

Clinical Presentation of Patients Presenting with Gas Containing Hollow Viscus Perforation

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Abstract

Introduction: The ruptured or perforated viscus challenges the surgeon's skill as a technician and his knowledge of preoperative, transoperative and post-operative care of the severely ill surgical patient and assessment needed to decrease both the morbidity and mortality of patients significantly. **Methodology:** This study has been based on the analysis of 40 cases of hollow viscus perforation and each patient was examined thoroughly, after taking a detailed history. Clinical diagnosis of hollow viscus perforation is made based on history and physical examination which will be confirmed by investigations and laparotomy. **Results:** Out of 40 cases in this study, 16 patients presented with appendicular perforation (40%), duodenal ulcer perforation was in 11 patients (27.5%), typhoid perforation was in 5 patients (12.5%), 2(5%) patients had small bowel gangrene perforation due to stricture and adhesions, one patient had tubercular perforation (2.5%), one patient had malignancy of left colon presented as perforation (2.5%), 3 patients had traumatic perforation each one in duodenum (2.5%), ileum (2.5%) and intraperitoneal rectum (2.5%). **Conclusion:** Most common site of perforation was appendix followed by duodenum

Keywords: Appendix; Hollow Viscus; Perforation.

Introduction

Perforation of gas containing hollow viscus organs usually gives rise to a life threatening emergency which is most commonly managed by general surgeons [1].

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Perforation of gas containing hollow viscus still covers a large number of hospital emergencies in developing countries despite the improvement of diagnostic and treatment facilities of conditions causing this problem.

It is a leading cause of morbidity and mortality in all age group in our country. It constitutes a serious surgical emergency which needs intervention after adequate resuscitation and time spending from occurrence of perforation to operation is the most important factor for its management [2].

The ruptured or perforated viscus challenges the surgeon's skill as a technician and his knowledge of preoperative, transoperative and post-operative care of the severely ill surgical patient and assessment needed to decrease both the morbidity and mortality of patients significantly [3].

Clinical examinations supported by simple radiology are almost sufficient to take decision for laparotomy. If general condition of the patient and other situations permit, definitive surgery for the pre-existing causative factor can be performed successfully during the same setting.

Surgeon must continually reassess standard method of treatment and be receptive to new ideas.

Methodology

This study has been based on the analysis of 40 cases of hollow viscus perforation and each patient was examined thoroughly, after taking a detailed history. Clinical diagnosis of hollow viscus perforation is made based on history and physical examination which will be confirmed by investigations and laparotomy.

The investigations done in the cases selected for study were the following.

1. Blood investigations- Hb%, TC, DC, ESR, blood grouping, HIV/HBsAg.
2. Widal test was done in suspected enteric fever.
3. Serum electrolytes for correction of electrolyte imbalance
4. Urine examination
5. Erect abdomen X-ray to detect free gas under diaphragm.
6. Ultrasound abdomen and pelvis
7. Four quadrant paracentesis done in few cases with free fluid in peritoneum.

Preoperative resuscitation of patients was done by fluids and electrolyte imbalance was corrected. Antibiotics like 3rd generation cephalosporins and metronidazole were used initially, later shifted according to culture and sensitivity.

Exploratory laparotomy was done under general anaesthesia. Midline incision either upper or lower or right paramedian incision was made depending on the suspected site of perforation.

Viscera was inspected carefully, the site of perforation noted and appropriate surgical procedure like closure of perforation by omentopexy or closure

in two layers done and definitive procedure like bilateral truncal vagotomy with pyloroplasty, resection and end to end anastomosis was performed if required. Peritoneal lavage with normal saline done and peritoneal cavity was drained. Post operatively patients were put on continuous nasogastric aspiration, intravenous fluids, analgesics and antibiotics. Vitals, input/output of fluids, biochemical parameters were monitored in postoperative period.

Postoperative complications noted, treated accordingly. Patients were discharged on recovery. Patients were followed upto 3 months but few patients didn't turn up after discharge.

Inclusion Criteria

Patients presenting with perforation of hollow viscus that is between the esophagogastric junction to intra peritoneal rectum in any age.

Exclusion Criteria

Patients with gall bladder perforation are excluded.

