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Research Article

STUDY OF FEACAL FISTULA AFTER EXPLORATORY LAPAROTOMY

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A R T I C L E I N F O

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A B S T R A C T

Background: Anabberent connection between the intraabdominal gastrointestinal tract and skin/wound called enterocutaneousfistula or faecal fistula. Historically gastrointestinal tract fistulas have been attended by a high mortality rate. Until quite recently fistulas in general had a poor prognosis. The high morbidity rate and the leaking wound encouraged many surgeons to undertake operative interventions even though with the operative intervention the prognosis was grave. most common cause is some type of operative injury.

Methords: The cases for the present study was taken from the patients admitted in the Upgraded Department of Surgery, Darbhanga Medical College & Hospital over a period of 1 year extending from the period June 2012 to September 2013. The study included only those patients who developed faecal fistula after exploratory laparotomy. Initially a complete and thorough history was taken. general examination was done and cause of cause of exploratory laparotomy associated comorbidities are noted

Results: Chances of postoperative fistula formation is equal in male and female. maximum incidence of faecal fistula is with resection and anastomosis. In the present series we divided gastrointestinal fistula and into three clinical groups according to site of origin viz gastroduodenal, small bowel and large bowel. Small bowel fistulas constituted the largest number) while gastroduodenal fistulas lead the highest mortality rate. large bowel fistulas are easy to treat they often have a poor prognosis. Wrong surgical techniques and poor selection of cases have often been quoted as an important factor in the formation of fistulas

Conclusions: The present study concluded the fact that high output fistula has a higher mortality rate in comparison to low output fistula patients. Patients treated with enteral nutrition gave a comparable result as with the patient treated with total parenteral nutrition in the treatment of faecal fistula. The emergency surgery done under lot of stress and constraints of time has a higher chances of fistula rate formation and associated mortality.

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INTRODUCTION

A fistula is a communicating tract between two epithelial surfaces. An abberent connection between the intraabdominal gastrointestinal tract and skin/wound called enterocutaneous fistula or faecal fistula. A fistula between two hollow viscus is called Internal fistula. The fistulous tract is lined by granulation tissue which is subsequently epithelized. The development of fistula in the post operative period is a serious and sometimes a grave complication. It is a matter of concern for both the surgeon and the patient and has been rightly called a catastrophe. To the surgeon it is a constant reminder of the fallibility of his or her surgical technique. The management of postoperative faecal fistula presents a myriad of problems and severely taxes the skill and patience of treating surgeon. The management of faecal fistula till today remains controversial, some advocating the use of total parenteral nutrition in the management claiming a high spontaneous closure of fistula in 70.5% with an overall mortality as low 6.45%. -Mc Phayden and Dudrick1 in 1973.It is well documented fact the maximum incidence of GIT fistula follow some operative procedures .proper preoperative patient care and meticulous surgical technique will lessen the risk of postoperative fistula formation.In emergency operations where one cannot quickly optimize the nutritional status and bowel preparation, emphasis should be on adequate resuscitation and restoration of circulating volume, normalization of heamodynamics, provision of appropriate antibiotic therapy, meticulous surgical technique and use of correct suture material. Managing these cases of postoperativefaecal fistula was occasionally very frustrating for us. Pricket2 *et al* in 1991 put it very aptly "Fistula closure is the ultimate Goal and patience is important to achieve it. This study also taught us to be very patient and calm while managing these cases".

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Purpose

To study development of feacal fistula after exploratory laparotomy in Upgraded Department of Surgery, Darbhanga Medical College & Hospital

MATERIALS AND METHODS

The cases for the present study was taken from the patients admitted in the Upgraded Department of Surgery, Darbhanga Medical College & Hospital over a period of 1 year extending from the period June 2012 to September 2013. The study included only those patients who developed faecal fistula after exploratory laparotomy.The study of each patient developing postoperative faecal fistula was carried out in three phases in addition to proper history and General Examination. The headings included:-preoperative and operative phase, postoperative phase and management.

