

# An Analysis of Interventions in Acute Abdomen and its Post Operative Complications

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## ABSTRACT

**Introduction:** Acute abdomen refers to signs and symptoms of abdominal pain and tenderness, a clinical presentation that often requires emergency surgical therapy. Hence require thorough and expeditious work up to determine need for operative intervention. Aim of the study was to report the incidence of post operative complication in acute abdominal conditions where emergency surgery is done as treatment. In relation to preoperative variables of general condition of patient such as anemia, hypoproteinemia, diabetes, jaundice and critically ill patients, to compare complications with open surgery and laparoscopic surgery and to note post operative complications.

**Material and methods:** In this study total of 250 cases of acute abdomen from September 2015 to January 2017 are observed. Every 10<sup>th</sup> case of acute abdomen that attends emergency care to general surgery unit of a tertiary care hospital was taken into the study. Preoperative condition of the patient was evaluated and also noted whether open or laparoscopic surgery. Post operative complications were noted.

**Results:** Among total 250 patients, 110 (44%) patients had acute appendicitis, 80(32%) patients had hollow viscus perforation, 35(14%) patients had interstitial obstruction, 20(8%) patients had blunt injury abdomen and 5(2%) patients had penetrating injury abdomen. Sixteen patients (14.50%) with acute appendicitis, 39(48.75%) patients with hollow viscus perforation, 21(60%) patients with interstitial obstruction, 4(20%) patients with blunt injury abdomen and 1(20%) patients with penetrating injury developed postoperative complications.

**Conclusions:** In this study maximum no cases of acute abdomen are seen in 2<sup>nd</sup> and 3<sup>rd</sup> decade and maximum number of complication are seen in 7<sup>th</sup> to 8<sup>th</sup> decade and in patients with critically illness and patients with hepatocellular disorder. In this study least number of complications are present in patients with normal pre operative general condition. Complications rate significantly low in case of laparoscopic surgery than open surgery

**Keywords:** Acute Abdomen, Postop Complications, Laparoscopic Surgery

## INTRODUCTION

Acute abdomen refers to signs and symptoms of abdominal pain and tenderness, a clinical presentation that often requires emergency surgical therapy, hence require thorough and expeditious work up to determine need for operative intervention. The diagnoses associated with an acute abdomen vary according to age and gender. Appendicitis is more common in the young, whereas biliary disease, bowel obstruction, interstitial ischemia and infarction, and diverticulitis are more common in elderly patients.<sup>1,2</sup>

Nonsurgical causes of an acute abdomen can be divided into three categories: endocrine and metabolic, hematologic, and toxins or drugs.<sup>3</sup> Many diseases some of which are non surgical and intra abdominal can produce acute abdominal pain and

tenderness. Hence thorough work up is necessary in order of history physical examination laboratory and imaging studies to make a correct diagnosis so that the chosen therapy is appropriate.

A number of studies have confirmed the utility of diagnostic laparoscopy in patients with acute abdominal pain. The decision to operate on a patient with acute abdominal pain comes to the mind of the surgeon if routine investigations fail to identify the cause. A negative laparotomy may have complications, while laparoscopy appears to be a valuable way to improve the accuracy of diagnosis of acute abdominal pain and offers a promising mortality of treatment.<sup>4,5,6</sup> Due to delay in diagnosis and lack of adequate and lack of adequate preoperative measures, incidence of post operative complications is more in acute abdominal conditions which are operated on emergency basis compared to well plan elective surgeries.

Many factors influence post operative complications of acute abdomen like time between attending casualty and operation time, lack of well organized preparation and lack of good general health of the patient. The Critically ill patients with a potential acute abdomen is a difficult challenge for intensivists and surgeon alike. Many of the underlying disease and treatments encountered in the intensive care unit can predispose to acute abdominal disease.

Costa OL et al has shown a significant association between inflammatory and preoperative symptoms and postoperative sepsis.<sup>1</sup> Hence it is necessary to evaluate factors influencing post operative complications of acute abdomen.

