

The mysterious causes of acute surgical abdomen- a retrospective study of causes of emergency abdominal surgeries

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Abstract

Background: Abdominal surgical emergencies form a major role in a surgeon’s clinical experience and often present with diagnostic and treatment challenges. The major causes of abdominal emergencies vary from region to region, and even within the same region socioeconomic, cultural, or geographical factors may alter the pattern. Although being one of the most common urgent surgical procedures in India, there is a scarcity of data concerning indications and sociodemographic factor that help in early diagnosis and preparedness of complications of surgery. Despite the

emphasis on improved surgical efficiency, studies consistently show that emergency conditions make an important contribution to mortality and morbidity in abdominal surgery patients. This study is to determine the socio demographic pattern at presentation and indications for surgery in patients who had emergency abdominal surgeries.

Materials and Methods: Data collected from admission record of patients from medical record in Hospitals attached to Bangalore medical college and Research Institute, Bengaluru for a 2-year period from 01/01/2018 to 31/12/2019. A retrospective analysis was done using

the data collected about the indications of emergency surgery and socio demographic variation in the presentation of the disease to the casualty.

Results: Nine hundred eighty three patients had emergency abdominal operation over a period of 24 months. The mean age at presentation was between 18 to 30 years which forms, 26.8 per cent of total patients. Male to Female ratio was 3.8: 1. PUD perforations were the commonest indication for surgery followed by acute appendicitis and intestinal obstruction as a result of complicated hernias. Prepyloric perforation secondary to PUD being the most common cause of perforation and Obstructed inguinal hernia was the commonest cause of intestinal obstruction.

Conclusion: Early reporting and treatment for peptic ulcer diseases in hospital and access to hernia repair and adequate patient education regarding the early treatment of PUD and hernias will reduce the morbidity and mortality known to be associated with this condition.

Keywrds: PUD, IOR, Diagnostic,

Introduction

The emergency surgery is described as non-elective surgery, which is carried out to prevent a disease that is surgically treatable from having a fatal or morbid health effect^[1,2] Abdominal surgical emergencies constitute a significant portion of a surgeon's clinical experience and often present with diagnostic and treatment challenges. Management of emergency general surgical condition remains a challenge in developing countries due to scarcity of medical staff and infrastructure^[3,4]. In the absence of surgical care, case-fatality rates are very high for easily treatable conditions including appendicitis, hernia, fractures etc.^[5] Advanced age and perioperative complications such as sepsis and functional condition lift the mortality rate to more than 50 per cent.^[6]

The major causes of abdominal emergencies differ from region to region, and even within the same region socioeconomic, cultural, or geographical factors may alter the pattern. Studies continue to show that an emergency status contributes significantly to morbidity and mortality in patients undergoing abdominal surgery. In India, perforation peritonitis is the most common emergency in general surgical departments and despite advances in surgical techniques, antimicrobial therapy, and intensive care support, the management of peritonitis continues to be highly demanding, difficult and complex, and the causes of perforation are different from those of western countries.

In the last decade, major emphasis has been put on decreasing postoperative complications. Despite the emphasis on improved surgery efficiency, studies consistently show that emergency conditions make an important contribution to mortality and morbidity in abdominal surgery patients.^[6,7] It is therefore important to know the common causes in each region and also review from time to time to assist quick decision taking, appropriate management and improvement of outcome. The aim of this study is to determine the socio demographic pattern at presentation and indications for surgery in patients who had emergency surgical operations at victoria hospital, under the department of general surgery BMCRI, Bengaluru.

Materials and methods

Bangalore Medical College and Research Institute-Victoria hospital is a referral hospital. It is designated for training undergraduate and postgraduate medical students of Bangalore Medical College and Research Institute. This is a retrospective study conducted in the patients admitted under Department of General Surgery in victoria hospital, BMCRI. Admission records of

patients from medical record department of General Surgery Department in Hospitals attached to Bangalore medical college and Research Institute were retrospectively scrutinized for a 2-year period from 01/01/2018 to 31/12/2019.

Sample size was calculated as per Ganiyu et al the most common indication for emergency abdominal surgery was intestinal obstruction with $p= 39.2$.

Patients were usually seen by the surgical team in the emergency room. They were all resuscitated and optimized for surgery. The patients had naso-gastric decompression, intravenous fluid therapy, correction of electrolyte deficit, appropriate intravenous antibiotics (ciprofloxacin/ ceftriaxone, or metronidazole). Only those who had surgical operation were included in this study. Details of socio-demographic data, clinical presentation, diagnosis, operative procedure and outcome were retrieved from the hospital records.

