International Journal Dental and Medical Sciences Research
Volume 3, Issue 5, pp: 1389-1393 www.ijdmsrjournal.com ISSN: 2582-6018

Analysis of Non-Traumatic Acute Abdomen Operated As An Emergency In A Tertiary Care Teaching Hospital

[1]Dr. Siddharth Rao *PS Kamineni Institute Of Medical Sciences, Telengana (Assistant Professor)*
[2]Dr. Shilpa PN *Kamineni Institute Of Medical Sciences, Telengana (Junior Resident)*
[3] Dr. Shravan Kumar *N Kamineni Institute Of Medical Sciences, Telengana (Assistant Professor)**
[4]Dr. Shikha Jaiswal *Kamineni Institute Of Medical Sciences, Telengana (Junior Resident)*
Corresponding Author: Dr. Shravan Kumar

Date of Submission: 12-11-2021 Date of Acceptance: 28-11-2021

ABSTRACT:
Introduction: Acute abdomen refers to an intra-abdominal pathology including thoracic pathology, with an onset of less than one week that may require urgent interventions, such as surgery. The acute abdomen may be caused by an infection, inflammation, vascular occlusion, or obstruction. Imaging workup traditionally starts with abdominal radiography. Rapid initial diagnosis and treatment of the acute abdomen are crucial. The objectives of this study were to identify the demographic characteristics, preferred imaging modalities, operative diagnosis and preoperative delay among patients presenting to the emergency department with acute abdomen.
Methodology: This was a retrospective record based study**.** The study was conducted at Kamineni Institute of Medical Sciences Hospital, a tertiary care teaching institute. Study period was from January 2019 to December 2019. Data of patients admitted to the Emergency Department with acute abdomen and who were subsequently operated upon were included. Cases with a history of trauma, malignancy and conservatively managed patients were excluded from the study.
Results: A total of 156 non-traumatic abdominal emergencies were performed. The male to female ratio was nearly 2:1(65.38% males and 34.62% females. The most common diagnosis was hollow viscous perforation 96 (61%). The most common age group involved was 41-50 years with a mean age of 26 years. The average length of stay of the patients was 13.5 days. The most preferred imaging investigation performed to arrive at diagnosis was Ultrasonography combined with X-ray erect abdomen (38.83%). X-ray erect abdomen in combination with CT scan (24.72%) was the second most preferred investigation. In 55% of the cases surgery was started within 4 hours from time of admission.
Conclusion: The most common cause of emergency acute abdomen in our study was perforated hollow viscous. The choice of imaging modality is oriented by the clinical context and guided by the institutional capabilities, safety and cost-effectiveness of the available tests. We noticed that the most preferred imaging investigation performed to arrive at diagnosis was Ultrasonography combined with X-ray erect abdomen. Majority of the surgeries were performed within 4 hours of admission. Today the combination of improved diagnostic procedures, antibiotic and better anaesthesia and preoperative and postoperative patient care has led to a decrease in morbidity and mortality of patients with acute abdomen.
KEYWORDS: Acute abdomen, Abdominal radiographs, Abdominal perforation, Emergency surgeries

I. INTRODUCTION

Acute abdomen refers to intra-abdominal pathology, including thoracic pathology, with an onset of less than one week that may require urgent interventions, such as surgery. [(1)] It is a condition that demands urgent attention and treatment. The acute abdomen may be caused by an infection, inflammation, hollow viscous perforations, vascular occlusion or obstruction. The patient will usually present with sudden onset of abdominal pain and abdominal distension with / without associated nausea or vomiting. Most patients with an acute abdomen appear ill.[(2)] It is characterized by the presence of severe abdominal pain developing suddenly or over a period of several hours and constitutes a significant percentage of emergency admissions.[(3)] About 7% and 10% of emergency department visits are for abdominal pain.[(2)]

Abdominal pain is one of the most common reasons for visit to the emergency room. Acute appendicitis is the commonest cause. An

International Journal Dental and Medical Sciences Research
Volume 3, Issue 5, pp: 1389-1393 www.ijdmsrjournal.com ISSN: 2582-6018

accurate diagnosis is essential for the correct treatment, which in many cases will prevent the death of the patient. Mainstay of diagnosis is history and clinical examination combined with radiological evaluation. If this information is inadequate to establish a diagnosis where urgent or immediate operation can be delayed, the periodic re-examination helps document the progression of the disease and often avoids unnecessary surgical intervention. Today the combination of improved diagnostic procedures, antibiotic and better anesthesia and preoperative and postoperative patient care has led to a decrease in morbidity and mortality of patients with acute abdomen.

