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Study of Surgical Emergenices in Tertiary Care Hospital

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Abstract

Introduction: In a country like ours, the increased number of surgical emergencies presenting to a hospital diverts majority of the resources towards the emergency department. Understanding this growing need makes it important to study and evaluate the distribution of these patients which shall help in developing a more efficient department.

Material and Methods: We conducted a prospective study of patients undergoing emergency surgeries from December 2019 to November 2021. Total 300 patients included and study was carried out in the Department of Surgery, S.P. Medical College and P.B.M Hospital, Bikaner.

Results: Majority of patients were from 21 to 40 years age group (43.66%). There were 208 males and 92 females. The male to female ration in our study was 2.26:1. Out of 300 patients, 82 patients (21.33%) had acute appendicitis 50 patients (16.66%) had hollow viscus perforation and 40 patients (13.33%) had intestinal obstruction. Most common surgical intervention done was exploratory laparotomy followed by appendectomy. The average hospital stay in our study was 6.6 days. Surgical site infection (n=23, 7.66%) and wound dehiscence (n=8, 2.66%) were the commonest postoperative complication noted in our study. Overall mortality rate in our study is 8.33%. Most common cause of death in our study population was septicemia. Majority of patients in our study were from low socioeconomic group.

Conclusion: Early diagnosis, aggressive resuscitation and timely definitive treatment is essential in order to decrease the mortality in patients undergoing emergency surgeries. It highlights the required positive change in current surgical and aesthesia practice that may be extrapolated to other such establishments.

Keywords: Emergency surgery; Emergency department.

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Introduction

In a country like ours, the increased number of surgical emergencies presenting to a hospital diverts majority of the resources towards the emergency department. The number of emergency cases presenting to hospitals have increased over years putting a lot of pressure on the hospital resources.[1]

Emergency Surgery can be defined as surgery that is required to deal with an acute threat to life, organ, limb or tissue caused by external trauma, acute disease process, acute exacerbation

of a chronic disease process, or complication of a surgical or other interventional procedure. The skills needed for emergency surgery include the ability to undertake those abdominal and pelvic (including urological), thoracic, vascular and soft tissue procedures that need to be performed within 24 hours.[2]

The emergency surgeon must understand the pathophysiology of acute disease, how it is influenced by pre-existing comorbidity and be able to rapidly optimise the acutely ill surgical patient.[3]

General Surgical Emergencies seen in hospital are Incarcerated and Strangulated Inguinal Hernias, Acute appendicitis, Acute intestinal obstruction, Blunt and penetrating abdominal and thoracic trauma, hollow viscus perforation and soft tissue infections etc.

After thorough investigation, most of these clinical patterns evolve into unambiguous diagnoses. Some of the clinical patterns that represent acute surgical disease are managed by emergency surgery. Moreover, in certain situations, only surgery leads to proper diagnosis. Other situations may be treated sufficiently by conservative management. Deferring surgery to daytime hours is appropriate in certain situations. On the other hand, inappropriate delaying of surgery may result increased morbidity and mortality.[4]

The objective of the management of acute surgical diseases is to save lives by controlling bleeding or contamination, or by improving organ perfusion. Resource availability along patient physiological and clinical parameters in the acute care arena justifies the development of triage tools and agreed criteria for proper timing of emergency operations.

Aims of this study were to assess the prevalence of different type of surgical emergencies, to assess the various complications and mortality and outcome of different type of emergency surgeriess.

Material and Methods

Present study was carried out in the Department of Surgery, S.P. Medical College and P.B.M Hospital, Bikaner. This is a prospective descriptive study and was carried out between December 2019 to November 2021. During the study period, 300 consecutive patients (Patients with 13years and above 13 years of age) admitted with clinical and radiological evidence of surgical emergencies, undergoing surgical intervention, regardless of gender were included.

Inclusion criteria

All Patients of age 13 years and above, regardless of gender, admitted with clinical and/or radiological evidence of general surgical emergencies and undergoing surgical intervention, enrolled in the study.

Exclusion criteria

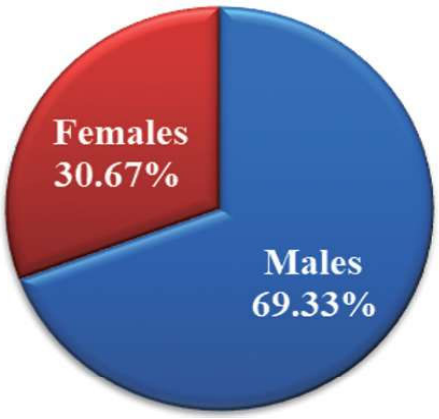
Patients below 13 years of age, Patients not willing to participate in study, Patients managed conservatively, patients not willing for surgical intervention and subsequently discharged against medical advice were excluded from study. Other emergency surgeries like neurosurgery, urology, orthopedics and pediatric surgery.