Statistical Analysis

The data collected will be entered into excel sheet and will be analysed using SPSS 27.0. Sociodemographic data will be presented using descriptive statistics namely mean, median, standard deviation, interquartile range (IQR), percentage wherever applicable Indications for surgery and sociodemographic pattern in adults will be analysed using appropriate parametric and non-parametric test for significant association between the variables. P-value <0.05 will be considered statistically significant. Data will be presented in the form of tables, figures will be and graphs whenever necessary.

Inclusion Criteria

Patient more than or equal to 18 years of age undergoing emergency abdominal surgeries under department of general surgery in victoria hospital BMCRI.

Exclusion Criteria

1. Patient less than 18 years of age.
2. Patients with acute abdomen that did not have emergency surgery.
3. Emergency urological operations
4. Emergency gynecological operations

Results

At Bangalore Medical College and Research Institute-Victoria hospital, from 1st January 2018 to 31st December 2019 (a period of 24 months), Nine hundred eighty three emergency abdominal operations were carried out by the General Surgery team which constituted majority of the emergency surgeries in total.

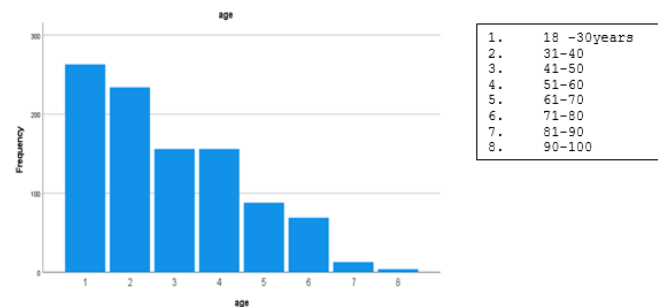


Figure 1: Age distribution of patients who had emergency abdominal surgeries.

The age at presentation ranged from 18-100 years. The mean age was 44.2 (SD 17.2). The peak age at presentation was the 5th decade (Figure 1). The male to female ratio was 3.8: 1. The commonest indication for emergency abdominal surgery was perforated PUD, constituting 19.8% of the patients followed by appendicitis and complicated hernias.

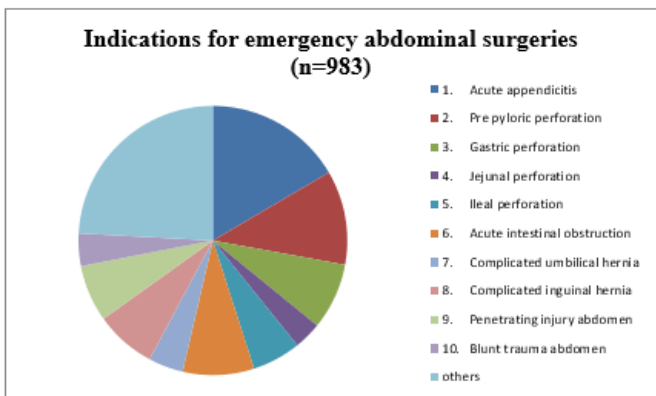


Figure 2: Indications for emergency abdominal surgeries (n=983)

	Frequency	Per cent
1. Acute appendicitis	170	17.0
2. Pre pyloric perforation	116	11.6
3. Gastric perforation	82	8.2
4. Jejunal perforation	34	3.4
5. Ileal perforation	60	6.0
6. Acute intestinal obstruction	88	8.8
7. Complicated umbilical hernia	43	4.3
8. Complicated inguinal hernia	75	7.5
9. Penetrating injury abdomen	70	7.0
10. Blunt trauma abdomen	40	4.0
11. Appendicular perforation	25	2.5
12. Incisional hernia	27	2.7
13. Duodenal perforation	17	1.7
14. Colonic perforation	30	3.0
15. Others	73	7.3
16. Mesenteric ischemia	32	3.2
Total	982	98.3

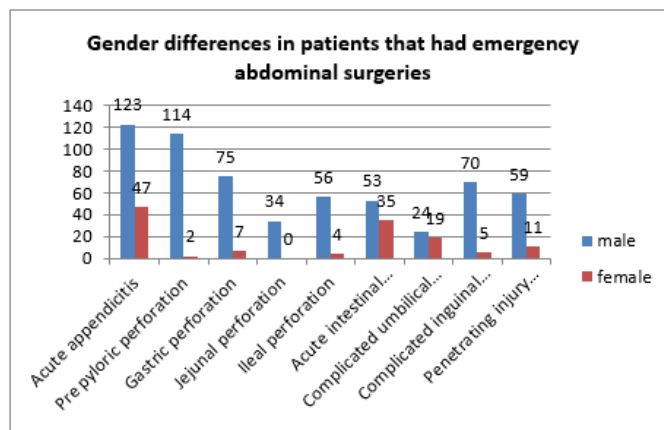


Figure 3: Gender differences in patients that had emergency abdominal surgeries.

