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A comprehensive study on acute non-traumatic abdominal emergencies

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ABSTRACT

Background: 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 physical examination. If this information is inadequate to establish a diagnosis and urgent or immediate operation is unnecessary, 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 anaesthesia and preoperative and postoperative patient care has led to a decrease in morbidity and mortality of patients with acute abdomen. The objective of this study was to determine the various causes of non-traumatic acute abdominal emergencies, their incidence, management and mortality in both sexes and all age groups >12 years age.
Methods: The Study was conducted on 1353 patients of non-traumatic abdominal emergencies admitted in the department of surgery, associated group of hospitals attached to Dr. Sampurnanand Medical College, Jodhpur over a period of 1 year extending from 1st January 2015 to 31st December 2015.
Results: Most common cause of acute non-traumatic emergency in our study is acute appendicitis 61.71% of the patients. Out of 1353 cases of non-traumatic acute abdominal emergencies, 217 (16%) were managed conservatively while 1136 (84%) were operated. 96.64% cases of acute appendicitis were operated and only 3.36% underwent conservative management. The rate of operative intervention in acute intestinal obstruction and acute cholecystitis was 89.09% and 85.71% respectively. 81.89% cases of hollow viscus perforation were operated while 18.11% were treated conservatively. Only 18.18% cases of liver abscess underwent operation while all patients of Meckel's Diverculitis were managed operatively. All patients of acute pancreatitis were managed conservatively. Overall mortality in our study of acute non-traumatic abdominal emergencies was 3.39%.
Conclusions: It can be concluded that acute non-abdominal emergencies admitted in the hospital constitute a major chunk of surgical patients, majority requiring operative management with limited mortality.

Keywords: Acute abdomen, Accurate diagnosis, Urgent treatment, Acute appendicitis

INTRODUCTION

Abdominal pain is one of the most common reasons for visit to the emergency room. Although for the majority of patients, symptoms are benign and self-limited, a subset develops acute abdomen as a result of serious intra-abdominal pathology necessitating emergency intervention.[1] The most difficult challenge is making a timely diagnosis so that treatment can be initiated and morbidity preserved. Common causes of acute abdominal pain include acute appendicitis, acute cholecystitis, acute bowel obstruction, urinary colic, perforated peptic ulcer,

acute pancreatitis, acute diverticulitis, and nonspecific, nonsurgical abdominal pain.[2] A thorough, yet expeditiously obtained, history and physical examination are paramount to developing the differential diagnosis for patients presenting with an acute abdomen.

Acute abdominal pain continues to provide a large workload for the general surgeon and also may present diagnostic and management problems. Different techniques have been introduced over the past two decades to help in the management of acute abdomen. An accurate diagnosis is essential for the correct treatment, which in many cases will prevent the death of the patient. Natural history of acute abdomen depends on the pathological process involved, which in some instances may resolve spontaneously with or without treatment and at other times may progress to generalized peritonitis and death. Hasty decisions are rarely necessary and if carried out may be incorrect or misleading.

The history and physical examination done by an unhurried surgeon remains the cornerstone of the diagnosis, which is confirmed by laboratory data and/or when necessary, by radiographic studies. If this information is inadequate to establish a diagnosis and urgent or immediate operation is unnecessary, the disease and often avoids unnecessary surgical intervention. 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. The aim of the study is to determine the various causes of non-traumatic acute abdominal emergencies, their incidence, management and mortality in both sexes and all age groups >12 years age.

METHODS

The present study was conducted on the patients of non-traumatic abdominal emergencies admitted in the department of surgery, associated group of hospitals attached to Dr. Sampurnanand Medical College, Jodhpur over a period of 1 year extending from 1st January 2015 to 31st December 2015.

Exclusion criteria

- Paediatric age group (12 years and below)
- Traumatic cases (blunt and penetrating)
- Acute abdomen in pregnancy and gynaecological causes of acute abdomen.

Detailed history and clinical examination of all patients were obtained from the case sheets. Routine investigations were also documented. Routine investigations were also documented. Findings of ultrasonography and CT abdomen pelvis are also noted. Relevant procedures were done in some patients. Operative findings and diagnosis were recorded. Final outcome was evaluated.

RESULTS

The present study was conducted on the patients of non-traumatic abdominal emergencies admitted in the department of surgery, associated group of hospitals attached to Dr. Sampurnanand Medical College, Jodhpur, Rajasthan, India over a period of 1 year extending from 1st January 2015 to 31st December 2015.

Table 1: Spectrum of diseases in patients with non-traumatic acute abdominal emergencies.

Diagnosis	No. of patients	Percentage
Acute appendicitis	835	61.71
Acute intestinal obstruction	146	10.79
Hollow viscus perforation	116	8.57
Acute cholecystitis	112	8.28
Acute pancreatitis	54	3.99
Liver abscess	44	3.25
Meckel's diverticulitis	19	1.40
Miscellaneous causes	27	1.99
Total	1353	100.00

Note: - 40 cases of appendicular perforation were excluded from hollow viscus perforation, which are included in acute appendicitis.