On admission detailed history regarding age and sex, onset, duration and progress of the symptoms, co-morbitites and past surgical history were recorded from the patients. After thorough clinical examination, appropriate laboratory and radiological investigations all patients were subjected to emergency surgery after written informed consent. All data recorded from perioperative period including type of anesthesia, any intraoperative complication, duration of hospital stay. Data was recorded from post-operative complications in hospital stay and in follow up period. Any mortality occurred was noted. The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel) and appropriate tests were applied.

Results

Out of total 300 patients studied 208 were males and 92 were females. The male to female ratio was 2.26:1.(Chart 1).

Chart 1: Sex-wise distribution of cases of emergency surgeries.



Majority of patients were from 21 to 40 years age group (43.66%) followed by 41-60 years age group (31.00%). 12.33% patients were from 61-80 years age group. Mean age was 40.2 years in present study. (Table1).

Table 1:

Age Group	Number of Patients	Percentage
13-20	36	12.00%
21-40	131	43.66%
41-60	93	31.00%
61-80	37	12.33%
>80	3	01.00%
Total	300	100

Out of 300 patients, 82 patients (21.33%) had acute appendicitis, 50 patients (16.66%) had hollow viscus perforation, 40 patients (13.33%) had intestinal obstruction, 34 patients(11.33%) had abscess, 26 patients (8.66%) had soft tissue infections (cellultis and necrotizing fasciitis) (Table 2).

Table 2:

Diagnosis	Number of Patients	Percentage
Appendicitis	82	21.33%
Cellulitis/Necrotizing fasciitis including fournier's gangrene	26	8.66%
Abscess	34	11.33%
Infected or fungating Breast mass	2	0.66%
Non-viable testis (torsion/ abscess)	10	3.33%
PVD/Gangrene	17	5.66%
Obstructed hernia	13	4.33%
Perineal tear	4	1.33%
Compartment syndrome	2	0.67%
Anal fissure	6	2.00%
Blunt trauma abdomen	6	2.00%
Hollow viscus perforation	50	16.66%
Intestinal obstruction	40	13.33%
Gastric outlet obstruction	6	2.00%
Pyoperitoneum	1	0.33%
Bleeding hemorrhoids	1	0.33%
Total	300	100%

Most common surgical intervention done was exploratory laparotomy (n=104, 34.66%) followed by appendectomy (n=82, 27.33%).[34] (11.33%) patients undergone incision and drainage and 26 (8.66%) patients undergone debridement.[17] (5.67%) patients undergone amputation. Among patients undergone exploratory laparotomy (n=104) most common surgical procedure done was primary repair of intestinal perforation (n=50, 48.07%) and resection and anastomosis of bowel (n=14, 13.46%) followed by release of bands and adhesions (n=13, 12.50%) (Chart 2).

Most patients were operated under regional anesthesia (n=154, 51.33%) followed by general anesthesia (n=117, 39%). 29 patients (09.66%) were operated under local anesthesia. (Chart 3).

Chart 2: Distribution of various types of emergency surgeries.

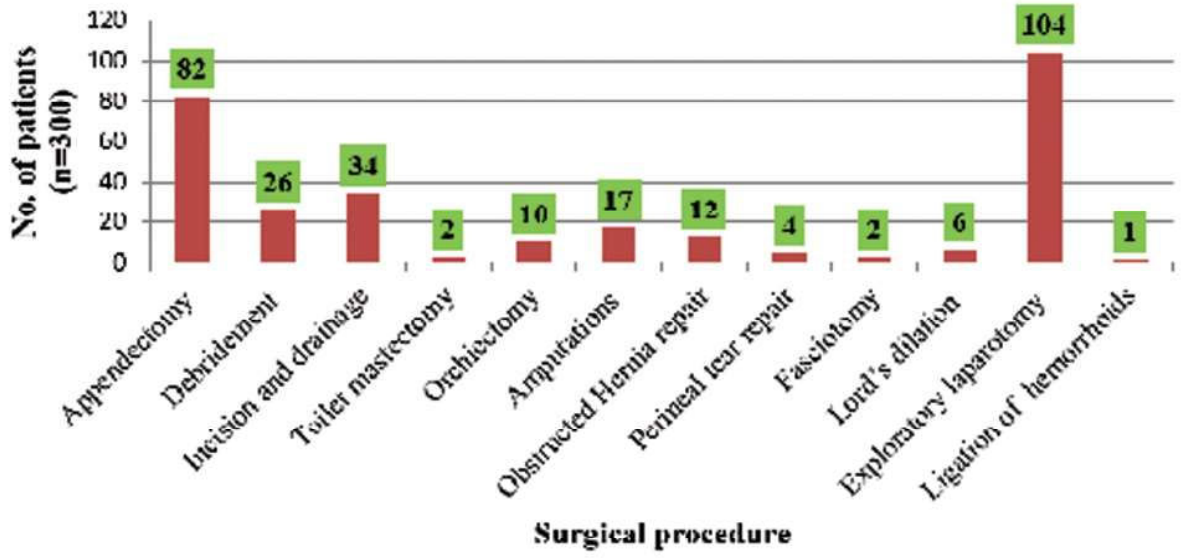
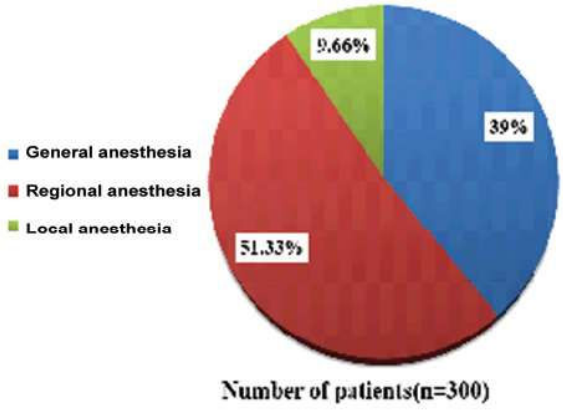


