



## ACUTE ABDOMEN – PROSPECTIVE STUDY OF 50 CONSECUTIVE OPERATED CASES.

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### ABSTRACT

**Aims and Objectives:** In the present case series of 50 cases of acute abdomen have been studied to evaluate etiological factors of acute abdomen commonly presenting in tertiary hospital in urban population. We also compare the accuracy of history, clinical parameters, laboratory and radiological investigations in the diagnosis of cases of acute abdomen and further evaluate post-operative recovery till time of discharge of 50 consecutive cases of acute abdomen. **Method:** This study includes the hospital based prospective study of 50 consecutive cases of non-traumatic acute abdomen which were operated in a single surgical unit among urban population in tertiary hospital from December 2018 till October 2020. All patients included in our study were above 14 years of age and of both sexes. We excluded all patients who underwent conservative management, gynecological and urological cases. **Results:** In our study of 50 patients the maximum number of cases were from the age group 51-60 accounting to 30%. Males constituted 27 cases out of 50 and that of female 23 out of 50 patients. The mortality and morbidity increase with delay between time of onset of the symptoms and starting of the treatment. Acute pain was main presenting complaint with alcoholism was 26% and in 58% patients' distension was present. Tenderness was more common presenting symptom followed by fever was present. Most common radiological finding was gas under diaphragm and complication of wound infection. Out of 50 patients, 68% patients were admitted in hospital for 9- 14 days. **Conclusion:** From our study of 50 cases of acute abdomen following can be concluded that the commonest cause of acute abdomen is appendicitis. Appendicitis was found more among young adult females between 21-30 years of age. All patients 100% present with symptom of acute abdominal pain and fever as the second complaint. The morbidity and mortality in perforative peritonitis is reduced drastically due to advances in all fields of surgery, anesthesia and antibiotics.

**KEYWORDS :** Appendicitis, peritonitis, acute abdomen

### INTRODUCTION

Acute abdomen is defined as patient presents with symptoms and signs of intra-abdominal diseases mostly managed by surgical interventions. Most of these diseases may or may not require surgical management but has to be managed by clinicians with urgent therapeutic interventions [35].

In surgical emergencies, most common cause of admission in hospital casualty is acute abdominal pain [36]. When patient presents with the symptoms of severe abdominal pain with signs of guarding and muscle rigidity indicates peritonitis which requires immediate surgical interventions [36]. Any abdominal pain persisting for period of more than 6 days in spite of medical management usually require surgical intervention [36]. This indicates that acute abdomen cases are not surgical cases but can be managed with medical treatment.

Acute abdominal pain is the cardinal symptom of acute abdomen surgically and may have wide range of causes with life threatening conditions requiring emergency surgery [37]. Correct diagnosis and management may require a detailed history, clinical examination and appropriate investigation [38]. In emergency surgeries; acute abdomen is most common condition encountered routinely [38,39]. In developed countries, acute abdomen accounts for 36.4% of all surgical emergencies. Most common age presenting with acute abdomen cases is 22-29 years of age group and with male preponderance amongst sexes [39].

Acute abdominal pain requires timely and appropriate decision about need for surgical intervention which includes complete evaluation of patient's history, physical examination, laboratory findings and imaging studies. Most acute abdomen cases can be clinically diagnosed on the basis of symptoms and signs along with other diagnostic modalities such as like x-rays, USG, CT, MRI and laboratory investigations. Although these diagnostics modalities can

provide accurate diagnosis of the patient but are not available in every hospital set up in developing countries.

### Study Design

This study includes the hospital based prospective study of 50 consecutive cases of non-traumatic acute abdomen which were operated in a single surgical unit in tertiary hospital Kamothe from December 2018 till October 2020.

### Inclusion Criteria Of The Study:

1. 50 consecutive cases of non-traumatic acute abdomen which were operated in our surgical unit from Dec 2011 onwards.
2. Patients above 14 years of age.
3. Both male and female patients.

### Exclusion Criteria Of The Study:

1. Patients presenting with acute abdomen who were treated conservatively.
2. Patients with etiology of acute abdomen related to gynecological and obstetrics history.
3. Acute abdomen due to urological causes.

### RESULTS

Distribution according to Age:

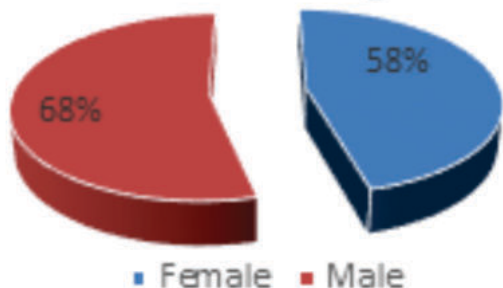
Table No.1

Age (in years)	No. of cases	Percentage
12-20	5	10%
21-30	7	14%
31-40	13	26%
41-50	10	20%
51-60	15	30%

It is clearly seen from the above table no.1 that, in our study of 50 patients the maximum number of cases were from the age group 51-60 (30%) and next in incidence is the 31-40 year of age group (26%).