Table 1 reveals that the most common acute non-traumatic abdominal emergency in our hospital is acute appendicitis which accounted for 61.71% of the total patients. 10.79% patients presented with acute intestinal obstruction, followed by hollow viscus perforation and acute cholecystitis i.e., 8.57% and 8.28% respectively. Acute pancreatitis, liver abscess and Meckel's diverticulitis constituted 3.99%, 3.25% and 1.40% cases respectively.

Table 2: Operative diagnosis of acute appendicitis.

Operative diagnosis	No. of operated cases	Percentage
Acute appendicitis	717	88.84
Appendicular perforation	40	4.96
Appendicular lump	39	4.84
Appendicular abscess	8	0.97
Mucocele of appendix	3	0.39
Total	807	100

*Cases in whom appendix was found to be normal on operation were excluded from the series.

Table 2 reveals that out of 807 patients confirmed as acute appendicitis upon operation, 88.84% had inflamed appendix, while it was perforated in 4.96% of cases. Lump was encountered in 4.84% and appendicular abscess in 0.97% of cases. 0.39% had mucocele of appendix.

Table 3 demonstrates that the most common cause of acute intestinal obstruction was acute small bowel obstruction which was present in 87.67% of the patients as compared to large bowel obstruction which accounted for only 12.33% of the cases. The ratio of small bowel to large bowel obstruction is 7.11:1.

Table 3: Type wise distribution of patients of acute intestinal obstruction.

Acute intestinal obstruction	No. of patients	%
Small bowel	128	87.67
Large bowel	18	12.33
Total	146	100

Table 4: Type wise distribution of patients of acute small bowel obstruction.

Type	No. of patients	%
Adhesions and band/s	66	51.56
Obstructed hernia	24	18.75
Stricture/s	22	17.19
Acute mesenteric ischemia	7	5.48
Intussusception	3	2.34
Malrotation of small bowel	3	2.34
Internal hernia	2	1.56
Foreign body in the lumen	1	0.78
Total	128	100

Table 4 reveals that most common cause of acute small bowel obstruction is adhesions and band/S accounting for 51.56% of patients. Obstructed hernia accounted for 18.75% cases closely followed by strictures (17.19%). Acute mesenteric ischemia was seen in 5.48% of patients while both intussusception and malrotation of small bowel were encountered in 2.34% cases each. Internal hernia and foreign body in small bowel lumen were noted in 1.56% and 0.78% cases respectively.

Table 5: Type wise distribution of cases of acute large bowel obstruction.

Type	No. of cases	%
Caecal volvulus	5	27.78
Sigmoid volvulus	1	5.55
Carcinoma of sigmoid colon	6	33.33
Carcinoma of caecum	4	22.22
Carcinoma of splenic flexure of colon	1	5.55
Carcinoma of rectum	1	5.55
Total	18	100

Table 5 shows that carcinoma of sigmoid colon is the most frequent cause of large bowel obstruction seen in 33.33% of patients, followed by caecalvolvulus in 27.78% of cases.

Table 6: Site wise distribution of cases of hollow viscus perforation.

	Total	%
Gastric	23	19.83
Duodenal	45	38.79
Jejunal	5	4.31
Ileal	17	14.66
Caecal	4	3.45
Sigmoid diverticular	1	0.86
Undiagnosed	21	18.10
Total	116	100

*Among 17 cases of ileal perforation 13 cases (76.47%) were enteric and 4 cases (23.53%) were tubercular.

Table 6 reveals that duodenal perforation was most common accounting for 38.79% of cases while gastric perforation was seen in 19.87%. Ileal perforation was present in 14.67% of cases and jejunal and caecal perforations accounted for 4.31% 3.45% of cases respectively, Sigmoid diverticular perforation, a rare occurrence was present in 1 (0.86%) patient.

Out of a total of 116 cases, 21(18.1%) were not operated since they were unfit to undergo an operative procedure.

Table 7: Distribution of cases of acute cholecystitis.

Diagnosis	Total	%
Acute calculous cholecystitis	111	99.10
Acute acalculous cholecystitis	1	0.90
Total	112	100

Table 7 depicts that acute cholecystitis is mainly due to acute calculous cholecystitis.

Table 8: Type wise distribution of cases of acute pancreatitis.

Acute pancreatitis	Total patient	%
Alcoholic	19	35.18
Gall stone	20	37.04
Idiopathic	15	27.78
Total	54	100

*Cases of pseudo pancreatic cyst presented a lump abdomen were excluded from the series.

