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Spectrum of Gastrointestinal Perforation in a Tertiary Hospital of North India

Shergill J S[1], Sharma S[2], Kaur R[*3]

[1]MS, Senior Resident, [2]MS, Professor,
Department of Surgery, Govt. Medical College & Hospital, Amritsar,
[3]MD Anaesthesia

Abstract:

The commonest abdominal emergency is perforation of the gastro-intestinal tract. The surgical intervention for these has increased over the period of time. Drainage of the contaminated peritoneal fluid, repair of the perforation forms the surgical guidelines of the treatment.

Aims & Objectives: *To study the aetiology, clinical presentation, diagnostic aids and management of gastro intestinal perforations and factors if present leading to intestinal perforation including traumatic and nontraumatic.*

Material & Methods: *The prospective study was conducted in the Department of General Surgery, Government Medical College, Amritsar, with 50 patients presenting in the surgical emergency. Provisional diagnosis was made from history and after clinical examination.*

Observations: *Gastroduodenal perforations formed the major part, the age group of 21-30 years had the maximum patients, symptoms and signs of perforation were present in majority of the patients. The patients had septicaemia followed by wound infection and respiratory complications in the post-operative period.*

Conclusion: *In the perforation of the gastrointestinal tract surgical treatment yields good results and decreases patient mortality.*

Keywords: Spectrum | Gastrointestinal | Perforation |

Introduction

The commonest abdominal emergency is perforation of the gastro-intestinal tract. Perforation of the terminal ileum and gastroduodenum viz first part of duodenum & pylorus of the stomach, are frequently encountered and the surgical intervention for these has increased over the period of time.[1-3] Colorectal perforations are uncommon and in case if occur is at the site of malignancy or a proximal blow-out.[4,5] Other causes such as diverticulitis, volvulus, mesenteric ischemia, trauma & idiopathic are attributed to colonic perforations.[6] Blunt trauma causes large luminal defects in both small & large intestine. The mortality rate in cases of perforation varies from 4-11%, and is higher in the elderly, those with concomitant disease, preoperative shock, delay in presentation and operation.[7] Drainage of the contaminated peritoneal fluid, repair of the perforation forms the surgical guidelines of the treatment.[8]

Aim

To study the aetiology, clinical presentation, diagnostic aids and management of gastro intestinal perforations. To observe any specific factor if present leading to intestinal perforation including traumatic and nontraumatic.

Material & Methods

The prospective study was conducted in the Department of General Surgery, Government Medical College, Amritsar, with 50 patients presenting in the surgical emergency. Provisional diagnosis was made from history and after clinical examination. Diagnosis was confirmed by various investigations like CBC, ESR, RFT, LFT, RBS, Widal, X-ray abdomen erect with both domes of diaphragm. Nature of peritoneal fluid, condition of the intestine & peritoneum, number of perforations were noted during laparotomy. Based on these findings precisely the cause of perforation was made out. Relative incidence of all the aetiological factors encountered was calculated and were also able to draw the inference regarding prognosis, morbidity, mortality in relation to a particular cause or as a whole due to perforation.

Observations:

Table 1: Aetiological Analysis

Aetiology	No. of cases	Percentage
Peptic Ulcer (Gastroduodenal)	21	40.9
Enteric perforation	16	31.8
Traumatic	9	18.1
Tubercular	1	2.2
Others	3	6.8

Table 1 clearly shows that gastroduodenal perforations form the major part, as 21 cases were reported in our study.

Table 2: Age Incidence

Age in years	Gastroduodenal perforations	Enteric Perforations	Traumatic	Tubercular	Others
Upto 10	-	-	-	-	1
11-20	1	3	4	1	1
21-30	7	8	3	-	1
31-40	1	3	1	-	-
Above 40	12	2	1	-	-

Table 2 shows that in the age group of 21-30 years had the maximum patients, followed by age group above 40. In 11-20 years age group the no of cases were 9, 31-40 age group had and the upto 10 years age group had just 1 case.

Table 3: Sex Incidence

Aetiology	Male	Female	Total
Gastroduodenal	17	4	21
Enteric	11	5	16
Traumatic	7	2	9
Tubercular	1	0	1
Others	1	2	3

Table 3 shows prepondrence of males over females.