**Distribution According To Gender:**

**Distribution According to Gender**

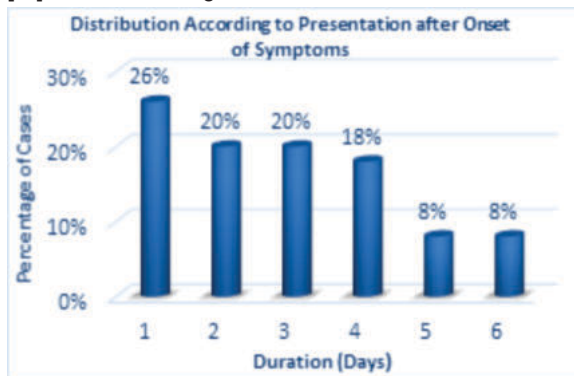


In our study males constituted 27 cases out of 50 and that of female 23 out of 50.

**Distribution According To Days:**

Days	No. of Cases	Percentage
1	13	26%
2	10	20%
3	10	20%
4	9	18%
5	4	8%
More than 5	4	8%

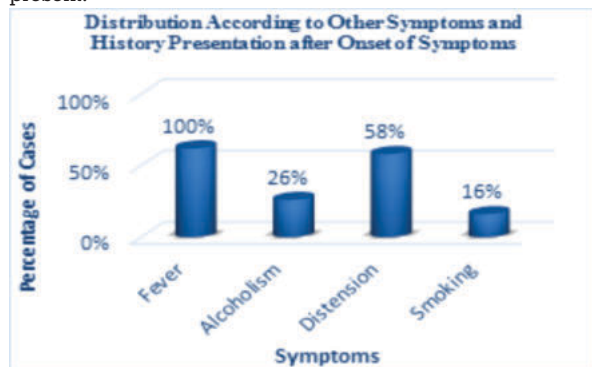
In our study 26% patients were presented to the hospital within 1 day of the start of the symptoms, 20% were presented within 2 days and 20% presented within 3 days. The mortality and morbidity increase with delay between time of onset of the symptoms and starting of the treatment.



**Distribution According to Other Symptoms and History Presentation after Onset of Symptoms:**

Symptoms	No. of Cases	Percentage
Pain	50	100%
Alcoholism	13	26%
Distension	29	58%
Smoking	8	16%

In all 50 patients' acute pain was main presenting complaint. Alcoholism was 26% and in 58% patients' distension was present.



**Distribution According to Physical Findings:**

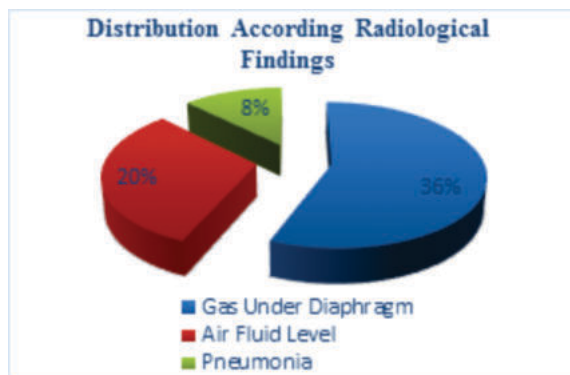
Physical Finding	No. of cases	Percentage
Fever	30	60%
Tenderness	48	96%
Guarding	30	60%
Rigidity	27	54%
Rebound tenderness	5	10%
Liver dullness Obliteration	18	36%

Tenderness was present in 96% patients. Fever was present in 60% patients. Guarding was present in 60% patients.

**Distribution According to Radiological Findings:**

Findings	Cases	Percentage
Gas under Diaphragm	18	36%
Air fluid level	10	20%
Pneumonia	4	8%

Gas under diaphragm was present in 36%.



**Distribution According to Incision:**

Incision	No. of Cases	Percentage
Midmidline	18	36%
Midline (Supraumbilical)	13	26%
Paramedian	2	4%
MCI (Mc Burney's Incision)	14	28%
Para inguinal	3	6%

36% patients opened by Midmidline incision.

**Distribution According To Operative Findings:**

Operative Findings	No. of Cases	Percentage
Duodenal Ulcer	8	16%
Ileal Perforation	3	6%
Appendix Perforation	1	2%
Obstruction	10	20%
Obstructed Hernia	3	6%
Appendicitis	15	30%

In Operative findings 30% cases were of appendicitis.