Table 8 reveal that acute gall stone pancreatitis accounted for 37.04% cases for acute pancreatitis. Acute alcoholic pancreatitis accounted for 35.18% cases, followed by acute idiopathic pancreatitis accounting for 27.78% cases.

Table 9 depicts that out of 1353 cases of non-traumatic acute abdominal emergencies. 217 (16%) were managed conservatively while 1136 (84%) were operated.

96.64% cases of acute appendicitis were operated and only 3.36% underwent conservative management. The rate of operative intervention in acute intestinal

obstruction and acute cholecystitis was 89.09% and 85.71% respectively. 81.89% cases of hollow viscus perforation were operated while 18.11% were treated conservatively. Only 18.18% cases of liver abscess underwent operation while all patients of Meckle's Diverculititis were managed operatively. All miscellaneous cases (1.99%) were cases of negative appendicectomy and included right ovarian cyst, mesenteric adenitis and nonspecific causes.

Table 9: Management of acute non-traumatic abdominal emergencies.

Diagnosis	Operative	%	Conservative	%
Acute appendicitis	807	96.64	28	3.36
Acute Intestinal obstruction	130	89.09	16	10.91
Hollow viscus perforation	95	81.89	21	18.11
Acute cholecystitis	96	85.71	16	14.29
Acute pancreatitis	0	0	54	100
Liver abscess	8	18.18	36	81.82
Meckels diverticulitis	19	100	0	0
Miscellaneous causes	27	100	0	0
Total	1136	84.00	217	16.00

Table 10: Mortality rate in diseases of non-traumatic acute abdominal emergency.

Diagnosis	No. of total cases	%	No. of cases expired	%	Mortality rate
Acute appendicitis	835	61.71	0	0	0
Small bowel obstruction	128	9.46	12	26.08	9.3
Large bowel obstruction	18	1.33	2	4.34	11.11
Hollow viscus perforation peritonitis	116	8.57	22	47.84	18.96
Acute cholecystitis	112	8.28	2	4.34	1.78
Acute pancreatitis	54	3.99	8	17.40	14.82
Live Abscess	44	3.25	0	0	0
Meckel's diverculitis	19	1.4	0	0	0
Miscellaneous	27	1.99	0	0	0
Total	1353	100	46	100	3.39

Table 10 depicts that highest incidence (47.84%) of mortality was found in hollow viscus perforation followed by small bowel obstruction (26.08%), acute pancreatitis (17.40%) acute cholecystitis and acute large bowel obstruction while contributed to 4.34% each. No mortality was reported in cases of acute appendicitis, liver abscess, Meckel's diverticulitis and miscellaneous causes of non-traumatic acute abdominal emergencies i.e. right ovarian cyst, mesenteric adenitis and non-specific cause. Now, when comparing the mortality rates, Table 10 shows that highest mortality rate of 18.96% was observed in hollow viscus perforation peritonitis followed by acute pancreatitis (14.82%), acute large bowel obstruction (11.11%), acute small bowel obstruction (9.3%) and lastly acute cholecystitis (1.78%). Overall mortality in our study of acute non-traumatic abdominal emergencies was 3.39%.

DISCUSSION

Most common cause of acute non-traumatic emergency in our study is acute appendicitis (61.71%), followed by acute intestinal obstruction (10.79%), hollow viscus perforation (of non 8.57%), acute cholecystitis (8.28%), acute pancreatitis (3.99%), liver abscess (3.25%) and Meckel's diverticulitis (1.40%).

Highest incidence (27.64%) of acute non-traumatic emergencies was seen in 21-30 years age group. Similar trend of age was noted by Aijaz A et al.[3] 56.39% cases of acute non-traumatic emergencies were males and rest (43.61%) were females.

Acute appendicitis

Acute appendicitis accounted for 61.71% cases of acute non-traumatic emergencies. Compared to other studies we had higher incidence of acute appendicitis (Aijaz A et al observed 35%, Chanana L et al noted 30.60%).[3,4] the higher incidence could be attributed due to the fact that in our studies medical, urological and gynaecological cases were excluded. Out of 835 cases of acute appendicitis 28 (3.35%) were managed conservatively while 807 (96.65%) were operated.

Out of 807 patients confirmed as acute appendicitis upon operation 88.94% have inflamed appendix while 4.96% was perforated. Lump (4.84%), appendicular abscess (0.97%) and mucocele (0.39%) were noted. There was no mortality in cases of acute appendicitis in our study. Guller U, Hervey S, Purves H, et al reported mortality of around 0.3% in appendicectomy.[5]

Acute intestinal obstruction

Acute intestinal obstruction accounted for 10.79% case and was second leading cause of non-traumatic acute abdominal emergencies. A retrospective study by Aijaz A also noted that intestinal obstruction was the second leading cause accounting for 28.5% of cases. 87.67% cases of acute intestinal obstruction were due to small bowel as compared to 12.33% due to large bowel with ratio of small bowel to large bowel obstruction is 7.11: 1.[3] This is in concordance to study done by Drozdz W. Budzyriski P where he observed that small bowel is involved in about 80% of cases.[6]

Acute small bowel obstruction

Most common cause of acute small bowel obstruction was adhesions and bands (51.56%) followed by obstructed hernia, tubercular stricture, intussusception, malrotation Internal hernia and foreign body in small bowel lumen accounted for 18.75%, 5.48%, 2.34%, 2.34%, 1.56% and 0.78% cases respectively. Out of 128 patients of small bowel obstruction 12.5% patients were managed conservatively and rest (87.5%) were operated.

