



RESEARCH ARTICLE

EFFECT OF FUNGAL INFECTION ON OUTCOME IN PATIENT WITH PERFORATION PERITONITIS

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ABSTRACT

Introduction: The most common emergency admissions to surgical ward are patients with acute abdominal pain, out of which spontaneous hollow viscus perforation is the commonest. The role of proton pump inhibitors in peptic ulcer disease treatment is tremendous for past two decades and significantly reduces the incident of peptic ulcer perforation and their surgical intervention as well. The appendicitis followed by its perforation is the commonest surgical emergency in young individuals. And ilea perforation due to typhoid is also not uncommon.

Aims and Objectives: To identify the common fungal micro-organisms responsible for peritonitis in hollow viscus perforation. To identify influence of fungal infection in determining the outcome following surgery.

Materials and Methods: All patients in whom a diagnosis of hollow viscus perforation is made are included in this study. The study will be done after patients' informed consent. In all these patients peritoneal fluid will be collected during surgery and sent for microbiological analysis. Microbiological analysis includes fungal culture. And will be taken for analysis. Post operatively, mortality and morbidity of the patient will be co-related with culture reports.

Results: Duodenal perforation is the most common (40 cases), followed by ileal (18 cases) and appendicular (14 cases) perforations. Gastric perforation is least common hollow viscus perforation in this study (7 cases). Gastric, duodenal and ileal perforations are common in males, where as appendicular perforation is common among females.

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INTRODUCTION

The peritoneum is a transparent, slippery, glistening and continuous serous membrane. It covers abdominal and pelvic cavity, and envelops the viscera. The peritoneum is made by 2 continuous layers: The parietal peritoneum, is the one which covers the internal surface of the abdominal and pelvic wall, the The visceral peritoneum the one which invests viscera such as stomach and the intestines. Both the layers of the peritoneum consists of the mesothelium, a layer made of a simple squamous epithelial cells. (Prakash *et al.*, 2008) The surgeon encounters 4 kind of problems in treating spontaneous hollow viscus perforation. 1) To identify the cause of perforation, 2) To diagnose with the available investigations in emergency time, 3) To decide on treatment options, whether surgical or conservative management. 4) Treating the peritonitis induced by perforation. The time lapse between perforations and seeking hospital for treatment plays a major role in decision making, because the initial localized peritonitis later turn in to a generalized peritonitis and shock

which increase the morbidity and mortality. (Medical Microbiology. 4th edition, 1996) Understanding the anatomy and physiology of peritoneal cavity as well as pathological process that occur is essential for accurate diagnosis and management. The most common complication following spontaneous hollow viscus perforation is bacterial peritonitis, which was discussed adequately in literature. The fungal peritonitis is not as common as bacterial but still hold the responsibility for increasing the mortality and morbidity. In this study the effect of fungal peritonitis due to hollow viscus perforation is analyzed with postoperative outcomes. (Cappuccino G. James and Shermano Natalia 19th edition)

Spontaneous Bacterial Peritonitis

Spontaneous bacterial peritonitis (SBP) is defined as a bacterial contamination of ascetic fluid when there is no intra-abdominal, surgically treatable source of infection. Although most commonly associated with cirrhosis, SBP can also affect in patients having nephritic syndrome and less commonly, congestive heart failure. It is extremely rare for patients with ascetic fluid containing a high protein concentration to develop SBP, such as those with peritoneal carcinomatosis. (Pelczar J.

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Michael 5th edition) The most common pathogens in adults with SBP are the aerobic enteric flora like *Escherichia coli* and *Klebsiella pneumoniae*. In children especially having nephrogenic or hepato-genic ascites, group A streptococcus, *Staphylococcus aureus*, and streptococcus pneumoniae are common isolated. (Prescott 6th edition) The pathogenesis of SBP remains unclear; however, several evidence suggest that bacterial translocation from the bowel plays an important role in the development of this infection. It is postulated that local and systemic immune dysfunction in cirrhotic patients prevents effective opsonization, phagocytosis, and killing of translocated bacteria. (Ananthanarayanan 6th edition) The diagnosis of SBP is made initially by demonstrating more than 250 neutrophils/mm³ of ascetic fluid in a clinical setting consistent with this diagnosis, that is abdominal pain, fever, or leukocytosis in a patient with low-protein ascites. Broad-spectrum antibiotics, like 3rd generation cephalosporin, are started immediately in patients suspected of having ascetic fluid infection. These agents cover about 95% of the flora most commonly associated with SBP. (Moore, Keith and Dalley, Arthur 5th Edition)

Classification of Ascites by Serum-Ascites Albumin Gradient

High gradient (>1.1g/dL)	Low gradient (>1.1g/dL)
Cirrhosis	Peritoneal carcinomatosis
Cardiac ascites	Pancreatic ascites
Alcoholic hepatitis	Tuberculous peritonitis
Fulminant hepatic failure	Nephrotic Syndrome
Massive liver metastases	Biliary ascities
Portal vein thrombosis	Postoperative lymphatic leak
Budd-Chiari syndrome	Serositis in connective tissue diseases.

