most frequent cause (55.20%) followed by acute cholecystitis (29.40%). Study done by Another study showed the most common causes of acute abdomen was acute appendicitis accounting for 35% admission and intestinal obstruction was second leading cause accounting for 28.5% cases [10].

Acute appendicitis was the most common causes of acute abdomen in this study consistent with other studies carried in England and locally.Compared to other studies we had higher incidence of acute appendicitis (46% ), the higher incidence could be attributed due to the fact that in our studies medical. Urological and gynecological cases are excluded.

In this study, intestinal obstruction was the next most common abdominal surgical emergencies (24.60%).The leading causes of intestinal obstruction in this series were colonic growth (23), sigmoid volvulus (17), and band and adhesion (13). A similar study was found small bowel obstruction due to adhesion and sigmoid volvulus were the leading cause of Intestinal obstruction each accounting for 27% (n-17) [13]. Another study found complicated abdominal wall hernia was the cause of obstruction in 52%, peritonitis followed perforated peptic ulcer in 7.2% [3].

This study found, appendicular lesion were the most observed lesion (50.81%) during per operative findings followed by acute intestinal obstruction (24.60%). A similar study was found that according to per operative lesion observed appendicular lesion were the most observed lesion (54.7%) followed by acute intestinal occlusion, perforation of digestive tract with per operatively 19.2% & 8.8% [4].

In this study showed that, surgery performed within 24 hours of admission was 75.81bn u87 %. Similar study was done and they found if surgery performed within 24 hours of disease onset, mortality should be much lower than 10 percent [1].

## CONCLUSION

From our study we can conclude that, non-traumatological abdominal surgery emergencies represent a non-neglected proportion of admission in surgery, patients concerned are mostly young adults with predominance of male or female. The most incriminated pathology is the acute appendicitis. Adhesion, colonic growth and sigmoid volvulus are the frequent etiology of Intestinal obstruction.

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