Highest mortality (42.85%) in acute intestinal obstruction was due to acute mesenteric ischemia, followed by adhesions and band/s (28.57%), and 14.29% in both obstructed para umbilical hernia and malignancy of large bowel.

Acute large bowel obstruction

Acute large bowel obstruction accounted for 1.33% cases. Carcinoma of sigmoid colon (33.33%) is the most frequent cause of large bowel obstruction followed by caecal volvulus in 27.78%. Carcinoma of caecum accounted for 22.22% cases while sigmoid volvulus, carcinoma of splenic flexure of the colon and carcinoma of rectum, accounted for only 5.55% of cases each. All cases of acute large bowel obstruction were operated with mortality observed with 11.11%.

Hollow viscus perforation

Hollow viscus perforation accounted for 8.57% cases. Duodenal perforation was most common cause accounting for 38.79% of cases while gastric perforation was seen in 19.83%. A Study by Jhobta RS et al of 504 consecutive cases of perforation peritonitis in GMCH, Chandigarh, also found duodenal ulcer (57.34%) as the most common cause of perforation.[7] Out of total 116 cases of hollow viscus perforation 58.62% cases were due to upper G.I.T. perforations (peptic), 23.27% lower G.I.T and 18.11% undiagnosed cases. These results are similar to other studies conducted in India and tropical countries whereas in western literature, lower gastrointestinal tract perforations predominate. 18.10% cases of hollow viscus perforation were managed conservatively while 81.90% by operation. All conservatively managed cases presented in septicemic shock and were unfit to undergo operative management. Mortality was higher (90.48%) in cases of hollow viscus perforation managed conservatively compared to those managed operatively (3.15%), with overall mortality of 18.96% while Jhobta RS et al, Kemparaj T et al, Bangalore noted overall mortality and 13.8% respectively.[7,8,10]

Acute cholecystitis

Acute cholecystitis accounted for 8.28% cases while in study done by Brewer BJ et al, it accounted for 3%-10%.[9,10] 99.10% of cases of acute cholecystitis were due to acute calculous cholecystitis and only 0.90% due to acute acalculous cholecystitis.

Acute pancreatitis

Acute pancreatitis accounted for 3.99% cases. Gall stone disease (37.04%) was found to be the most common aetiology followed by alcoholic pancreatitis (35.18%) and Idiopathic pancreatitis (27.78%). These findings are consistent with study conducted by McEntee et al.[11] All cases of acute pancreatitis managed conservatively, as cases of pseudo pancreatic cyst presented a lump abdomen were excluded from the series. Mortality rate in acute pancreatitis is 14.81%.

Liver abscess

Liver abscess accounted for 3.25% cases. 81.82% cases of liver abscess were managed conservatively 18.18% were operated following rupture. There was no Mortality in liver abscess.

Meckel's diverticulitis

Meckel's diverticulitis accounted for 1.40% cases.

Management

Out of 1353 cases of non-traumatic acute abdominal emergencies, 217 (16%) were managed conservatively while 1136 (84%) were operated.

96.64% cases of acute appendicitis were operated and only 3.36% underwent conservative management. The rate of operative intervention in acute intestinal obstruction and acute cholecystitis was 89.09% and 85.71% respectively. 81.89% cases of hollow viscus perforation were operated while 18.11% were treated

conservatively. Only 18.18% cases of liver abscess underwent operation while all patients of Meckel's Diverculititis were managed operatively. All patients of acute pancreatitis were managed conservatively.

Mortality

Highest incidence (47.84%) of mortality was found in hollow viscus perforation followed by small bowel obstruction (26.08%) acute pancreatitis (17.40%) while acute cholecystitis and acute large bowel obstruction contributed to 4.34% each. No mortality was reported in cases of acute appendicitis, Liver abscess, Meckel's diverticulitis and miscellaneous causes of non-traumatic acute abdominal emergencies i.e. right ovarian cyst, mesenteric adenitis and non-specific cause.

Overall mortality in our study of acute non-traumatic abdominal emergencies was 3.39%.

CONCLUSION

Acute non-abdominal emergencies admitted in the hospital constitute a major chunk of surgical patients, majority requiring operative management with limited mortality.

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