Aim of the study was to report the incidence of post operative complication in acute abdominal conditions where emergency surgery is done as treatment. In relation to preoperative variables of general condition of patient such as anemia, hypoproteinemia, diabetes, jaundice and critically ill patients, to compare complications with open surgery and laparoscopic surgery and to note post operative complications.

## MATERIAL AND METHODS

In this study total of 250 cases of acute abdomen from September 2015 to January 2017 were observed. Every 10<sup>th</sup> case of acute abdomen that attends emergency care to general surgery unit of a tertiary care hospital was taken in to the study. Ethical clearance was taken before the start of study.

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Preoperative condition of the patient was evaluated in terms of anemia less than 10grams% HB, diabetes with RBS more than 160 mg/dl, hypoproteinemia with albumin less than 3 grams/dl, critically illness i.e. patients suffering with cardiac, respiratory, renal problems and hepatocellular disorder with bilirubin more than 3 grams/dl and also whether open or laparoscopic surgery were noted.

Post operative complications like Wound infection, Haemorrhage, Post operative gastrointestinal bleeding, acute abdominal compartment syndrome, Burst abdomen, Enterocutaneous fistulas, Anastomotic leaks, Respiratory complications, Cardiac complications were observed And the results compared with that from literature.

## STATISTICAL ANALYSIS

Microsoft office 2007 was used for statistical analysis. Mean and percentages were used to interpret data.

## RESULT

In the period from September 2015 to January 2017, 250 cases of acute abdomen treated at a tertiary centre were included in the study. Every 10<sup>th</sup> case of acute abdomen that attends emergency care to general surgery unit of a tertiary care hospital is taken into the study. Details recorded for all the patients included their age, haemogram, blood sugar level, serum albumin, cardiac, respiratory, renal problems and hepatocellular disorder with serum bilirubin level.

Post operative complications alike Wound infection, Haemorrhage, Post operative gastrointestinal bleeding, Acute abdominal compartment syndrome, Burst abdomen, Enterocutaneous fistulas, Anastomotic leaks, Respiratory complications, Cardiac complications were noted.

Among the 250 Patients, number of patients in the age group and number of complicated patients are shown in table 1 and table 2.

## DISCUSSION

About 250 cases of acute abdomen are studied during study period from September 2015 to January 2017, out of which male: female ratio is 2.2:1 which coincides with study on pattern of acute abdomen by B kotiso Z. Abdurrahman where the ratio is 2:1 among the complicated cases male: female ratio is 3.2:1.<sup>7</sup> Maximum no of cases of acute abdomen are in 2<sup>nd</sup> and 3<sup>rd</sup> decade. In an Article by Mr. T. Irvin on Abdominal pain largest number of admissions occurred in the age groups 10-29 years which is as present study. Complications of acute abdomen are high 7<sup>th</sup> to 8<sup>th</sup> decade.<sup>8</sup>

Most common cause of acute abdomen in present study is acute appendicitis (44%), which is similar to Pirre SG et al, where an acute appendicitis is the most common (57%) cause of acute abdomen.<sup>5</sup> In acute appendicitis maximum number of cases are with good pre operative general condition (79.09%) followed by patients with anemia (17.2%), diabetes (8.18%), hypoproteinemia (5.45%), hepatocellular disorder (0.9%). In present study, of all the cases of acute appendicitis, patients who underwent appendectomy with diabetes preoperatively have maximum complications (44.4%) followed by patients with anemia (42.1%), hypoproteinemia (33.3%), least number of complications are seen in patients with good preoperative general condition (8%).

