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ORIGINAL RESEARCH

Factors Affecting the Prognosis in Gastrointestinal Perforation in Rajindra Hospital Patiala – A Tertiary Care Teaching Hospital: A Study of 50 Cases

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Abstract

Introduction: Intestinal perforation is defined as a loss of continuity of the bowel wall. It is a potentially devastating complication that may result from a variety of disease processes. Gastro-intestinal tract perforations can occur for various causes such as infective etiology, peptic ulcer, inflammatory disease, blunt or penetrating trauma, iatrogenic factors, foreign body or a neoplasm requiring an early recognition and often urgent surgical intervention. Surgery is almost always indicated for ulcer perforation, although occasionally nonsurgical treatment can be used in the stable patient in whom radiologic studies document a sealed perforation.

Aim and Objective: To evaluate the factors like anaemia, jaundice, septicemia, drugs intake, food habits etc. & their effect on prognosis in gastro-intestinal perforation in Rajindra Hospital, Patiala.

Material and Methods: This was a Prospective study conducted after approval from institutional thesis and ethical committee and informed consent of the patient was taken. The study included Sample size of 50 Patients who were admitted to various surgery wards at Rajindra Hospital, Patiala attached to Govt. Medical College, Patiala with signs and symptoms of perforation peritonitis were considered.

Result: The study included Sample size of 50 Patients. In this study, 46.1%(6/13)cases suffered from Gastric perforation and 38.4%(5/13) cases suffered from Ileal perforation. We found that 52%(26/50) patients were of Ileal perforation and 20%(10/50) patients were of Gastric perforation. Among alcoholics, 43.7% (7/16) cases suffered from Gastric perforation, 31.25%(5/16) cases suffered from Ileal perforation and 12.5%(2/16) cases suffered from Duodenal perforation.

Conclusion: In our study, the most common site of perforation was Ileal perforation followed by gastro-duodenal perforation. Most common causes for Ileal perforation are typhoid and tuberculosis while spicy meals, alcohol, NSAIDS overuse, smoking cause Gastric perforation. The most common procedure done to treat gastro-intestinal perforation was Primary repair followed by Ileostomy followed by Grahm's patch repair. In our study, 68% of the patients showed features of morbidity like wound infection, wound dehiscence and Postop Pneumonia.

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Key words: Gastrointestinal Perforation, Prognosis.

INTRODUCTION

Intestinal perforation is defined as a loss of continuity of the bowel wall. It is a potentially devastating complication that may result from a variety of disease processes. Common causes of perforation include trauma, instrumentation, inflammation, infection, malignancy, ischemia and obstruction. Peritonitis secondary to hollow viscus perforation is one of the most frequently encountered surgical emergencies in India. In contrast to western countries, upper gastro-intestinal perforations are more common in India and the spectrum of etiology of perforation continues to be different from that of western countries[1] and there is limited data from India regarding its etiology, patterns of presentation, morbidity and mortality patterns. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex.[2] Gastro-intestinal tract perforations can occur for various causes such as infective etiology, peptic ulcer, inflammatory disease, blunt or penetrating trauma, iatrogenic factors, foreign body or a neoplasm requiring an early recognition and often urgent surgical intervention. Infectious diseases like typhoid, tuberculosis and HIV infection are the common causes in the developing countries whereas non-infectious conditions like malignancy and diverticulitis are more common in developed nations.[3] Numerous drugs have adverse effect on the mucosa and increase the risk of perforation particularly NSAIDS, corticosteroids, opioids and calcium channel blockers. Perforation is the second most common complication of peptic ulcer disease. Injury to the intestine and perforation has been found in 5-16% of patients undergoing laparotomy after blunt abdominal trauma.[4] Patients frequently have free air visible on the chest radiograph and have localized peritoneal signs on examination. Patients with more widespread spillage had diffuse peritonitis. Surgery is almost always indicated for ulcer perforation, although occasionally nonsurgical treatment can be used in the stable patient in whom radiologic studies document a sealed perforation. Emergency surgery and aggressive supportive care is of utmost important to reduce the mortality. The age, comorbid conditions, site of perforation, degree of contamination and delay in presentation are the factors which affect the post-operative outcome.

Early recognition and prompt treatment are critical to prevent the morbidity and potential mortality of peritonitis and its systemic sequelae that result from the spillage of intestinal contents. A thorough history taking and physical examination along with the aid of adjunctive studies can help establish the diagnosis promptly and better direct therapy.

The study aims to analysis the factors affecting the prognosis in gastrointestinal perforation in Rajindra Hospital Patiala.