Initially a complete and thorough history was taken, particular emphasis was given to elicit, information about any underlying disease like peptic ulcer, malignancy, enteric fever, tuberculosis and previous operations, if any. The General Examination of the patient included assessment of the patient's nutritional status. History is also taken about any past illness and treatment history there of

Preoperative and Operative Phase

Information regarding the primary disease and its nature whether inflammatory, traumatic or neoplastic were collected and the indication for laparotomy noted, if possible the specific nature of the pathology was also ascertained. history of bowel injury or any other difficulty encountered during surgery was noted. Technical details like the method of closing the perforation or doing a resection and anastomosis were also critically reviewed. The condition of the peritoneal cavity, gut and evidence of recent inflammation was also noted.

Post Operative Phase-Particular emphasis was given to whether the patient had features of shock, fever or abdominal distension, features of prolonged ileus and return of bowel movement. Insidious jaundice during the 3rd and 5th postoperative day was also noted. All these signs can herald the occurrence of external faecal fistula. The first evidence of fistulous leak was noted carefully. Once a fistula had become established the next thing we did was to ascertain the exact nature and amount of fistula output on daily basis. Since the daily amount of fistula output measurement is critical we measured it roughly by the amount of soakage of the absorbent dressing and the number of times the dressing had to be changed over 24 hrs. in most cases placement of colostomy bag helped us to measure the exact output daily. The next point to be noted was the number of external opening and whether the wound dehiscence had occurred or not.The condition of the skin around the fistulous opening was also noted.Any complication, including fluid and electrolyte imbalance, fever and signs of sepsis, hemorrhage, anemia, pulmonary complication, renal complications like renal failure was also recorded.

Management: All patients who developed post operativefaecal fistula were either managed conservatively or by a re operation. Immediately after the presence of a fistula was determined we withheld oral intake and parentaral nutrition, was instituted to correct hypovolemia and restore fluid and electrolyte balance. proper nutrition was given to improve nutritional status of patient. We provided at least 2500 Kcal of energy in the form of 10 or 20% Dextrose, intralipid and Amino acid. The aim was to provide at least 35-40 Kcal/ kg/ Day and 0.35gm of Nitrogen/kg/Day.inj octreotide sc 50-100ug,codeine sulphate, and rececadotril tablets are given to reduce the output.To prevent the excoriation of the skin of the abdominal wall from efflux of enteric contents we used to place stoma bag over fistulous opening followed by siloderm cream or Aluminium paint application locally. Some cases were immediately taken up for re operation for primary closure of the fistula. In cases where there was obvious decrease in fistula output progressively, and the patient was in reasonably good health we continued nutritional support. But if prolonged periods of conservative management failed we took the patient for re operation. Deutermann and Dixon3 in 1938 classified fistulas into two general groups: Those intentionally established by operation as colostomy, enterostomy or appendicostomy. Those produced by pathological process, trauma, malignancy or surgical accident.

Edmunds4 *et al* in 1960 divided fistula into the groups depending upon the anatomical location of the gastric, enteric or colonic opening and maximum amount of drainage from the fistula.simple fistula was defined as those which has a short direct tract from bowel to skin.A complex fistulas is one which drains to the skin thorough long, multiple tracks or an associated abscess cavity.A lateral fistula is one which arises from the side of gut only. While an end fistula is one in which the whole diameter of the gut is encompassed. Besides these they also classified external fistulas according to their output. A daily discharge of over 500ml in 24 hrs distinguished high and low output fistulas. Rubelowsky5 *et al* in 1991 pointed out that more proximal in the GIT the origin of the fistula the greater the output. High output fistula >500ml/24hr,intermediate output fistula output 200-500ml/24 hrs and Low output fistula with output <200ml/24hrs

DISCUSSION

Postoperative gastrointestinal fistulas are frequently encountered by those engaged in practice of surgery. Usually they arise as an unexpected and distressing complication of abdominal operations specially done under emergency conditions. Sometimes they heal spontaneously while at other times it may be an extremely difficult task. Miller6 in 1968 said that leakage of gastrointestinal secretions after an operation is a major complication which pretends at least a difficult course and at most a significant mortality. Males and females are equally prone to the development of post-operative gastro-intestinal fistula. In the present series 24 were male and 20 female showing a 1:0.84 ratio. Other workers have also reported a similar ratio. Bowlin7 *et al* in 1962 reported a ratio of 1:0.9 while. Roback8 in 1972 in his series found a ratio of 1:0.45. Prakash9 *et al* (2011) found a ratio of 1:0.2 in a study conducted in Jipmer.Age of the patients in our series ranged from eight to sixty eight years with an average age of thirty seven years .All other workers have reported wide age range. Rose10 *et al* (1986) reported a range of nineteen to ninety years.Prakash9 *et al* (2011) found most patient with faecal fistula to be aged between 40-60 years. In our study 16-35 year constituted major group. Once a fistula develops the type of initial surgical intervention does not significantly affect the ultimate outcome of the fistulas. 75% of the fistulas arising after an emergency surgical procedures, ultimately healed.