Patients with acute abdomen other than perforation are excluded.

Results

Table 1: Age distribution

Age in years	No. of patients	Percentage
<20	8	20
20-40	13	32.5
41-60	15	37.5
>60	4	10
Total	40	100

Table 2: Sex distribution

Sex	No. of patients	Percentage
Male	32	80
Female	8	20

Table 3: Aetiology of perforation

	Aetiology	No. of patients	Percentage
A. Non-traumatic			
1.	Acute appendicitis	16	40
2.	Acid peptic disease -stomach -duodenum	11	27.5
3.	Typhoid	5	12.5
4.	Tubercular	1	2.5
5.	Small bowel gangrene	2	5
6.	/obstruction malignancy	1	2.5
B. Traumatic			
1.	Duodenum	1	2.5
2.	Ileal	1	2.5
3.	Rectal	1	2.5

There were 8(20%) patients in the age group of less than 20 years, 13(32.5%) patients in the age group of 20-40, 15(37.5%) patients in 41-60 age group and 4(10%) patients in >60 age group.

In this study most of the patients with hollow viscous perforation were in the age group of 41-60 years followed by the age group of 20-40 years group. Mean age was 35.52 years.

There were 32(80%) male patients and 8(20%) females in our study.

Out of 40 cases in this study, 16 patients presented with appendicular perforation (40%), duodenal ulcer perforation was in 11 patients (27.5%), typhoid

perforation was in 5 patients (12.5%), 2(5%)patients had small bowel gangrene perforation due to stricture and adhesions, one patient had tubercular perforation (2.5%), one patient had malignancy of left colon presented as perforation (2.5%), 3 patients had traumatic perforation each one in duodenum (2.5%), ileum (2.5%) and intraperitoneal rectum (2.5%).

Most common cause for perforation was appendicitis followed by duodenal ulcer or acid peptic disease and typhoid perforation.

In our study most common site of perforation was appendix (40%), followed by duodenum (30%).

Table 4: Site of perforation

Site of perforation	No. of cases	Percentage
Gastric	1	2.5
Duodenum	12	30
Jejunum	1	2.5
Ileum	8	20
Appendix	16	40
Colon	1	2.5
Rectum	1	2.5

Table 5: Relation between age and site of perforation

Age group in years	Stomach	Duodenum	Jejunum	Ileum	Appendix	Colon	Rectum	Total
<20	0	1	0	2	5	0	1	9 (22.5%)
20-40	0	4	1	3	8	0	0	16 (40%)
41-60	1	6	0	1	3	1	0	12 (30%)
>60	0	1	0	2	0	0	0	3 (7.5%)

Table 6: Analysis of symptoms in relation to etiology

Etiology	Abdominal pain	Vomiting	Abdominal distension	Fever	Constipation
AP	16	5	5	16	6
GUP	1	0	0	0	1
DUP	10	3	1	4	4
TP	5	3	1	1	2
Tu P	1	1	1	1	0
SBG	2	2	2	2	2
M	1	1	1	1	1
TR P	2	3	1	1	1

Table 7: Duration of symptoms

Duration in days	No. of cases	Percentage
<1	8	20
1-3	20	50
>3	12	30

Table 8: Erect abdomen X-ray finding in relation to etiology

Etiology	No. of patients	X-ray erect abdomen gas under diaphragm	
		Positive	Negative
AP	16	7(43.75%)	9
DUP	11	9(81.8%)	2
GUP	1	1(100%)	0
TP	5	5(100%)	0
TU P	1	0(0%)	1
SBG	2	0(0%)	2
M	1	0(0%)	1
TR P	3	3(100%)	0

In this study the age group of 20-40 years had most number of perforations; appendicular perforation was most followed by duodenal perforation. In 41-60 age group 6 patients had duodenum perforation, 3 patient had appendicular perforation, 1 patient had gastric antrumperforation, 1 patient had colon perforation. In >60yrs age group ileal perforation was most.

The duration of symptoms in various patients was as follows:

In this study most of the patients presented with duration of 1 to 3 days of onset of symptoms.