MATERIAL AND METHOD

This was a Prospective study conducted after approval from institutional thesis and ethical committee and informed consent of the patient was taken. The study included Sample size of 50 Patients who were admitted to various surgery wards at Rajindra Hospital, Patiala attached to Govt. Medical College, Patiala with signs and symptoms of perforation peritonitis were considered. **Inclusion Criteria:** Age 18-50 years with proper written informed consent of the patient suffering from gastrointestinal perforation or his/her guardian. **Exclusion Criteria:** 1. Patients age>50 Years. 2. Patients age<18 Years. 3. Patients who refused to give consent.

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RESULTS

In our present study, 40%(20/50) patients belonged to age group 18-30 years while 36%(12/50) patients belonged to age group 41-50 years and 24% (18/50) patients belonged to age group 31-40 years. In our present study, 28% (14/50) were female patients and 72% (35/50) were male patients. We found that 58% (29/50) patients were from rural residence and 42% (21/50) patients were from urban area. Hence, there was rural predominance in our society. In our present study, 10%(5/50) patients were having hypertension and tuberculosis each and 6%(3/50) patients were having DM.

Table No- 1 Correlation between type of Perforation and smoking.

Type of Perforation	Smoking				P-Value
	Present		Absent		
	No. of Patients	Percentage	No. of Patients	Percentage	
Appendicular Perforation	0	0.00	3	8.10	0.29
Duodenal Perforation	1	7.69	1	2.70	0.43
Transverse Colon Perforation	1	7.69	0	0.00	0.09
Gastric Perforation	6	46.15	7	18.92	0.049
Ileal Perforation	5	38.46	18	48.65	0.53
Jejunal Perforation	0	0.00	4	10.81	0.22
Multiple Ileal Perforation	0	0.00	2	5.50	0.39
Sigmoid Colon Perforation	0	0.00	2	5.50	0.39
Total	13	100.00	37	100.00	

Table 1 shows the correlation of perforation and smoking. We found among smokers in our study, 46.1%(6/13)cases suffered from Gastric perforation and 38.4%(5/13) cases suffered from Ileal perforation. We found that 52%(26/50) patients were of Ileal perforation and 20%(10/50) patients were of Gastric perforation. A small proportion of patients were from Jejunal perforation 8%(4/50), Duodenal perforation 4% (2/50),Appendicular perforation 6%(3/50), Transverse colon perforation 2% (1/50) and Sigmoid perforation 2% (1/50).

Graph 1: Correlation between type of Perforation and Alcohol.

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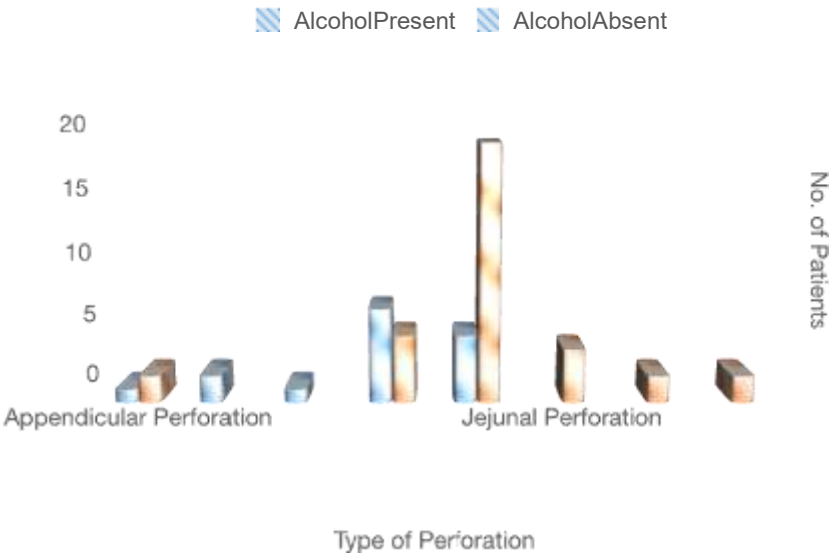

Graph 1 shows correlation between type of perforation and alcohol. In our study we found among alcoholics, 43.7% (7/16) cases suffered from Gastric perforation, 31.25%(5/16) cases suffered from Ileal perforation and 12.5%(2/16) cases suffered from Duodenal perforation. There is significant difference between Gastric perforation and Alcohol intake($p<0.05$)and Duodenal perforation and Alcohol intake($p<0.05$) , hence Alcohol is significant risk factor for Gastric as well as Duodenal Perforation. The mean haemoglobin was 10.68±2.29, mean TLC was 14.68±7.27, mean FBSwas 106.54±32.69, mean TSP was 6.08±0.7, mean DSP(A)was 3.26±0.42, mean DSP (G)was 2.8±0.43, mean blood Urea was 46.8±35.56, mean S. Creatinine was 1.18±0.65and mean S.bilirubin. was 0.90±0.83.