Mansoor11 *et al* showed that the maximum incidence of faecal fistula is with resection and anastomosis followed by simple repair closure (7%) and no fistula formation in ileostomy group. In the present series we divided gastrointestinal fistula and into three clinical groups according to site of origin vizgastroduodenal, small bowel and large bowel. Small bowel fistulas constituted the largest number (64%) followed by gastroduodenal 23% and large bowel (13%).Miller *et al* (1968) also found that small bowel fistulas constituted the largest number (40%) while gastroduodenal fistulas lead the highest mortality rate (45%) followed by small bowel (31%) and large bowel (15%) Multivariate analysis by Campos and associates suggested that patients with low output fistulas were three times more likely to achieve closure without operative intervention. The reason for these different rates of closure is that high output fistulas are likely to be of small bowel origin while low output fistula of colonic origin. Intermediate volume fistulas tend to be of either colonic or mixed small and large bowel origin .Prakash *et al* (2011) found ileum to be most common site of ECF. Duodenal and jejunalfistula accounted for 70% of high output fistula while colonic fistula tended to be low output.

Perforated gastric or duodenal ulcers preceded 60% of gastric and duodenal fistulas in our series. Suture line failure was thought to be the major cause of fistulas though undetermined injury during operation cannot be ruled out.Most workers agree that breakdown of the suture line and reopening of a perforated ulcer treated by simple suture closure are the major cause of gastroduodenal fistulas; Irving12 *et al* (1991).The most common disease preceding the twenty eight small bowel fistulas in this series was enteric perforation. The other common causes were bowel obstruction, Meckel's diverticulitis and strangulated inguinal hernia. The most common operative procedure preceding the small bowel fistulas were resection and anastomosis (43%).Subsequently it was found that while affecting a single layer closure the surgeon had taken a bite in the small bowel.The incidence of enteric perforation is quite high in these parts and no doubt that when these patients present to us with a perforation they are already in a poor general condition.Most of the western workers however report that inflammatory bowel disease is the most common preceding disease, Fazio *et al* (1983). Our findings are in the tune with what other workers have said. Wrong surgical techniques and poor selection of cases have often been quoted as an important factor in the formation of fistulas. Prakash *et al* (2011) found 95% of faecal fistula to occur in postoperative period.

We can conclude that suture line failure accounted for the majority of the fistulas that occurred in our series.Twenty four patients in our series had a high output fistula while twenty patients had a low output fistula. There were eight deaths in the high output fistula group (33%) and four deaths in the low out put group (20%).There is universal acceptance of the fact that high output fistulas are more difficult to manage and are associated with a high mortality.Fazio13 *et al* (1983) observed a marked difference in the mortality rates of high output fistulas (20%) and low output fistulas (4.8%).Timothy14 *et al* (2001) said that high output fistula are likely to originate from small bowel while low output fistula are likely to be colonic in origin.Moderate malnutrition occurred in 50% of the cases while severe malnutrition occurred in 27% of the cases, 83% of all the cases with severe malnutrition ultimately died.All the workers agree that malnutrition remains a major problem in the management of fistulas. Electrolyte imbalance occurred in 36% of all the cases and all were associated with high output fistulas and 80% of the gastroduodenal fistulas were associated with electrolyte imbalance. Roback15 *et al* 1972 observed that electrolyte imbalance was much more common in fistulas higher in the gastrointestinal tracts in accordance with the findings in our series. Skin excoriation was a major problem in nine patients and was related to the length of time the skin had not been cared for as well as the amount of fistula output. Prakash *et al* (2011) found in their study that skin excoriation seen in 17 of 41 patient (41.5%) with fistula. Wound dehesience was another major complication in our series Hypoalbuminemia and Hypoproteinemia occurred in a significant number of cases. Irving *et al* (1991) observed that the level of plasma albumin is a serious prognostic signs, and if it continues to fall one is almost certain of losing the battle for the patients life.