Intestinal perforation was 22% and 20% were obstruction.

**Distribution According to Contamination:**

Amount of fluid (in ml)	No. of cases	Percentage
< 500	10	20%
500-1000	27	54%
> 1000	13	26%

**Distribution According WBC Count:**

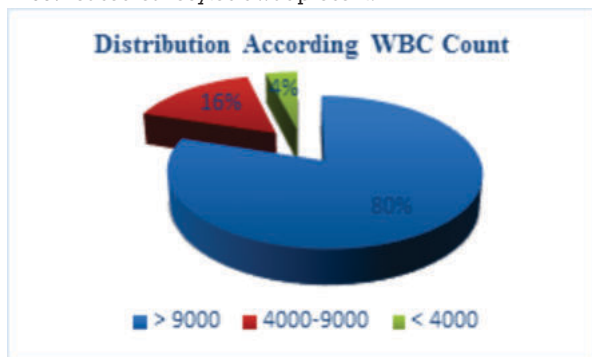
WBC Count	No. of Cases	Percentage
>9000	40	80%
4000-9000	8	16%
<4000	2	4%

**Distribution According Stay in Hospital:**

No. of Days	No. of Cases	Percentage
<9	9	19

9-14	32	68
>14	6	13

In 80% cases leukocytosis was present.



68% patients were admitted in hospital for 9-14 days.

**Distribution According To Complications Of Operation:**

Complication	No. of Cases	Percentage
Wound Infection	21	53%
Burst Abdomen	4	10%
Fecal Fistula	2	5%
Duodenal Leak	2	5%
Thrombophlebitis	25	25%
Renal Failure	1	3%

In 53% patients wound infection was present.

**DISCUSSION**

The results obtained in the present study were compared with previously conducted similar studies.

**Etiology Related Incidence:**

Etiology	Bhansali <sup>26,27</sup> 96 cases n (%)	Dandapat et al <sup>28</sup> 340 cases n (%)	Present study 50 cases (2011-2013)
Peptic perforation	48(50)	276(81.15)	8(16)
Typhoid	29(30.2)	25(7.3)	3(6)
Tuberculosis	07(7.3)	24(7.1)	1(1)
Others	06(6.25)	08(2.25)	1(1)

A clinical study by Bhansali (1967) on gastrointestinal perforation in Nair hospital shows that the commonest cause of the perforation was acid peptic disease (50%) and second one is the typhoid (30.2%). In the study of Dandapat<sup>28</sup> et al (1991), the incidence of etiology sustains its order with significant rise (50%- 81.15%) in peptic ulcer perforation. It might be due to raised stressful life and addictions like alcoholism, smoking etc. In the present study the order of incidence is same but incidence of peptic ulcer is 16%. The decline may be due to availability and judicious use of better antacids. Incidence of typhoid perforation is 6% and the decline may be due to early consultation with physician and wider options of chemotherapy. Chloramphenicol by shortening the duration of the disease has significantly reduced the incidence and severity of the majority of the typhoid complications, but it appears that it has not appreciably altered the incidence of hemorrhage and perforation (Woodward, S. Mandal and parker, 1954; Fairly, Woodruff and waters, 1961). This is because the pathological changes that had produced before the treatment of chloramphenicol therapy requires time to heal. (S.K. Bhansali.)

**Age Related Incidence:**

Age group	Dandapat <sup>28</sup> et al (1991) 340 cases n (%)	Present study (2011-2013) 50 cases. n=%
<20	50 (14.71)	10

20-40	208 (61.15)	40
>40	82 (24.12)	50

As evident in the above table, the commonest age group of patients of hollow viscous perforation is 20-40 in previous study and >40 in this study.

**Sex Related Difference:**

Perforations in the peptic ulcers are more common in men than in women. Prior to 1900, perforated ulcer was common in both of the sex. Between 1850-1900 there was essentially equal sex incidence affecting particularly in young women. By 1920, it was only 2% in women. However, there is gradual decrease in male: female ratio.

In England the incidence of perforation in males and females was noted as follows:

Author	Year	Males	Females	Ratio (M: F)
Lilingworth <sup>29</sup>	1924-1933	3450	1886	19:1
Jamieson <sup>30</sup>	1934-1943	5046	276	18:1
Jamieson <sup>30</sup>	1944-1953	5854	439	12:1
Mackey <sup>31</sup>	1954-1963	780	780	6:1

And in India,

Author	Year	Males	Females	Ratio (M: F)
Dandapat <sup>28</sup>	1991	304	36	8:4:1
Present study	2011-2013	23	17	1.35:1

From this it can be seen that while the number of the perforations in the males over the period of 1954-1963 has decreased and the number of the females shows an increased incidence progressively. Mackey<sup>31</sup> in 1976 had up-to-date previous report on perforated peptic ulcer in western Scotland, observed that male: female ratio, which has been declining steadily since 1934 had continued to fall. It was 4:4:1 in 1973.