Table No- 2 Correlation between type of Perforation and Spicy food.

Type of Perforation	Spicy Food				P-Value
	Present		Absent		
	No. of Patients	Percentage	No. of Patients	Percentage	
Appendicular	0	0.00	3	6.97	0.47
Perforation Duodenal Perforation	0	0.00	1	2.33	0.13
TransverseColon Perforation	1	14.29	0	0.00	0.01(S)
Gastric Perforation	4	57.14	9	20.93	0.04(S)
Ileal Perforation	2	28.57	22	51.16	0.77
Jejunal Perforation	0	0.00	4	9.30	0.4
Multiple Ileal Perforation	0	0.00	2	4.65	0.56

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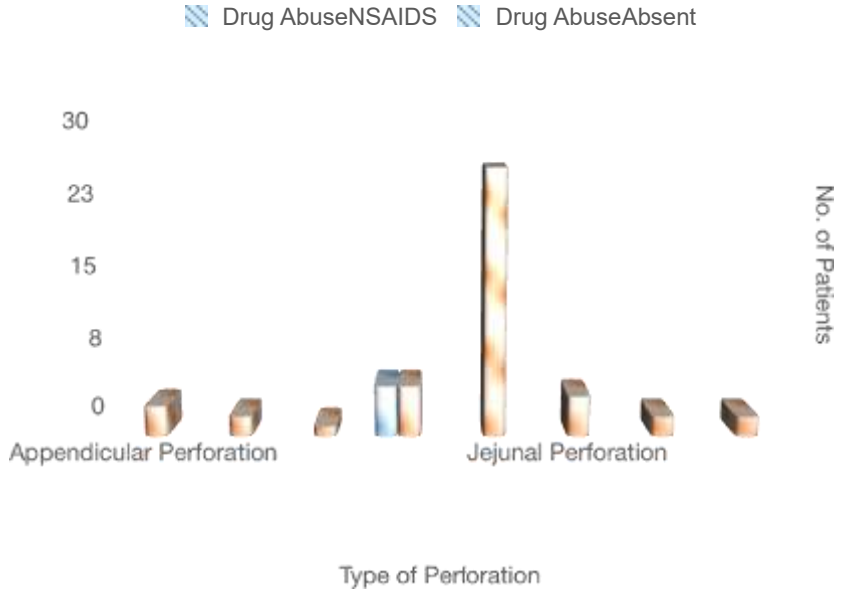
Sigmoid Colon Perforation	0	0.00	2	4.65	0.56
Total	7	100.00	43	100.00	

Table 2 shows correlation between type of perforation and Spicy food. In our present study we found that 7 patients were having dietary intake of spicy meals and among them 57.14 % (4/7) patients suffered from Gastric perforation, 28.57%(2/7) patients suffered from Ileal perforation and 1%(1/7) suffered from transverse colon perforation. 4% (2/50) patients showed presence of glucose in urine while in 96% (48/50) patients no abnormality was found.

Graph 2: Correlation between type of Perforation and NSAIDS.



Graph 2 Correlation between type of Perforation and Drug Intake . In our study we found that drug intake was seen in 100% (5/5) gastric perforation cases. Hence Drug intake (NSAIDS) is risk factor for Gastric perforation. We found that in 94%(47/50) patients Pneumo-peritoneum was present and in 6% (3/50) patients Pneumo-peritoneum was absent. we found that on USG whole abdomen of 88% (44/50) patients showed Fluid a/w internal echoes while 6% (3/50) patients showed Abcess in RIF with App. Perforation and 6% (3/50) showed dilated gut loops.

Table No 3: Correlation between type of Perforation and Typhoid (Serology).

Type of Perforation	Typhoid (Serum)				P-Value
	Positive(widal test)		Negative		
	No. of Patients	Percentage	No. of Patients	Percentage	
Appendicular Perforation	0	0.00	3	6.97	0.47
Duodenal Perforation	0	0.00	2	4.65	0.56

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Transverse Colon Perforation	0	0.00	1	2.33	0.68
Gastric Perforation	0	0.00	10	23.26	0.15
Ileal Perforation	7	100.00	19	44.19	0.006(S)
Jejunal Perforation	0	0.00	4	9.30	0.4
M u l t i p l e I l e a l Perforation	0	0.00	2	4.65	0.56
S i g m o i d C o l o n Perforation	0	0.00	2	4.65	0.56
Total	7	100.00	43	100.00	