The other infrequent complications seen in our series was anemia, depression, jaundice and infection.We obtained very good results with enteral nutrition instituted in patients with a high output gastroduodenal fistula and low output small or large bowel fistula. We agree with this view for we noticed that in all the patients where there was a adequate nutrition spontaneous healing and cure after surgery was high as compared to malnourished patient.There has been much discussion in the surgical literature about the merits of operative and nonoperative therapy of external gastrointestinal fistulas. In our series thirty patients were initially put on conservative management. We obtained good results in eighteen patients. (60%) and poor results in twelve patients (40%) of the latter, eight underwent elective surgery all of whom were cured. fourteen patients underwent early surgery after the development of a fistula, we obtained a closure in only six cases (48%) while eight died (57%). Dixon and Benson in 1946 treatment in the initial phases should be conservative. If after twelve weeks to six months of conservative treatment the fistula still persisted they advised operative intervention. Bowlin *et al* 1962 observed that operative closure of a duodenal fistula will not often be successful in contrast to operative closure of gastric fistulas. Our findings were quite similar. In our series we went in for delayed surgery in 8 cases after continuing on an average 7 weeks of conservative management, we were successful in all the cases. This is in conformity with what Reber 1978 Allardyce 1983, Fazio 1983 and Rubelowsky 1991 observed. We can conclude that conservative management is ussally successful in most cases specially in fistulas arising from the gastroduodenal group and large bowel. Small bowel fistulas are also quite amenable to conservative management and if an operative closure is deemed necessary it should be undertaken after a reasonable period of conservative management of 6-8 weeks. The average hospital stay of the patients who survived was 60 days. As long tern follow up could not be maintained morbidity due to delayed complications could not be ascertained.

Summary and Conclusion

Summary

Forty four cases of post-operative faecal fistulas admitted in Darbhanga Medical College & Hospital in the period between June 2012 to September 2013 were studied.The male is to

female ratio was 1 : 0.84.Majority of the patients were in the age group of 15-35 years.73% of the fistulas followed an emergency surgical procedure.The overall mortality was 27%Gastroduodenal fistulas were associated with highest mortality (40%).Suture line failure accounted for the majority of the fistulas that occurred.The most common surgery preceding the fistulas was resection and anastomosis of the small bowel for various causes.High output fistulas were associated with a higher mortality (33%) as compared to low output fistulas (20%) and intermediate output fistula (20%).Malnutrition, electrolyte imbalance, skin excoriation and wound dehiscence were the major complications.83% of all cases with severe malnutrition died.Hypoalbuminemia was associated with a mortality of 37.5%.Three modes of nutrition was adapted in this series-enteral, total parenteral and enteral plus parenteral. Very good results was obtained with enteral nutrition.Spontaneous closure rate with enteral nutrition was 75%.The route of nutritional support is not important as long as adequate calorie needs are provided.In our study most of the patients are anaemic and malnourished, so as to prevent post operativefaecal fistula formation and its healing, Blood transfusion and correction of malnutrition is to be considered mandatory .Conservative management is usually successful in most cases specially in fistulas arising from the gastroduodenal group and large bowel group.Small bowel fistulas are also quite amenable to conservative treatment. Operative intervention should be under taken after 6-8 weeks of conservative management. The mean duration of hospital stay of the patients who survived was 60 days. The frequency of high output fistula was 54% as compared to low output fistula (23%) and intermediate output fistula (23%).

CONCLUSION

The present study concluded the fact that high output fistula has a higher mortality rate in comparison to low output fistula patients. Patients treated with enteral nutrition gave a comparable result as with the patient treated with total parenteral nutrition in the treatment of faecal fistula. This is very cost effective and significant to the patient considering the low socioeconomic status of the patients in place like Darbhanga. The emergency surgery done under lot of stress and constraints of time has a higher chances of fistula rate formation and associated mortality. Drugs like Racecadrotril has given encouraging result in case of faecal fistula management.

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