



## Mortality in emergency laparotomy on acute abdomen: A Retrospective study in King George Hospital, Visakhapatnam.

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### ABSTRACT

**Objective :** This study aimed to determine the significant factors that can predict mortality in emergency laparotomy on acute abdomen of all emergency surgically treated patients

**Methods :** This is a retrospective review of prospectively collected data conducted in a tertiary health centre over a period of one year 2014. There were totally 809 cases underwent emergency surgery which include uncomplicated appendicectomy, I & D for Psoas abscess etc ., Out of them 212 (26%) were emergency laparotomies are included in the present study. Patients aged 14 years and over with acute abdomen underwent emergency laparotomy were consecutively entered into the study .The factors such as low socio economic status ,illiteracy, rural residence, delayed presentation, associated medical illness and their effect on outcome of patient after surgery were studied and etiology of acute abdomen was also studied. Results :. The mean age in the present study was 44.03±15.87 years . The most common diagnoses were peritonitis due to hollow viscous perforation (59%), intestinal obstruction (22%) and abdominal trauma(17%),ruptured liver abscess(2%). Exploratory laparotomy for Hollow viscous perforation (59%) was the most common operation. The mortality rate was found to be 12.7%. illiteracy, associated medical illness, delayed presentation with a p value <0.05

**Conclusion :** Operations for peritonitis due to hollow viscous perforation especially gastroduodenal perforation have increased , followed by obstruction due to adhesions and bands & strangulated hernias. Illiteracy, associated medical illness and delayed presentation were found to be most significant factors to predict mortality in emergency laparotomies for acute abdomen

### KEYWORDS

emergency laparotomy , acute abdomen, predictive factors, mortality

### INTRODUCTION

Abdominal surgical emergencies constitute a significant portion of a surgeon's clinical experience and often present diagnostic and treatment challenges, particularly in poorly resourced environments with a lack of modern medical facilities. Although ancillary investigations may improve diagnostic accuracy, a reasonable differential diagnosis can be made at the bedside in the majority of patients. The major causes of abdominal emergencies vary from region to region, and even within the same region socio-economic, cultural or geographical factors may alter the pattern. There are significant differences in the prevalence of most gastro-intestinal emergencies in tropical compared with temperate countries(1) In the past, intestinal obstruction from strangulated inguinal hernia was the leading cause of abdominal emergencies in developing countries(2). Abdominal injury has also become a common reason for emergency admission(2).

In our institution, peritonitis due to hollow viscous perforation has become the leading cause of emergency laparotomies. Gastro intestinal tract perforations can occur due to various causes, and most of these perforations are emergency conditions of the abdomen that require early recognition and timely surgical treatment (3). The main stay treatment for bowel per-

foration is exploratory laparotomy. Perforation of a duodenal ulcer allows egress of gastric and duodenal contents into the peritoneal cavity with a resulting initial chemical peritonitis.if there is continuing leakage of gastroduodenal contents, bacterial contamination of the peritoneal cavity can occur. Peritonitis due to perforation of hollow viscous is most common surgical emergency in India and the spectrum of disease is different from that found in western world(4). The advent of proton pump inhibitors and helicobacter pylori eradication in the management of chronic peptic ulcer disease has reduced the operative treatment of this condition to its complications. But yet perforated duodenal ulcer remains a major life threatening complication of chronic peptic ulcer disease. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex.

Intestinal obstruction is defined as any hindrance to the passage of intestinal contents.(5) It is one of the most common conditions resulting into hospital admissions. The clinical features of intestinal obstruction include abdominal pain, vomiting, distention and absolute constipation. (6,7,8) Intestinal obstruction may be of acute or chronic onset . It may be classified as dynamic (mechanical) and adynamic obstruction

(paralytic ileus and pseudo-obstruction). It may also be classified as small and large bowel obstruction(9) The etiology of small bowel obstruction varies with different geographical locations. In the developing world, external hernias more than half of all cases of small bowel obstruction, whereas in the UK and USA the most common cause of small bowel obstruction is adhesions resulting from previous surgery(9)

Most of the patients come to our hospital are from rural areas, low socio economic status, illiterate, and usually present late to the hospital and thus leading to higher mortality and morbidity

**PATIENTS & METHODS**

**Setting :** this study was carried out in Department of Surgery, King George Hospital, Visakhapatnam, Andhra Pradesh.

**Study design and methods:** Ours is a tertiary health centre cases are referred from many villages. Case sheets are collected for a period of one year(2014) after seeing records who were admitted in emergency and underwent emergency laparotomy. Out of 809 surgical emergencies we included the 212 cases who underwent exploratory laparotomy for acute abdomen. We excluded uncomplicated appendicectomy cases, psoas abscess etc., Information was documented from the records under the following headings: (a) Demographical data(age, gender, socioeconomic status, literacy, area), (b)associated medical illness, (c)onset of symptoms, (d)type of surgical intervention, (e)outcome