Age group	No of patients	No of complicated patients	Percentage of complicated patients
10 to 20	45	4	8.80%
21 to 30	68	17	25%
31 to 40	65	15	23.07%
41 to 50	36	16	44.44%
51 to 60	25	17	68%
61 to 70	18	12	66.60%
71 to 80	3	3	100%
81 to 90	2	1	50%

**Table-1:** Age group distribution of patients

Complications	No of patients	Percentage
Death	18	20.4
Wound infection	41	46.59
Respiratory complications	6	6.8
Pelvic abscess	2	2.7
Burst abdomen	5	5.6
Post op gi bleed	1	1.1
Drain site infection	5	5.6
Ceecal perforation	1	1.1
Entero cutaneous fistula	8	9
Anastomotic leak	7	7.9

**Table-2:** Post op complications

In hallow viscus perforation maximum number of cases are with good preoperative general condition (40%) followed by patients with anemia(30%), diabetes (13.75%), hypoproteinemia (5%), hepatocellular disorder (1.125%). Patients who are critically ill constitute (10%). In present study of all the cases of hallow viscus perforation who underwent laparotomy the rate of complication is maximum in patients who are critically ill in patients with hepatocellular disorder preoperatively(100%), followed by patients with diabetes (81%), anemia (79%), hypoproteinemia (75%). Patients with normal preoperative general condition have least number of complications (12.5%). In acute interstitial obstruction maximum no of cases are patients with anemia (74.2%) followed by diabetes (31.4%), hypoproteinemia (20%), hepatocellular disorder (2.8%) patients with good preoperative general condition constitutes (22.8%). In present study of all the cases of acute interstitial obstruction the rate of complication is maximum in patients with hepatocellular disorder (100%) and diabetics(100%), followed by patients with anemia (73.6%), hypoproteinemia (71.4%), least number of complications are seen in patients with good preoperative general condition (12.5%)

In blunt injury abdomen maximum no of cases are patients with anemia (100%), followed by diabetes (10%) and patients who are critically ill (5%). Complication rate is maximum in patients who are critically ill (100%) followed by patients with anemia (20%). In penetrating injury abdomen maximum no of cases are patients with anemia(60%) followed by diabetes (20%), complication rate is maximum in patients with good preoperative general condition (100%), followed by anemic (66.65%).

In this study over all complication rate is maximum in patients with critically illness and patients with hepatocellular disorder (100%), least number of complications are present in

patients with normal preoperative general condition. Over all complication rate in present study is 37.6% where as in a study on Acute abdomen by Costamagna D et al. complication rate is 20%.<sup>11</sup>

Most common complication in this study of acute abdomen is wound infection which constitutes 46.59% of all complicated cases, followed by Enterocutaneous fistula (9%), Anastomotic leaks (7.9%), respiratory complications (6.5%), burst abdomen (5.6%), drain site infections (5.6%) and post operative gastrointestinal bleeding (1.1%). Mortality rate is (7.2%) in this study, coincides with ohene-Yeboah M et al, where death rate is (7.4%) out of these most of the cases are of hollow viscous perforation.<sup>12</sup> A patient with pre operative cardiac, respiratory and renal problems has maximum number of deaths (61.1%) Mortality rate is high in 5<sup>th</sup> to 7<sup>th</sup> decade in this study compared to Kettunen J et al; mortality rate is max in 8<sup>th</sup> decade.<sup>13</sup> In present study out of 250 patients, 200 patients under went open surgery and 50 patients underwent successful laparoscopic surgery. Complications rate significantly low in case of laparoscopic surgery than open surgery. In our study mortality rate is 2% compared to Perri SG et al where mortality rate was 0.5%.<sup>5</sup>

## CONCLUSION

In this study maximum no cases of acute abdomen are seen in 2<sup>nd</sup> and 3<sup>rd</sup> decade and maximum number of complication are seen in 7<sup>th</sup> to 8<sup>th</sup> decade. In this study over all complication rate is maximum in patients with critically illness and patients with hepatocellular disorder and least number of complications are present in patients with normal per operative general condition. Laparoscopic surgery in acute abdomen has lower complications rate and mortality than open surgery

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