Table 4: Clinical Features

Symptoms	Gastroduodenal	Enteric	Traumatic	Tubercular	Others
Abdominal pain	21	16	9	1	3
Distension	11	12	5	1	2
Constipation	0	11	0	1	1
Fever	7	16	0	1	1
Signs					
Tachycardia	21	16	9	1	3
Dehydration	19	13	2	1	2
Tenderness	21	16	9	1	3
Guarding	15	13	9		3
Plain x-ray abdomen					
Air under diaphgram	21	16	9	-	2
Multiple air fluid levels	-	-	-	1	1

Table 4 shows that features of perforation were present in all the aetiological causes.

Table 5: Post operative complications

Complications	No. of cases
Septicaemia	50
Wound infection	15
Respiratory	14
Paralytic ileus	12
Burst abdomen	6
Transfusion reaction	6
Faecal discharge	2
Mortality	3

Table 5 shows all the patients landed with septicaemia followed by wound infection and respiratory complications. Paralytic ileus, burst abdomen, transfusion reaction and faecal discharge was also observed.

Discussion

Perforation of the gastrointestinal tract is very frequently encountered in the surgical emergency having high degree of morbidity and mortality. Patients present with very much deteriorated condition. Skilful surgical management plays a vital role in the outcome.

Out of 50 cases 21 were due to gastroduodenal, 16 enteric, 9 traumatic, 1 tubercular and 3 due to other causes. Similar findings were reported by Nair SK.[9] Patients with gastroduodenal perforation presented mainly in >40 years age group, second peak of incidence in 21-30 years age group. Patients with enteric perforation presented in 21-30 years of age group. In the series of Baliga, Dickkson & Cole, Ahmed, Vaidyanathan,[10,11,12,13] patients presented in the third decade. In other studies of Vyas, Karmarkar, Kim Jin, Welch, Purohit, Swadia,[14,15,16,17,18,19] age incidence was variable.

Perforation of the gastrointestinal tract occurred predominantly in males in the present study, Kamarkar, Rao, Vyas, Sepaha, Prasad,[15,20,14,21,22] reported in their series , the disease more in males than females, though the ratio in all the studies were different.

All the patients presented with usual features of perforation i.e Abdominal pain, distension, constipation, fever, tachycardia, dehydration, tenderness & guarding. Archampong, Swadia, & Chouhan[23,19,8] also reported similar clinical features in their series of patients.

Air under diaphragm was observed in 96% of the patients which is comparable to findings as reported by Shah, Welch, Mahendra.[24,17,25]

Septicaemia/ Toxaemia , wound infection, respiratory complications, paralytic ileus, burst abdomen, transfusion reaction, faecal discharge are reported as post operative complications in the present study and the same have been observed by Karmarkar and Nair.[15,9]

In the present study, mortality rate was 6%. Li Franklin & Vaidyanathan,[26,13] have also reported lower mortality rates in their studies. The causes of mortality were toxaemia, anaemia, dehydration, electrolyte imbalance and patients reporting late after perforation.

Conclusion

A review of 50 cases of gastrointestinal tract perforation has been done. In the present study gastroduodenal , enteric, traumatic, other and tubercular were the causes of perforation. Perforation cases occurred more in males. Patients with gastroduodenal perforation presented mainly in >40 years age group, second peak of incidence in 21-30 years age group. Patients with enteric perforation presented in 21-30 years of age group. Clinical features of perforation i.e Abdominal pain, distension, constipation, fever, tachycardia, dehydration, tenderness & guarding and x ray abdomen revealing air under diaphragm were present in the patients. All patients with perforation underwent laparotomy. Surgical technique best suites for the underlying pathology was applied like: primary closure with omental patch, ileostomy, resection anastomosis. Abdominal cavity was washed with saline and drained via abdominal drain kit. Post operatively i.v fluids, antibiotics, blood transfusion was given. Post operative complications like Septicaemia/ Toxaemia, wound infection, respiratory complications, paralytic ileus, burst abdomen, transfusion reaction, faecal discharge occurred. Mortality rate was higher in patients whose duration prior to admission was longer.

In the perforation of the gastrointestinal tract surgical treatment yields a good out come when performed with best resuscitated measures and by following the standard surgical practices.

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Corresponding author:

Dr. Ravinder Kaur
Email: shergilljs@yahoo.co.in