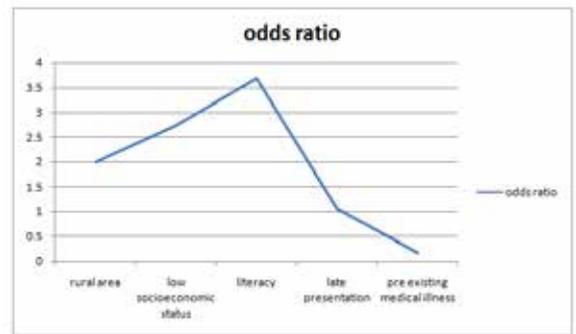
**STATISTICAL ANALYSIS**

Significant changes in the prevalence of various diseases were determined by comparing the above data with a similar study performed in other studies. Data were analysed using SPSS statistical software (version 14.0, SPSS, Chicago, IL). Quantitative data were expressed as means (standard deviation (SD)). For the purpose of analysis patients were divided into 2 groups such as age(<45, >45 as mean age is 45), socio economic status ( above poverty line, below poverty line), literacy(literates, illiterates), onset of symptoms(presented to hospital with in 24hrs of onset of symptoms, and after 24hrs of onset of symptoms), associated medical illness(present or absent), area(rural, urban). Data was summarized in the form of proportions and frequent tables for categorical variables. P values were computed for categorical variables using Chi-square (c2) test and Fisher's exact test depending on the size of data set. Age, socioeconomic status, literacy, area, onset of symptoms, associated medical illness was compared to outcome(mortality rate) and were evaluated by calculating p values. P value of less than or equal to 0.05 was considered significant.

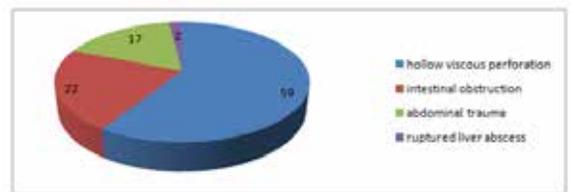
**RESULTS**

The mean age of presentation was 44.03±15.87yrs. the maximum number of patients of acute abdomen underwent surgery were in the age group of 31-45yrs(71 patients,33.5%) followed by 45-60yrs(53 patients,25%).Males outnumbered females. There were 171 males(80.6%) as compared to 41 females(19.4%), M:F ratio was 4.2:1. Out of 212 patients (a)50(23.5%) patients came from urban rest of the patients belongs to rural area, (b)34(16%) patients belong to middle class, rest of the belong to below poverty line, (c)74(35%) are literates and rest of them are illiterates, (d)89(41%) patients present to hospital with in 24hrs of onset of symptoms rest of them are delayed hospital admission (e)79(37.2%) patients have pre existing medical illness. Above parameters are compared to mortality rate and p value was calculated for individual parameters and it found to be p value is significant for delayed hospital admission, illiteracy and associated medical illness rest of the parameters p value came insignificant. Out of 212 patients 126 patients(59%) underwent surgery for hollow viscus perforation, 45 patients(22%) for intestinal obstruction , 36(17%) for abdominal trauma, 5(2%) for ruptured liver abscess.

s.no	Parameter compared to mortality rate	Odds ratio	P value	95% confidence interval
1	Area	1.999	0.221	0.6592151-6.067817
2	Socioeconomic status	2.736	0.185	0.6181164-12.11795
3	Literacy	3.6842	0.02	1.226925-11.06295
4	Late presentation	1.0422	0.01	0.4665445-2.328175
5	Preexisting medical illness	0.1671435	0.000	0.066627-0.4190793



Line diagrammatic representation of odds ratio of predictive factors showing associated risk



Spectrum of diseases in acute abdomen

**DISCUSSION:**

Acute abdominal pain constitutes a significant percentage of emergency admissions worldwide and comprises the largest group of people presenting as general surgical emergency (10). The term encompasses within it a long list of differential diagnoses and poses a greatest challenge to clinicians(11). Pattern of disease vary according to age, sex, geography, social class, genetic and environmental factors. Very few local studies are available on the topic of spectrum of disease in patients presenting with acute abdomen. This study attempts to highlight the causes of acute abdomen in local population. In this study, the highest incidence of acute abdomen was found in patients of age group 31-45, followed by 46-60, which is

nearer to studies conducted in west where the incidence was found to be highest in 45-60 years age groups. (12) Male predominance noticed in this study is similar to the studies conducted locally and in west. As we excluded uncomplicated appendicectomy Most common cause for acute abdomen who underwent exploratory laparotomy was came as acute intestinal perforation. The commonest site of perforation was gastroduodenal followed by small bowel. Other areas like colon, appendix are less common sites of perforations. Perforation of bowel is a serious complication and remains a significant surgical problem in developing nations and is associated with high morbidity and mortality.(13) In our study, 105 patients had peptic ulcer perforation, 28 in stomach and 67 in duodenum; Mortality was more common in elderly in 4th and 5th decade of life, predominantly in males. This is consistent with previous studies (12,14). Out of 27 deaths, 20 patients died with a diagnosis of peritonitis due to hollow viscous perforation, 5 cases died of acute intestinal obstruction and 2 cases with blunt injury abdomen

Maximum no of patients presented 24hrs after the onset of symptoms(58%). Similar observations were also made by other authors(15) most of the patients are illiterates, low socioeconomic and also associated with pre existing medical illness such as diabetes, hypertension, obesity, COPD etc., area they residing such as rural /urban, socio economic status have odds ratio of more than 1 which is suggestive of some association present to the outcome . Delayed hospital presentation, illiteracy and preexisting medical illness have proven to be significant risk factors with a **p** value <0.05 which were in consistent with other studies done in developing countries(4)

Mortality rate in our study was 12% which was comparable to study conducted by Agarwal et al in 2007 which was 10% slight variation may be due to short duration of study and above study it was 10 years study period(15) .

## CONCLUSION

Most common cause for emergency laparotomy in developing countries is peritonitis and high death rate is also noted with this particular group. Illiteracy , poverty , rural areas, co existing medical illness and last but very important delayed presentation plays significant role in mortality of patients undergoing emergency laparotomy. From our medical field the modifiable factor is delayed presentation for that we need to develop a system where health professional at the peripheral centres are educated in this regard so as to make the patients reach the tertiary centre as early as possible to decrease morbidity and mortality

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