MATERIALS AND METHODS

All patients in whom a diagnosis of hollow viscous perforation is made are included in this study. The study will be done after patients' informed consent. In all these patients peritoneal fluid will be collected during surgery and sent for microbiological analysis. Microbiological analysis includes fungal culture. And will be taken for analysis. Post operatively, mortality and morbidity of the patient will be co-related with culture reports.

RESULTS

Duodenal perforation is the most commonest (40 cases), followed by ileal (18 cases) and appendicular (14 cases) perforations. Gastric perforation is least common hollow viscous perforation in this study (7 cases). Gastric, duodenal and ileal perforation are common in males, where as appendicular perforation is common among females.

Table 1. Sex and perforations

	Gastric	Duodenal	Ileal	Appendicular	Total
Male	6	37	16	6	65
Female	1	3	2	8	14
TOTAL	7	40	18	14	79

Table 2. Fungal c/s positive cases

Perforations	Fungal c/s positive cases
Gastric	2
Duodenal	4
Ileal	7
Appendicular	3
Total	16

Fungal positivity is seen in all kind of perforations. Ileal perforation shows greater fungal positivity with 7 cases. Followed by duodenal (4 cases), appendicular (3 cases) and gastric (2 cases) perforations.

DISCUSSION

Totally 79 patients were included in our study; all of them are presented with complaints of acute abdomen pain to our emergency department. They were admitted and further clinical evaluation done. Basic blood investigations and radiological investigations done. (Sleisenger Fordtran's, 2007) Those who were diagnosed to have spontaneous hollow viscus perforation are included in this study after getting their consent. (Shackelford's Surgery of the Alimentary Tract, 5th ed) Initial supportive management was done in the form of iv fluids, iv antibiotics and bowel rest by ryles tube aspiration. Patients were taken up for emergency laparotomy and proceeded, gastric perforations were closed primarily, duodenal perforation are closed with grahams omental patch, ileal perforation was closed primarily in few cases but resection anastomosis was done in patients having large perforation, unhealthy edges and edema over the surrounding area. (Schwartz's Principles of Surgery, Ninth Edition) For appendicular perforation, appendectomy was done. In all patients the peritoneal fluid was collected and sent for fungal culture test. After repeated peritoneal lavage with normal saline, abdomen closure done. Post operatively care given, antibiotics and analgesics given. Patient watched for any wound infection, prolonged hospital stay, and or death. This post operative out comes were correlated with fungal culture results and conclusions were drawn up. In our study male patient was dominating comprises 82% which is almost similar to other nation and international studies. The peak incidence of age in our study is between 41 to 50 years ie. 20 patients. (Schwartz's Principles of Surgery, Ninth Edition) This is similar to other Indian studies, western country studies show predominance after 50 years of age. The youngest patient is 11 years and eldest is 74 years old in our study. Duodenal perforation is the most commonest (40 cases), followed by ileal (18 cases) and appendicular (14 cases) perforations. Gastric perforation is least common hollow viscous perforation in this study (7 cases) Gastric, duodenal and ileal perforation are common in males, where as appendicular perforation is common among females. (Recent Advances in Surgery 26 Edited by I. Taylor and C.D. Johnson) This pattern of perforations are similar to other previous studies. Total fungal culture positive cases in our study are 16, ie 20.25% which is little higher than previous studies which accounts for 16%. Fungal positivity is seen in all kind of perforations. Ileal perforation shows greater fungal positivity with 7 cases. Followed by duodenal (4 cases), appendicular (3 cases) and gastric (2 cases) perforations. TOTAL NO. OF Pt's with wound infection in our study are 38, ie 48%. This is higher than other earlier studies. Fungal C/S positive PT's with wound infection are 16 out of 16. ie 100% This may be due to late presentation of patient to medical care system due to lack of health awareness and usage of self medication in our community. (Latchie, Greg *et al.*, 3rd edition) The most common organism isolated is candida sp, ie in 15 cases, Aspergillus sp found in 1 case. The average post operative days of stay is two times higher in our study in patients with fungal c/s +ve results. This is found equal to other previous studies. Total No. of Death in our study are 10 (out of 79 patients) ie 12.65% which is significantly higher than other studies done in

western countries. No of death in fungal +VE PT's are 8 out of 16, ie 50% is found equal when compared to national level studies and little higher than international studies.

Conclusion

The overall wound infection rate is 48% in this study. The average post operative days of stay is two times higher in patients with fungal c/s +ve results. Thus fungal peritonitis among hollow viscus perforation patients shows higher wound infection rate, long hospital stay, and high mortality rate. 150 mg of Fluconazole once daily for at least 2 weeks post operative period is found to be more effective in fungal peritonitis. This can be tried empirically to reduce the post operative morbidity and mortality in patients with hollow viscus perforation. (Mastery of Surgery, 5th Edition, Fischer, Josef E; Maingot's Abdomen Operations, 11th edition)

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