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Clinical study on hollow viscus perforation at tertiarycare teaching hospital, Silchar, India

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ABSTRACT
Conclusions: GI hollow viscus perforations cause significant morbidity and occasionally mortality. Hollow viscus perforation is the common cause of acute abdomen requiring immediate effective surgical attention.**Background:** Gastrointestinal perforation is a common abdominal emergency having a high morbidity and mortality. Surgery plays a vital role in the management of perforation. **Methods:** 100 cases of hollow viscus perforation of the abdomen have been studied prospectively extensively during the period from May 2021 to April 2023. Cases were selected randomly from admissions in Silchar Medical College and Hospital, Silchar, Assam, India. Clinical diagnosis of hollow viscus perforation verified by investigations or by laparotomy performed **Results:** The results procured in the present study were analyzed: Among hollow viscus perforation appendicular perforation was widespread (42 out of 100 cases). Next being duodenal ulcer perforation. Age group of 20-40 years were affected mostly. Higher percentage males are affected than females. Signs and symptoms of acute abdomen such as acute abdominal pain vomiting fever may present tachycardia, hypotension, abdominal tenderness guarding\rigidity with obliteration of liver dullness and lack of bowel sounds and absolute constipation were predominant signs. A proper early diagnosis and appropriate treatment can hinder complications. Surgical approach varies with the site, size, age of perforation and number of perforations
Keywords: Abdominal emergency, Morbidity, Mortality,Clinicalpresentation,Management

I. INTRODUCTION

Perforation of a hollow viscus from wide variety of causes comprises the predominant portion of emergency surgical admissions and emergency laparotomies[1]. Missed diagnosis and late intervention are common causes of high morbidity and mortality especially in patients who survive the initial phase of insult. Diagnosis and treatment of hollow viscus perforation remains a formidable issue in our country[2]. A vast majority of perforation of stomach and duodenum are due to complications of peptic ulceration. Perforation of large intestine represents a huge surgical challenge to the clinician[3] as it is a rapidly fatal condition death due to sepsis from peritoneal contamination with various pathogens both aerobic and anaerobic[4]. Main goals of treatment are to control sepsis, to minimize contamination and treat the underlying cause. Surgery plays a vital role in the management of perforation. The structure of the hollow viscera is more fragile than parenchymatous organ and even minor degrees of trauma can lead to serious injury[4,5]. This clinical study was undertaken to find the age and sex incidence etiological factors and clinical features of different types of perforations. It also analyses the common type of perforations and its presentations, complications arising post operatively and lastly to analyses the prognosis in our setup from the basis of present study[7].

Goal of the study

• To present the issue of hollow viscus perforation due to variety of causes.
• To analyse the age, sex incidence and clinical features of hollow viscous perforations
• To study the most frequent type of perforation in our study
• To analyse the postoperative complications.
• To assess the prognosis of every type of hollow viscous perforations.

METHODS

100 cases of hollow viscus perforation of the abdomen have been studiedthoroughly during the period from May 2021 to April 2023. Cases were selected randomly from admissions in Silchar Medical College and Hospital, Silchar, Assam, India. Clinical diagnosis of hollow viscus perforation verified by investigations or by laparotomy performed.

Investigations done were:

- Routine bloodandurineroutine.

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- Urea, Creatinine andelectrolytes.
- X ray abdomen erect view to detect free gas under diaphragm.
- USGabdomenandpelvis.
- Widal test was performed in suspected enteric perforation.

In each case close monitoring of vital signs and preoperative correction of fluid and electrolyte imbalance was done. Ceftriaxone and metronidazole were used in all cases. Antibiotics were changed depending on culture and sensitivity report. Explorative laparotomy was done under general anesthesia in all cases. Right paramedian incision, upper midline or lower midline incision was made in accordance with the suspected site of perforation. Viscera was inspected carefully, the site of perforation located and appropriate surgical procedure was performed. Peritoneal toilet with normal saline was performed and peritoneal cavity was drained. Postoperatively patients were put on continualnaso gastric aspiration intravenous fluids and antibiotics. Vital signs were observed. Study of intake and output was done. Recovery was observed in the patients and any complications which happened during the course were noted

II. RESULTS

Totalnumberofcasesconsideredinthisstudyis100,admitted in the Department of General Surgery, Silchar Medical College and Hospital, Silchar, Assam. The results of thestudyare discussedasfollowing.

Table no. 1-Age distribution

Age	No. of patients	Percentages
<20	20	20%
21-40	40	40%
41-60	30	30%
>60	10	10%
Total	100	100%

Maximum number of patients (40) were in the age group of 21 to 40 years

Table no. 2-Sex distribution

Sex	No. of patients	Percentages
Male	82	82
Female	18	18
Total	100	100%

In present study there were 82 male patients (82%) and 18 female patients (18%).