In India Mohan Rao<sup>32</sup>(1944) has observed that perforations were three times common in males than females. This he attributed to the hard labour than the men are subjected to, with consequent alteration in the intra-abdominal pressure. Destur et al (1963) have reported ratio is 15:1men constitute about 93.75%.

The male: female ratio has fallen steeply from 19:1 to 3:1. In the present study it is documented as 1.35:1. This may be possible due to the increased literacy and health awareness and tendency for women to take on the responsibilities and occupations traditionally associated with men. In addition, in recent years a higher incidence of women has become heavy smokers (which may cause significant rise in incidence of peptic perforations in females).

**Incidence Of The Site Of The Perforation:**

Site	CDM Rao et al <sup>32</sup> (1984) 46 cases n (%)	Dandapat et al <sup>28</sup> (1991) 340cases n (%)	Present study (2011-2013) 50 cases n=%
Gastric	6(13.3)	28(8.2)	4(8)
Duodenum	20(43)	248(72.9)	4(8)
Ileum	18(39)	25(7.3)	3(6)
Others	2(4.35)	39(11.47)	1(2)

Although commonest perforation is at duodenum, its incidence (38%) is decreased in this study as compared to that of CDM Rao et al<sup>32</sup>(43%) and Dandapat et al<sup>28</sup> (72.9%). On the contrary, incidence of perforation at stomach is increased.

**Etiology And The Site Of The Perforation:**

Ratio	Illingworth et al (1925)	Jameison et al (1943)	Present study 2011-2013
D: G Perf	3:1	8:1	1:1

Illingworth et al [13,15] noticed the perforation of duodenum to

gastric in the ratio of 13:2 in 1925 the same team recorded a ratio of 3:1 and whereas in 1943, it has risen to 8 duodenal perforations to 1 gastric one as per Jameison *et al* [29]. Tones and Pollack *et al* gave the ratio of 5:5:1 for duodenal: gastric perforations. As in the west, in India also there is great preponderance than gastric perforations but since 1950 the incidences in gastric one is increasing. In the present study, it is evident that incidence of gastric and duodenal perforation is same 1:1.

**Incidence of symptoms:**

S/O	Dickson and Cole (1968) 38 cases n (%)	Present study (2011-2013) 50 cases n =%
Pain	38(100)	100
Vomiting	24(63.16)	72
Obstipation	20(52.63)	64
Distension	20(52.63)	58
Diarrhea	14(36.84)	0
Fever	24(63.16)	58

From the above comparison it is evident that acute abdominal pain is the only constant complaint by the patients with incidence of 100%. Other symptoms depend upon various factors like etiology, site of the perforation, the time lag between onset and presentation and general condition of the patient.

**Incidence Of The Signs:**

Signs	Archampong <i>et al</i> (1968) 121 cases n(%)	Present study (2011-2013) 50 cases n =%
Guarding	96(79)	62
Tenderness	121(100)	96
Rigidity	30(24)	54
Rebound tenderness	94(70)	10

The incidence of the rigidity in the study of Archampong *et al* was 24% and in the present study it is 54%. The increased incidence in the present study might be due to presentation of majority of the patients in their late stages of the diseases process, i.e., in the secondary and tertiary phase of peritonitis. It may be due to poverty and lack of health awareness.

**CONCLUSIONS**

From our study of 50 cases of acute abdomen following can be concluded that the commonest cause of acute abdomen is appendicitis. The second commonest cause is intestinal perforation. The peak age incidence of acute abdomen is between \_\_\_ years of age. Gas under diaphragm found to be present more often in cases of duodenal ulcer perforations than ileal perforations. Appendicitis was found more among young adult females between 21-30 years of age. Special emphasis is placed on preop preparation in the form of replacement of fluid and electrolyte is absolutely mandatory as surgery in hemodynamically compromised septic patients is hazardous. The commonest problem being faced are fluid and electrolyte imbalance and infection. Peritoneal lavage with saline is of immense value in decreasing the incidence of septic complications. Plain X-ray abdomen are invaluable aids to the diagnosis as these would give partial findings. 100% patients present with per abdominal tenderness. All patients 100% present with symptom of acute abdominal pain and fever as the second complaint. The patients who presented late have slower recovery. The mortality increases in case of poor health, old age associated illness, hypotension, at the time of admission, delay in surgical intervention and also extent of peritoneal contamination. Simple closure of perforation was found to be still adequate treatment for peptic perforation. The morbidity and mortality in perforative peritonitis is reduced drastically due to advances in all fields of surgery, anesthesia and antibiotics.

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