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Study of cause and outcome of stoma in septic peritonitis in a tertiary care centre

Dr Najan Deepak Gulab[1], Dr VidyaManohar Borade[2]

[1]Assistant Professor department of surgery PDVVP Medical College Ahmed Nagar
[2]Assistant Professsor department of surgery PIMS LONI

Corresponding Author

Dr Najan Deepak Gulab*Assistant Professor department of surgery PDVVP Medical College Ahmed Nagar*

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ABSTRACT

Background: peritonitis is the inflammation of peritoneum and peritoneal cavity, usually caused by a localized or generalized infection[1]. Mounting studies have shown different etiological spectrums for perforation peritonitis in india compared to rest of the world.[2-5]an intestinal stoma is one of the lifesaving surgical procedure employed during the management of perforation peritonitis.A variety of complications associated with stoma formation and its closure have been reported complications following the creation of an intestinal stoma are experienced by 20–70% of thepatients.[6,7,8]With this backdrop, the present study was carried out to evaluate the indications and adverse risk factors which lead to stoma formation in perforative peritonitis. Further, patients outcome in terms of mortalityand morbidity where stoma were also evaluated.

Method: retrospective data was collected for patients who had undergone intestinal stoma for perforative peritonitisatdepartmentofgeneral surgeryatatertiarycarehospitalinAhmednagaroveraperiodof2years Data collected included personal details like age and sex of the patient, primary disease causingperitonitis, adverse risk factors, type of stoma, complications following stoma and length of hospital stay.

Results: over the time period of 2 years, 54 patients underwent stoma. Average age of the patients was 35 years (range 17 – 78 years). 64% were males and 36% were females.Major cause of peritonitis was enteric fever (n= 16), followed by tuberculosis of intestine (n= 11).Major adverse risk factors were sepsis (n= 35), anemia (n=33) and hypoproteinemia (n=29).Commonest site for stoma was the ileum (n=23). The other sites for stoma were transverse colon (n=7), sigmoid colon (n=2) and jejunum (n=2). The commonest type of stoma was loop stoma (n=22) followed by double barrel stoma (n=10) and end stoma (n=7).Wound infection was the commonest complication (n=32) followed by respiratory complications (n=17). Average duration of hospital stay was 17.1 days (range 6 -90 days).There was 14% mortality.

Conclusions: common indications for intestinalstomas were perforative peritonitis following enteric fever and tuberculosis. This is the pattern commonly seen in tropical countries of the indian subcontinent. Main complications were wound infections followed by respiratory complications.

Keywords:perforativeperitonitis,intestinalstoma.

INTRODUCTION

: peritonitis is the inflammation of peritoneum and peritoneal cavity, usually caused by a localized or generalized infection[1]. Mounting studies have shown different etiological spectrums for perforation peritonitis in india compared to rest of the world.[2-5]an intestinal stoma is one of the lifesaving surgical procedure employed during the management of perforation peritonitis.

A variety of complications associated with stoma formation and its closure have been reported complications following the creation of an intestinal stoma are experienced by 20–70% of thepatients.[6,7,8]

With this backdrop, the present study was carried out to evaluate the indications and adverse risk factors which lead to stoma formation in perforative peritonitis. Further, patients outcome in terms of mortalityand morbidity where stoma were also evaluated peritonitis (inflammation of the peritoneum) can be of 3 types depending upon the source and the nature of microbial contamination.

1. Primaryperitonitis
2. Secondaryperitonitis

3. Tertiaryperitonitis

Secondary peritonitis is by far the most common typeof peritonitis encountered in clinical practice. Stoma is a surgically created opening which connects a portion of the body cavity to the outside.2ofthemostcommonlyperformedstoma surgeries are ileostomy and colostomy.stomas are valuable in the management of a patient of peritonitis, especially with the adverse risk factors for leakage or disruption of the anastomosis.

MATERIALSAND METHODS

This was a retrospective analytical study conducted among the fifty patients who had undergone stoma for perforative peritonitis at the department of general surgery. Data of thepatients was obtained from the hospital records and the stoma clinic for a period of two years. Inclusioncriteria

Agegroup–18andabove

Sex- both males and females were included patientswithperforativeperitonitisinwhom primary bowelanastomosiswasnotdonedueto presence of high risk factors for leak.

Casesofanastomoticleakwherere-exploration was done with stoma formation.

Exclusioncriteria

Patients of paediatric age group were excluded from the study.

Distribution of patient in terms of age sex,primary disease, indication for stoma and complication of stoma were recorded for each case. Emergency exploratory laparotomy was performed for all cases.