The common causes of an acute abdomen include appendicitis, perforated peptic ulcer, acute pancreatitis, ruptured sigmoid diverticulum, ovarian torsion, volvulus, ruptured aortic aneurysm, lacerated spleen or liver, and ischemic bowel. [(2)] Rapid initial diagnosis and treatment of the acute abdomen are crucial. Evaluation and treatment should be simultaneous. [(2)]

The ideal diagnostic imaging modality for evaluation of acute abdominal pain in adult patients at the emergency department should provide a balance between the highest diagnostic value and most accurate management changes on one hand, and lowest radiation exposure, discomfort, and duration of stay at the emergency department on the other hand, while ultimately resulting in the lowest cost to the health care system. [(4)]Imaging workup traditionally starts with abdominal radiography.[(5)] Standard abdominal radiography consists of three views, i.e, a supine abdominal view combined with an erect chest film and an upright abdominal view. [(6,7)] Diagnostic ultrasound is the preferred modality for cholecystitis, pediatric appendicitis, ruptured ectopic, and ovarian torsion.[(2)]The radiologist also plays a vital role in determining the cause. Without providing a proper history, the radiologist may not be sure what to look for or what additional radiologic exams may be needed.[(2)]

Emergency surgery has been defined as immediate life-saving operation where resuscitation is carried out simultaneously with surgical treatment. [(8)]An emergency procedure is one being performed on a patient whose clinical acuity is assessed by the clinician as requiring the surgery within 24hrs or in less than 72 hours where the patient is not physiologically stable enough to be discharged from hospital prior to the required surgery. [(9)]In developing countries it is not unusual for emergency operations to be delayed beyond 48 hours. [(10)]

II. METHODOLOGY

This was a retrospective record based study conducted at Kamineni Institute of Medical Sciences Hospital, a tertiary care teaching institute. Study period was from January 2019 to December 2019. All patients admitted to the Emergency Department with complaints of pain abdomen and who were subsequently operated upon during the study period was included. Cases with a history of trauma, malignancy and those which required to be managed conservatively were excluded from the study

III. RESULTS

A total of 156 non-traumatic abdominal emergencies were performed. The male to female ratio was nearly 2:1(65.38% males and 34.62% females). Only one death was reported in the post-operative period inside the hospital. The most common age group involved was 41-50 years with a mean age of 26 years. The average length of stay (ALOS) of the patients was 13.5 days. The most common diagnosis was perforated hollow viscous 96 (61 %). It was seen most commonly in the age group of 41-50 years (34%) followed by 31-40 years (26%). The most preferred imaging investigation performed to arrive at diagnosis was Ultrasonography combined with X-ray erect abdomen (38.83%). X-ray erect abdomen in combination with CT scan (24.72%) was the second most preferred investigation. In 55% of the cases surgery was started within 4 hours from time of admission.

IV. OBESERVATIONS

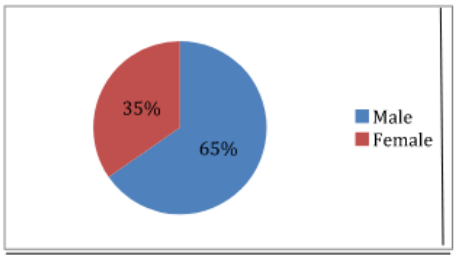

Figure 1: GENDER

International Journal Dental and Medical Sciences Research
Volume 3, Issue 5, pp: 1389-1393 www.ijdmsrjournal.com ISSN: 2582-6018