Table no. 3-Site of perforation

Site	No. of cases	Percentage
Duodenal ulcer	25	25%
Appendicular perforation	42	42%
Gastric ulcer	12	12%
Meckel's diverticulum	2	2%
Typhoid perforation	2	2%
Traumatic	10	10%
Jejunum	1	1%
Ileum	6	6%
Total	100	100%

Most common site of perforation was appendicular perforation (42%) Next was duodenal perforation (25%). No of patients who had traumatic injury of abdomen was 10 -among which 4 ileal perforation 1 jejunal and 2 large bowel perforation due to penetrating injury. And perforation at DJ junction seen in 3 patients following blunt trauma abdomen, Meckel's diverticulum was found in 2 patients. Duodenal ulcer perforation was in the first part of duodenum and was frequent in males. In duodenal ulcer perforation history of drug intake was the general etiology. Gastric ulcer perforation general etiology was alcohol intake/smoking. Abdominal

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Tuberculosis and Typhoid were the common etiology in ileal perforation

Table no. 4- Relation between sex and site of perforation

Sex	Duodenal	Gastric	Appendicular	Meckels	Jejunal	Ileal
Male	22	11	35	1	1	4
Female	3	1	7	1	0	2
Total	25	12	42	2	1	6

Table no. 5- Duration

Duration	No. of patients	Percentage
0-12hours	12	12%
13-24hours	70	70%
24-48hours	14	14%
49-72hours	4	4%
Total	100	100%

Most patients presented within 24 hours and 70 out of 100 patients presented within 13 to 24 hours of the onset of symptoms in this study.

Table no. 7- Signs and Symptoms

Symptoms and signs	**No. of patients**
Fever	80
Pain abdomen	96
Vomiting	90
Distension	88
Constipation	50
Diarrhea	10
Tenderness	
Right Iliac Fossa	25
All quadrants	88
Guarding	92
Obliterated liver dullness	70
Free fluid	65
Bowel sound absent	82
Air under diaphragm	80
Fluid levels	20
ADA/AFB/CB-NAAT	4
Blood Widal	2

In the present study every case of appendicular perforation presented with symptoms of abdominal pain, vomiting and fever but there was no gas under the diaphragm. All the cases with duodenal ulcer perforation presented with all signs listed above. Gas under the diaphragm were present in all cases.

Patients included in this study were managed in accordance with the standard measures. Preoperative resuscitation in cases of shock and correction of electrolyte abnormality were carried out in every patient. After preoperative treatment all cases were subjected to laparotomy and the primary cause was detected and treated accordingly. (Table 8)

Table no. 8 –Diagnosis and Surgical Procedure

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Diagnosis	Surgical procedure adopted	No. of patients
Duodenal ulcer	Closure of perforation with omentum and peritoneal lavage	25%
Gastric	Closure of perforation with omentum and peritoneal lavage	12%
Ileal perforation with gangrene of the terminal ileum	Excision of 1.5 feet of terminal ileum with ileotransverse end to side anastomosis with peritoneal lavage	6%
Jejunal and ileal perforation due to penetrating/blunt injury	Ileo ileal end to end anastomosis, jejunum proximal end to end anastomosis	10%
Meckel's diverticulum	Diverticulectomy with end-to-end ileal anastomosis	2%
Appendicular perforation	Appendicectomy with peritoneal lavage	42%

Complications

1- Burst abdomen was observed in 2 cases who were managed by secondary suturing

2- Surgical site infection in eightcases.

3- Basal pneumonia as a postoperative complication observed in three cases

Mortality

3 deaths were noted in the present study caused by Septicemia orARDS with septicemia:

III. DISCUSSION

GI hollow viscus perforation constitute one of the significant causes of abdominal pain in adults. Appendicular perforation was the most common factor. Most of appendicular perforation patients having history of constipation. Duodenal ulcer perforation is common in the 1stpart of duodenum and more commonly seen in males. The other causes of GI hollow viscus perforations were acid peptic disease, abdominal tuberculosis. enteric fever, amoebic colitis, trauma, malignancy, tuberculosis, iatrogenic injuries which constitute significant portion of emergency surgical admissions. Majority of traumatic perforations are due to road traffic accidents. Early diagnosis and emergency explorative laparotomy improves results. The high incidence of duodenal ulcer perforation is caused by alcoholism, smoking and incomplete treatment of H. pylori.[8] NSAID abuse also plays an important role in duodenal ulcer perforation. Irrespective of the pathology of perforation the maximum incidence was in males aged between twenty and forty years. Tubercular perforations related to the ileocecal junction are treated by right hemicolectomy. For appendicular perforation emergency appendicectomy with peritoneal lavage is enough.[9] Nowadays iatrogenic perforations are common because of minimally invasive or endoscopic procedures. The incidence of perforation caused by upper GI endoscopy was 1.2%. Perforations of the proximal region is most frequent in India and distal perforation are frequent in western countries.[11]

IV. CONCLUSION

This is a prospective randomized study consisting of 100 cases of hollow viscus perforation of abdomen selected from Department of General Surgery, Silchar Medical College and Hospital, Silchar, Assam from May 2021 to April 2023… Each case of this study group were subjected to pre operative standard investigations and after pre operative resuscitative measures, exploratory laparotomy was performed and after distinguishing site of perforation suitable standard surgical procedures adopted.

The results achieved in the present study were analyzed:

• Among hollow viscus perforation appendicular perforation was common (42 out of 100 cases), most of appendicular perforation patients having history of constipation second being duodenal ulcer perforation

• Age group of twenty-forty years were affected mainly

• Males are affected more in comparison to females

• Signs and symptoms of acute abdomen such as acute abdominal pain vomiting fever may present tachycardia, hypotension, abdominal tenderness guarding\rigidity with obliteration of liver dullness and lack of bowel sounds and absolute constipation were predominant signs

• Hollow viscus perforation is the frequent cause of acute abdomen requiring immediate effective surgical attention.

• In this study Burst abdomen was seen in 2 cases who were managed by secondary suturing, Surgical site infection in 8 cases and 3 cases of basal pneumonia as a postoperative complication observed
• 3 death wereobserved in the present study due to Septicemia orARDS with septicemia:

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