Chart 3: Distribution of patients undergone emergency surgeries according to type of anesthesia.

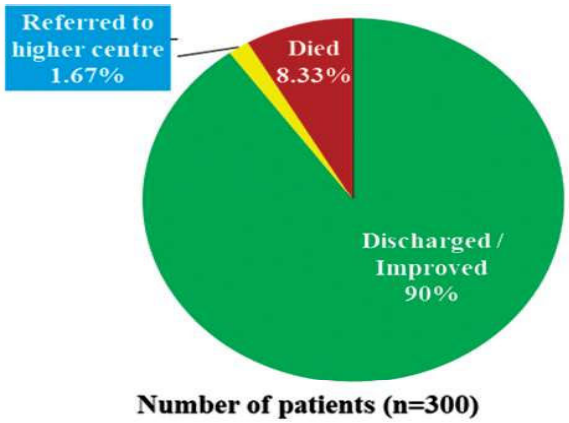


174 patients (58.00%) had hospital duration of <7 days. 88 patients (58.00%) had hospital duration of 7-14 days. 38 patients (12.66%) had hospital duration of >14 days. The average hospital stay in our study was 6.6 days. Majority of patients in our study were from low socioeconomic group according to B.G. Prasad's socioeconomic status.

In post-operative period 23 patients (7.66%) had surgical site infections as complication.Septicemia was noted in 18 cases (6%), Pneumonia was observed in 13(3.33%) patients. Burst abdomen was noted in 8 (2.66%) patients. (Chart 4).

Overall mortality rate in our study is 8.33% (n=25). 5 patients were referred to higher centre for further management and 270 patients (90%) were discharged home (Chart 5).

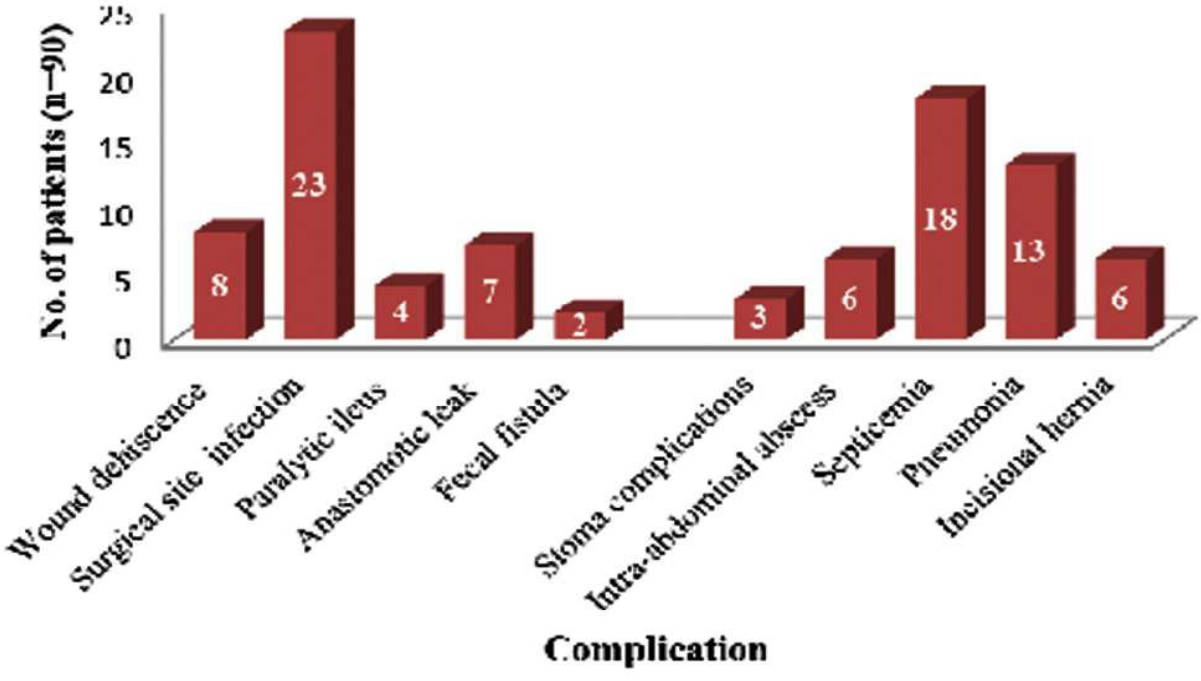
Chart 5: Outcome in Patients undergone emergency surgeries.