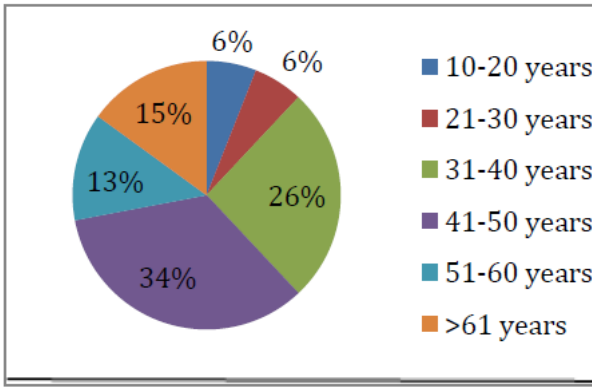

Figure 2: AGE

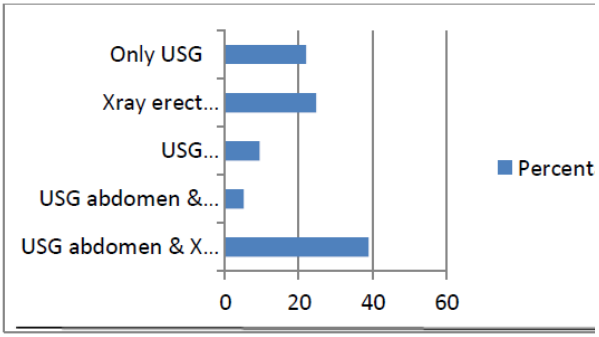

Figure 3: INVESTIGATION OF CHOICE FOR ACUTE ABDOMEN

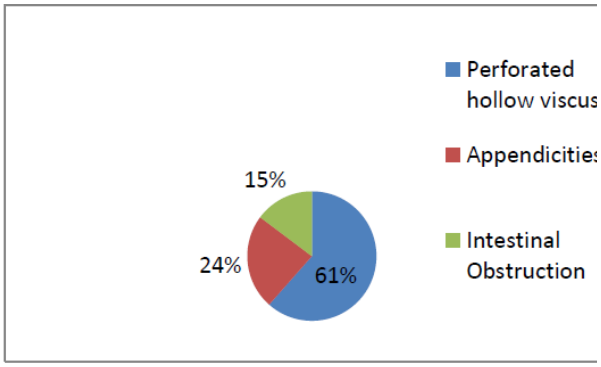

Figure 4: OPERATIVE DIAGNOSIS

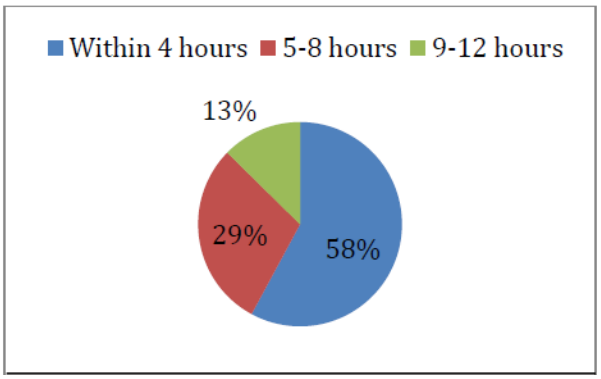

Figure 5: PREOPERATIVE TIME

V. CONCLUSION

Acute abdomen refers to intra-abdominal pathology, including thoracic pathology, with an onset of less than one week that may require urgent interventions, such as surgery. [1] It is a condition that demands urgent attention and treatment. The acute abdomen may be caused by an infection, inflammation, hollow viscous perforations, vascular occlusion or obstruction. The patient will usually present with sudden onset of abdominal pain and abdominal distension with / without associated nausea or vomiting. Most patients with an acute abdomen appear ill.[2] It is characterized by the presence of severe abdominal pain developing suddenly or over a period of several hours and constitutes a significant percentage of emergency admissions.[3] About 7% and 10% of emergency department visits are for abdominal pain.[2]

Abdominal pain is one of the most common reasons for visit to the emergency room. Acute appendicitis is the commonest cause. An accurate diagnosis is essential for the correct treatment, which in many cases will prevent the death of the patient. Mainstay of diagnosis is history and clinical examination combined with radiological evaluation. If this information is inadequate to establish a diagnosis where urgent or immediate operation can be delayed, the periodic re-examination helps document the progression of the disease and often avoids unnecessary surgical intervention. Today the combination of improved diagnostic procedures, antibiotic and better anesthesia and preoperative and postoperative patient care has led to a decrease in morbidity and mortality of patients with acute abdomen.

The common causes of an acute abdomen include appendicitis, perforated peptic ulcer, acute pancreatitis, ruptured sigmoid diverticulum, ovarian torsion, volvulus, ruptured aortic aneurysm, lacerated spleen or liver, and ischemic bowel. [2] Rapid initial diagnosis and treatment of the acute abdomen are crucial. Evaluation and treatment should be simultaneous. [2]

The ideal diagnostic imaging modality for evaluation of acute abdominal pain in adult patients at the emergency department should provide a balance between the highest diagnostic value and most accurate management changes on one hand, and lowest radiation exposure, discomfort, and duration of stay at the emergency department on the other hand, while ultimately resulting in the lowest cost to the health care system. [4]Imaging workup traditionally starts with abdominal radiography.[5] Standard abdominal radiography consists of three views, i.e, a supine abdominal view combined with

an erect chest film and an upright abdominal view. [6,7] Diagnostic ultrasound is the preferred modality for cholecystitis, pediatric appendicitis, ruptured ectopic, and ovarian torsion.[2]The radiologist also plays a vital role in determining the cause. Without providing a proper history, the radiologist may not be sure what to look for or what additional radiologic exams may be needed.[2]

Emergency surgery has been defined as immediate life-saving operation where resuscitation is carried out simultaneously with surgical treatment. [8]An emergency procedure is one being performed on a patient whose clinical acuity is assessed by the clinician as requiring the surgery within 24hrs or in less than 72 hours where the patient is not physiologically stable enough to be discharged from hospital prior to the required surgery. [9]In developing countries it is not unusual for emergency operations to be delayed beyond 48 hours. [10]

REFERENCES

[1]. Toshihiko Mayumi , Masahiro Yoshida, Susumu Tazuma, Akira Furukawa,Osamu Nishii, Kunihiro Shigematsu. The practice guidelines for primary care of acute abdomen 2015. Jpn J Radiol. 2016 Jan;34(1):80-115.