Statistical analysis

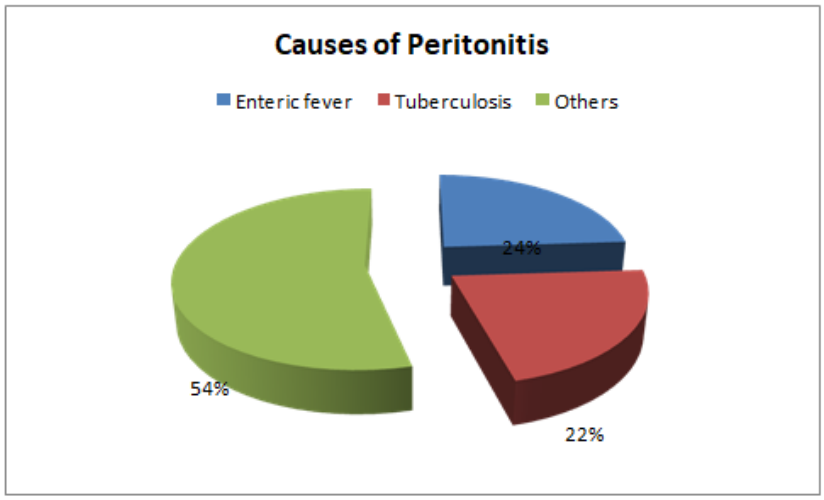
Descriptive statistics were used to summarize the data. The analysis was carried out using spps.

RESULTS

demographics

Age- the average age of the patient was 35 years, ranging from 17 years to 78 years.

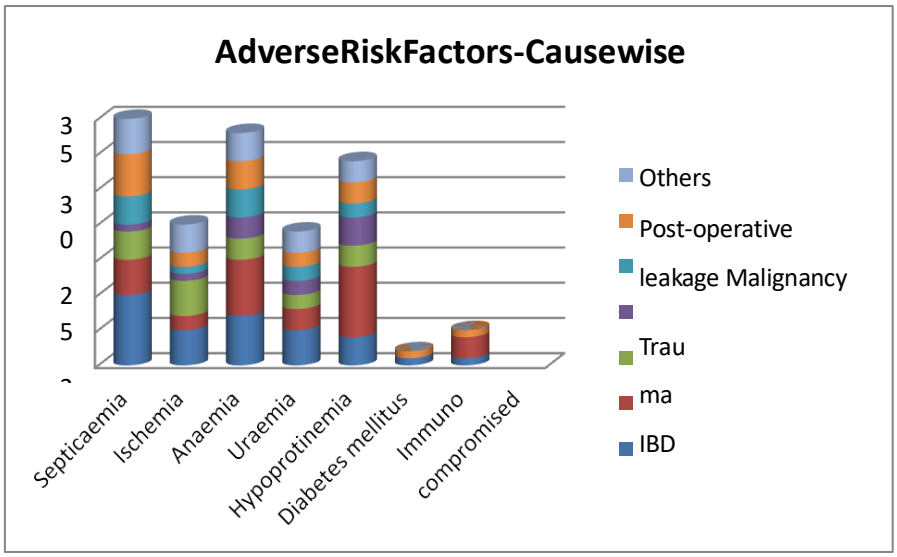
Sex-themaletofemaleratiowas 32:18.



Inthisstudy,themajorcauseofperitonitiswasentericfever(24%)followedbytuberculosis(22%). Majoradverserisk events Themajoradverseriskeventspresentduringsurgerywassepsisin35patients,anemiain33 patientsandhypoprotinemiain29patients.The results were shown in table 1.

Riskfactors	Enteric fever	TB	IBD	Trauma	Malignancy	Post-operative leakage	Others	Total
Septicaemia	10	5	4	1	4	6	5	35
Ischemia	5	2	5	1	1	2	4	20
Anaemia	7	8	3	3	4	4	4	33
Uraemia	5	3	2	2	2	2	3	19
Hypoprotinemia	4	10	3	4	2	3	3	29
Diabetesmellitus	1	0	0	0	0	1	0	2
Immuno compromised	1	3	0	0	0	1	0	5

Table1: adverserisk factorspresent duringsurgery



Siteofstoma-
Inthisstudy, themajor siteofstomawas ileum(43 patients)

Siteof stoma	Total
Ileum	43
Transversecolon	7
Sigmoidcolon	2
Jejunostomy	2

Typeofstoma
Themajortypeofstomawasloopstomain27patients. The results were shown in table.

Table2:stomatypeinthepresentstudy

Siteof stoma	Endstoma	Loopstoma	Doublebarrelstoma	Total
Ileum	7	22	14	43
Transversecolon	3	4	-	7
Sigmoidcolon	1	1	-	2
Jejunostomy	2	-	-	2
Total	13	27	14	54

Complicationsofsurgery
Themajorcomplicationwaswoundinfection(56%)followedbyrespiratorycomplication(34%).The results were shown in table 3.