Discussion

In our study surgical emergencies were found to be more common in male when compared to females. Male to female ratio was 2.26:1. Present study confirms with Mahak kakkar et al[5] with male female ratio of 1.65:1 and Ndubuisi OC onyemaechi et al[6] with male female ratio of 2:1 and Amir Mushtaq Parray et al 2018[7] with male female ratio 2.49:1 and Anjali verma et al 2016[8] with male female ratio of 3.59:1 and Ibrahim et al 2015[9] with

Chart 4: Distribution of patients according to Post-operative complications.



male female ratio of 1.7:1. The minimum age of the patients was 13 years and the maximum age was 85 years, with most common age group between 21-40 years followed by 41-60 years with mean age of 40.2 years.

This confirms our study with study series of Ndubuisi OC onyemaechi et al 2019[6] having mean age of 33.7 years, Amir Mushtaq Parray et al 2018[7] having mean age of 47 years and Ibrahim et al 2015[9] having mean age of 44.9 years and A U Ekere et al 2005[10] 33 years. Surgical emergencies are common in people of this group because of their activities and stress and strains of life are prone for analgesic abuse, alcohol abuse and acid peptic disease and road traffic accidents.

In our study most surgical emergencies were gastrointestinal emergencies (including appendicitis (21.33%), Hollow viscus perforation (16.33%) and acute intestinal obstruction (13.33%) etc.) Most common emergency surgery performed was exploratory laparotomy (34.66 %) followed by appendectomy (27.33%). Present study confirms with Mahak kakkar et al 2020[5] with most common emergency surgery performed was exploratory laparotomy (56%) and Ndubuisi OC onyemaechi et al 2019[6] with most common emergency surgery performed was appendectomy (16.5%) followed by exploratory laparotomy. Our study also confirms with Anjali verma et al 2016[8] and Ibrahim et al 2015[9] with most common emergency surgery performed in both of studies were exploratory laparotomy followed by. appendectomy.

In our study Minimum days of hospital stay were 2 days and maximum were 22 days. Mean days of hospital duration were 6.6 days. In a recent study conducted by Ndubuisi OC onyemaechi et al 2019[6] had mean hospital stay of 16.9 days. Such difference is probably due to the fact that in our study most common surgical emergency was appendicitis those patients had eventually shorter hospital stay and In the study conducted by Ndubuisi OC onyemaechi et al 2019[6] had most common surgical emergency was road traffic accidents.

Mortality in our study was 8.33%, which is comparable with study conducted by Ndubuisi OC onyemaechi et al 2019[6] with mortality rate 7.8% and Amir Mushtaq Parray et al 2018[7] with mortality rate 12% and study conducted by Ibrahim et al 2015[9] with mortality rate of 12%. And study conducted by Ahmed A et al 2009[11] with mortality rate of 6% And study conducted by N Masiira-Mukasa et al 2002[12] with mortality rate of 6.66%.

Conclusions

Early diagnosis, aggressive resuscitation and timely definitive treatment is essential in order to decrease the incidence of bowel ischemia, necrosis, and perforation and the morbidity and mortality associated with gastrointestinal pathologies like intestinal obstruction. Poor socio economic status with a high prevalence of malnutrition, old age of the patients, delayed presentation of patients to the hospital leading to delayed diagnosis and treatment, associated systemic co-morbid conditions adversely affects the final surgical outcome of the patients.

A tertiary care hospital located in any district receives a high volume of emergency surgeries. Understanding this growing need makes it important to study and evaluate the distribution of these patients which shall help in developing a more efficient environment by health education, improve infrastructure to provide ICU care to these patients along with point of care laboratory, radiology and blood bank facilities.

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