[2]. .Patterson JW, Dominique E. Acute Abdomen [Internet]. Treasure Island (FL):StatPearls; 2019 Nov 01[cited 2020 Feb 05]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK459328/

[3]. Gupta K, Bhandari R K, Chander R. Comparative study of plain abdomen and ultrasound in non-traumatic acute abdomen. Indian J Radiol Imaging [Internet] 2005 [cited 2020 Jan 27];15:109-15. Available from: http://www.ijri.org/text.asp?2005/15/1/109/28760

[4]. Gans SL, Stoker J, Boermeester MA. Plain abdominal radiography in acute abdominal pain; past, present, and future . Int J Gen Med. 2012 Jun;5:525-33.

[5]. Karkhanis S, Medcalf J. Plain abdomen radiographs: the right view? Eur J Emerg Med. 2009 Oct;16(5):267-70.Gould, L; Richeson, W; and Erickson, F., 1991, "Performance Evaluation of a Camless Engine Using Valve Actuation with Programmable Timing," SAE Paper No. 910450.

[6]. . Flak B, Rowley VA. Acute abdomen: plain film utilization and analysis. CanAssoc Radiol J. 1993 Dec;44(6):423-28.

[7]. Greene CS. Indications for plain abdominal radiography in the emergency department. Ann Emerg Med. 1986 Mar;15(3):257-60.

[8]. Camping EA, Delvin HB, Haile RW, Ingram GS, Lunn JL. Who operates when? A report of the confidential enquiry into perioperative death. London:NCEPOD;1997

[9]. Health Service Performance Improvement Branch. Emergency Surgery Guidelines.Sydney:NSW Health;2009.

[10]. Lankester BJA, Britton DC, Holbrook AG, Umpleby HC, Tate JT, Budd J. Emergency surgery: atavistic refuge for the general surgeon? J Roy Soc Med. 2001Apr; 94:180-2.

[11]. Lebowa, W., Skorus, U., Rapacz, K. *et al.* Indications for Emergency Abdominal Surgeries in Older Patients: 7-Year Experience of a Single Centre. *Indian J Surg* (2020). https://doi.org/10.1007/s12262-020-02203-0.

[12]. Geng WZM, Fuller M, Osborne B, Thoirs K. The value of the erect abdominal radiograph for the diagnosis of mechanical bowel obstruction and paralytic ileus in adults presenting with acute abdominal pain. J Med Radiat Sci. 2018 Dec;65(4):259–266.

[13]. Eisenberg RI, Heineken P, Hedgcock MW, Michael Federle, Goldberg HI, San Fransisco. Evaluation of plain abdominal radiographs in the diagnosis of abdominal pain. Ann Intern Med. 1981 Sept; 97:257-261.

[14]. Gupta K, Bhandari R K, Chander R. Comparative study of plain abdomen and ultrasound in non-traumatic acute abdomen. Indian J Radiol Imaging [serial online] 2005 [cited 2020 Feb 5];15:109-15. Available from: http://www.ijri.org/text.asp?2005/15/1/109/28760.

[15]. Mettler FA, et al. Effective doses in radiology and diagnostic nuclear medicine: a catalog. R*adiology*. 2008; 248: 254-63.

[16]. Gerald Jit Shen Tan, Er Luen Lim, Choon How How. A guide to requesting outpatient and emergency radiographs. Singapore Med J. 2012 July; 53(7):423-26.

[17]. de Burlet K, Lam A, Larsen P, Dennett E. Acute abdominal pain-changes in the way we assess it over a decade. NZMJ. 2017 Oct 06;130(1463):39-44.

[18]. Malviya A, Hussain A, Bulchandani HP, Bhardwaj G, Kataria S. A comprehensive study on acute non-traumatic abdominal emergencies. International Surgery Journal. 2017 Jun 22;4(7):2297-302

[19]. Gejoe G, Yadev Induprabha, M Rahul. Emergency laparotomies at a tertiary care center -a hospital based cross-sectional study. Indian J Surg. 2017 June;79(3):206–21.
[20]. Emergency abdominal surgery in Zaria, Nigeria adamu ahmed, m.b.b.s., f.w.a.c.s.mohammed dauda, m.b. b.s., f.w.a.c.s.stephen garba, m.b.b.s., f.w.a.c.s. yahaya ukwenya, m.b.b.s., f.m.c.s. (nig.), f.w.a.c.s.
[21]. Leppäniemi A. What is acceptable delay in emergency abdominal surgery? *Scandinavian Journal of Surgery*. 2013;102(2):54-54. doi:10.1177/1457496913490615