Table3:complicationsofemergencysurgeryinthe present study

Complication	Noof patients	%
Skinexcoriation	19	18
Stomalgangrene	1	2
Stomalprolapse,hernia	1	2
Ilealdiarrhoea	6	12
Woundinfection	28	56
Respiratorycomplication	17	34
Others	8	16

Morbidityassociatedwithstoma
Theaveragetime aftersurgerytill startingoforals was 4 days with maximum up to 7 days becauseof post of paralytic ileus. The average duration of hospital stay was 17.1 days, ranging from 6-90 days.Stoma related complications were present in 11(22%)patients.3patientsrequiredre-laprotomy 1 for stomal gangrene, 1 patient has pre stomal perforation , other for

closure of high output jejunostomy. The rest of the complications were managed by the enterostomy care, antibiotics, and change of habits.

Mortalityassociatedwithstoma
Mortalitywasobservedin 7patients (14%)during the study period. Among these, ischemic bowel disease was the main cause in 3 patients, each 1 patientasaresultoftuberculosis,enteric perforation and post-operative leak. 6 of these patients suffered from frank septicaemia,requiring ionotropic support, ventilator support and blood/plasma transfusions as part of resuscitative process. The seventh patient was known case of tuberculosis with seropositivestatus presented with post-operative leak along with respiratory complications which ultimately lead to death.

DISCUSSION
Perforative peritonitis is the most commonsurgical emergency in india. The spectrum of etiology of perforation in tropical countries continues to be different from westerncounterpart. 504 consecutive cases of perforative peritonitis were revived in terms of clinical presentation,operativefindings,andpost operative course respectively by jhobtars, attriak, et al[9]. The most common cause of perforation in this series was perforated duodenal ulcer (289 cases) followed by appendicitis (59), gastrointestinal cases due to blunt trauma (45 cases), typhoid fever (41 cases) and tuberculosis (20 cases). Despite delaying in seeking medical treatment (53%), the overall mortality (10%) was favourablycomparablewithotherpublishedseries though the morbidity (50%) is unuaslyhigh[9,10]. Another study by gupta s and kushik r showed similar findings[10].
Average duration of onset of symptoms was 2.8 days. All patients required aggressiveresuscitation with i.v. Fluids to maintain hemodynamic status. Intra operatively, thepatients had single or multiple perforations in the terminal ileum. The morbidity in this group was 66%, and mortality was 8%. This at par with the complications and mortality from s.seluckatamanalp ,bulentadinli, et al study of 82 cases of enteric intestinal perforation.[11]
Age, gender, number and localisation of perforation ($p>0.05$) were not found to affect mortality, but prolonged preoperative period ($p<0.001$), extended peritoneal contamination ($p<0.01$), and ileostomy procedure ($p<0.001$), were found to influence the mortality.[12] ileostomy appears to be effective procedure, particularly in patients with severe abdominal contamination and delayed presentation[13]
Next most common cause was tuberculous peritonitis due to perforation, involving the terminal ileum and ileo-cecal junction. The presentation was insidious in most cases, with 5 patients presenting with septicaemia and shock. Most of the presented with colicky abdominalpain of long standing duration, increased in intensity since last 3-4 days, along with nausea , vomiting and/or constipation. Almost all of these patients suffered from nutritional deficiency and anaemia, and 80% patients required blood transfusion, either preoperatively or in the wards. Three of the patient had immunocompromised status,whileonepatienthadalreadytaken9 months att for abdominal tuberculosis. Diagnosis was confirmed by histopathology in all cases, though att was started empirically postoperatively, based on the operative findings. On the whole these patients suffered from fever incidences of complications, though long term morbidly was higher.
Four patients presented with ischemic bowel disease. The patients usually presented with septicaemia (due to gross feculent peritoneal contamination), acute renal failure and anaemia. The average of these patients was 57 years. They requiredaggressivemanagementintheformofiv hydration, blood and plasma transfusion, ionotropic support and higher antibiotics. These patients were started immediately on parental nutrition, which was continued for sometime even after starting orals.
Five patients presented with direct bowel or mesenteric trauma, amongst these three patients had stab injury involving transverse and descending colon. Two patients had iatrogenic trauma, one has sigmoid injury during the colonoscopy, another patient had injury to descending colon during minimal invasive pancreatic necrosectomy, four out of five cases had an uneventful course of events, fifth patient developed complication due to coexistingsystemic disease, 40% of these patients hadwound infection.
The miscellaneous group involved eight patients, one patient was case of sigmoid diverticular perforation, loop ileostomy was done and, recovery was uneventful.
Although 70% patients suffered from one or more post operative complications, the morbiditydue to stoma related complications was 22%, much less than that from cook county hospital[13]. Stothertet al[14], p. J. Arumugan et al[15] and comparable with study by jhobtars, atrriak et al,[9] this is supported by a onen, aidokucu et al[13] and s. Selukatamanalp, bulentadilnli , et al ,[11] both series reporting that morbidity and mortality were adversely affected by prolonged pre operative period and severe peritonitis.

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