In patients less than 40 years of age the commonest indications for emergency surgical operations were perforated PUD and acute appendicitis but in older patients, intestinal obstructions due to complicated hernias were the main problems.

Due to the above causes of acute surgical abdomen most common procedure performed in the emergency surgical was Grahams omental patch repair for perforated PUD followed by open appendectomy and open hernia repair for complicated hernias other procedure included resection anastomosis, ileostomy , colostomy and splenectomies.

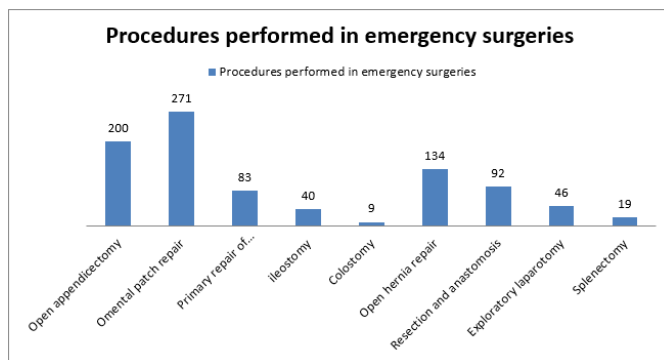


Figure 4: Procedures performed in emergency surgeries

Discussion

In this study abdominal surgery is the most common of emergency surgeries. This is in keeping with most

findings reported in other low- and middle-income countries.^[8,9]

The pattern and presentation of emergency abdominal surgery in India differs from that of developed countries. For example, in a study from Boston, Massachusetts (USA), urinary tract stone (31.4%), appendicitis (23.6%), intra-abdominal abscess (17.4%), diverticulitis (16.9%) and small bowel obstruction (10.6%)^[6] were the commonest cause of acute, nontraumatic abdominal pain while in sub-Saharan Africa, intestinal obstruction, acute appendicitis, typhoid ileal perforation and perforated peptic ulcer are the most common causes of non-obstetrical/ gynaecological surgical abdominal emergencies.^[10-14]

In this study the indications for emergency abdominal surgery are perforated PUD, acute appendicitis, complicated hernias and intestinal obstruction which is similar to other studies. This study also shows the difference in the gender presentation for different causes, From this study, males present almost four times as common as females with emergency surgical abdominal conditions. This study also shows that most common cause of acute surgical abdomen in <40 years is acute appendicitis and perforated PUD and complicated inguinal hernias are most common in patients >40 years of age.

In young males most common cause is perforated PUD and acute appendicitis. In older men complicated hernias are common cause whereas in young females most common cause is acute appendicitis and in older women it is complicated hernias. Perforated PUD is more common in men than women.

Emergency abdominal surgery in our study is more common in the 3rd and 4th decade but intestinal obstruction and complicated hernias are more common

in the 5th and 6th decade of life. This may be as a result of the fact that obstructed external abdominal hernia is the commonest cause of intestinal obstruction. Though intestinal obstruction is common in all age groups, appendicitis is more common in patients less than forty years.

Perforated PUD is the commonest cause of emergency surgical operation in our study. Further analysis of causes showed that obstructed abdominal wall hernia and acute appendicitis are next commonest causes. This has been the trend in developing countries though recent reports from some developing countries have shown a changing pattern. Perforated PUD and Obstructed hernia still remains the most common cause in our study probably because it is a regional hospital with referrals from rural communities. The high incidence of perforation and obstruction at presentation may be as a result of ignorance, poverty and poor access to elective orthodox hernia repair. As we increase awareness through health education and patients have access to expert surgical service, there may be decrease in the number of obstructed hernias.

Conclusion

In conclusion, the most common surgical emergency is abdominal emergency and the common indications for emergency abdominal surgeries are perforated PUD, appendicitis, intestinal obstruction, and complicated hernias. PUD remains the most common cause of perforation and obstructed hernia is the most common cause of intestinal obstruction. There is need to educate the people and make them aware of need for early treatment of PUD and to provide easy accessible surgical service for elective repair of hernia to reduce the incidence of intestinal obstruction.

Ethical approval: The study was approved by the Institutional Ethics Committee.

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