Table 3 shows Correlation between type of Perforation and Typhoid (Serology). In our study, we found that ileal perforation was seen in all Widal test positive patients. As P value is <0.05(0.006), Typhoid is significant risk factor for causing Ileal perforation. 50%(25/50) patients intraoperative abdominal fluid was fecopurulent in nature while in 30%(15/50) patients intraoperative abdominal fluid was purulent in nature and in 20% (10/50) patients intraoperative abdominal fluid was bile stained in nature. 42%(21/50) patients E.L. with primary repair done, in 24%(12/50) patients E.L with Ileostomy done , in 20%(10/50) patients E.L with Grahm patch repair done. E.L. with Appendicectomy was done in 6%(3/50) patients and E.L with Colostomy was done in 4%(2/50) patients.

DISCUSSION

Perforation peritonitis is a frequently encountered surgical emergency. In tropical countries like India, it commonly affects young men in the prime of life in comparison to the studies from the west.[5] The Indian aetiological spectrum of perforation continues to differ from that of the Western world and there is the paucity of data regarding its aetiology, prognostic indicators, morbidity and mortality pattern. In the majority of cases, delayed presentation to the hospital occurs with well-established generalized peritonitis and varying degree of septicaemia.

In the present study, we found that among smokers, 46.1% (6/13) cases suffered from Gastric perforation while 38.4%(5/13) cases suffered from Ileal perforation. Among alcoholics, 43.25%(7/16) patients had Gastric perforation, 12.5%(2/16) patients had Duodenal perforation and 31.25%(5/16) patients had Ileal perforation. We found that Gastric perforation was present in 100%(5/5) cases of drug intake (NSAIDS) . We found significant difference in correlation of smoking, alcohol, drug intake with Gastric perforation cases with p value<0.05.

In present study, we found that tuberculosis was seen in 100% patients of multiple Ileal perforations. Here we can say that tuberculosis was a risk factor for multiple Ileal perforations (p value=0.02).

In a study conducted by Bali R S et al (2017)[6], 4%(16/400) of the patients were hypertensives, 10%(40/400) patients had Tuberculosis, 12%(48/400) patients had typhoid and 10.25%(41/400) patients had DM.

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In our present study, we found that 20% (10/50) patients were of Gastric perforation, 4%(2/50) patients were of Duodenal perforation. A small proportion of patients were from Jejunal perforation which was 8%(4/50). 52%(26/50) patients were of Ileal perforation, 10%(5/50) patients were of Appendicular perforation and 6%(3/50) patients were of Colon perforation .

In a study conducted by Bali R S et al[6] (2017), 37.5% patients had Duodenal perforation, 9.5% had Jejunal perforation, 22.5% had Ileal perforation, 18.5% had Appendicular perforation and 2% patients had Colon perforation.

A study conducted by Singla S et al (2019)[7] found that the most common site of perforation was gastro-duodenal in 43%(43/100) patients followed by terminal ileum (upto 30cm proximal to ileo-caecal junction)in 30%(30/100) patients. Among gastroduodenal perforations, more common site being pylorus of stomach in 28%(28/100) cases (which includes cases due to peptic ulcer disease, malignancy and blunt trauma abdomen) followed by 1st part of duodenum in 15%(15/100) patients. Other sites were appendix in 10%(10/100), jejunum in 5%(5/100) and colon in 7%(7/100) patients. In one of the cases of tubercular perforation, bowel was perforated at both jejunum and colon.

Singh R et al (2022)[8] found that the mean hemoglobin (Hb) of the patients in the study was 11.54 ± 1.19 g/dL. 60%(36/60) patients had Hb ranging from 10 to 12 g/dL. Only 7%(4/60) patients had Hb below 10 g/dL. The mean total serum protein (TSP) of the patients in this study was 6.35 ± 0.66 g/dL. 55%(33/60)patients had a TSP from 7 to 7.9 g/dL.

CONCLUSION

In our study, the most common site of perforation was Ileal perforation followed by gastroduodenal perforation. Most common causes for Ileal perforation are typhoid and tuberculosis while spicy meals, alcohol, NSAIDS overuse, smoking cause Gastric perforation. The most common procedure done to treat gastro-intestinal perforation was Primary repair followed by Ileostomy followed by Grahm's patch repair. In our study, 68% of the patients showed features of morbidity like wound infection, wound dehiscence and Post-op Pneumonia. The most common complications were wound infection followed by wound dehiscence. Other comorbidities like DM and hypertension were not risk factors for perforation. In our study, lower Gastro-intestinal perforations were more as compared to upper Gastro-intestinal perforations.

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