X-ray erect abdomen is taken to detect gas under diaphragm as a radiological investigation. 9 patients of duodenal ulcer perforation and one patient of gastric perforation had gas under diaphragm, whereas in 2 patients it was negative. All 5 patients of enteric perforation, one patient of tubercular perforation, 3 patients of traumatic perforation had positive on erect abdomen x-ray. 7 patients of appendicular perforation had gas under diaphragm, rest 9 patients X-ray was negative. 2 patients of small bowel gangrene perforation and colon carcinoma perforation was negative.

Discussion

Age Distribution

The highest number of patients encountered in this series was in the age group 41-60 years followed by

Table 9: Comparison of Causes of perforation

Causes of perforation	Dinesh et al ⁵ (2011)77 cases	Present study (2013) 40 cases
Acid peptic disease	31(35.6%)	12(30%)
Typhoid	23 (26.4%)	5(12.5%)
Tubercular	10(10.3%)	1(2.5%)
Traumatic	1(1.1%)	3(7.5%)
Appendicitis	3(3.5%)	16(40%)
others	8(9.2)	3(7.5%)

In this study there were 12 patients with duodenal perforation, one was by blunt trauma, rest all was non traumatic due to acid peptic disease. Most patients presented with pain abdomen followed by fever, vomiting and constipation. In most cases pain started in upper abdomen in epigastric region and right hypochondrium, then it was generalised.

In duodenal ulcer perforation cases, 7 had tachycardia and hypotension, 2 had distension, 9 patients had guarding and rigidity, and 8 patients had obliteration of liver dullness. Most of the patients were smokers and alcoholics (72.7%). Rest patients

the age group of 20-40 years. The mean age group in this study was 35.52 years. This is comparable with the study by Dinesh et al [4] who studied 77 cases of perforation peritonitis in which the mean age was 33.9 years.

Sex Distribution

The ratio of men to women with all types of perforation irrespective of site and pathological condition was 4:1 in the present study.

Different studies have found variable results with regard to sex ratio. Dinesh et al⁵ reported M: F ratio of 3:1.

In the present study the appendicular perforation was most common, total 16 patients in those 13 male patients and 3 female patients. Duodenal perforation was next to appendicular 12 male patients and 1 female had duodenal perforation.

The commonest site involved in this study was appendicular perforation (40%) followed by duodenal ulcer perforation (30%) and ileal perforation (20%).

Dinesh et al [6] in his study of 77 cases of perforation peritonitis found duodenum as the commonest site of involvement, followed by ileal typhoid perforation, appendicitis.

In case of hollow viscus perforation, pain abdomen and vomiting were the predominant symptoms. Tenderness, guarding, rigidity, obliteration of the liver dullness were the predominant signs.

didn't have obliteration reasons suggested are sealing of the perforation or lack of gas at the site of perforation or adhesions around the site of perforation.

The success of proton pump inhibitors and the eradication of H. pylori have virtually eliminated the need for elective ulcer surgery. Perforated peptic ulcer is becoming common in older patients and associated with a higher incidence of recent consumption of non-steroidal anti-inflammatory drugs (NSAIDS). In the present series perforated peptic ulcer constituted 27.5% of all hollow visceral perforations.

Conclusion

Most common cause for perforation was appendicitis followed by duodenal ulcer or acid peptic disease and typhoid perforation

References

1. B.A Taylor "Spontaneous Perforation of the gastrointestinal tract". In *Gastrointestinal Emergencies*, 1st edition. Edt. by Gilmore Ian T, Robert Shields London, W.B Saunders Company. 1992; 359-379.
 2. Syed Mahbubul Alam "Perforated gas containing hollow viscus: A study in a hospital, Bangladesh". The Orion Medical Journal. 2002; 12: 1-7.
 3. William Schumer, Sheldono Burman "The Perforated viscus diagnosis and treatment in surgical emergencies". The Surgical Clinics of North America, Edt by Nyhus Lloyd. 1972; 52(1): 231-238.
 4. Sadler T.W "Digestive System". In: Langman's Medical Embryology, 11th edition, Williams and Wilkins Company. 2009: 209-233
 5. Dinesh Yadav, Puneet K. Garg. "Spectrum of Perforation Peritonitis in Delhi: 77 cases experience". Ind J Surg. 2013; 75(2): 133-137.
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