

Original Research Article

Small bowel enterocutaneous fistulae: is waiting worth?

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ABSTRACT

Background: Enterocutaneous fistula represents a group of complex intraperitoneal infectious processes. Even with recent advances in Para surgical management, critical care and nutritional support, enterocutaneous fistulas remain great challenges to the general surgeon. Mortality remains high largely due to frequent complications of sepsis and malnutrition. Most enterocutaneous fistulas occur following emergency abdominal surgeries and only 15-25% of spontaneous enterocutaneous fistulas are the result of underlying diseases such as Crohn's diseases, radiation enteritis or diverticular disease. Expectant treatment consisting of octreotide, TPN, and antibiotics waiting for spontaneous closure is associated with high costs, high mortality and prolonged morbidity. In our country, there is need to abandon expectant lines of management for a more aggressive surgical approach once the fluid and electrolyte disturbance and sepsis have been corrected.

Methods: The aim of the present study was to audit the result of an aggressive approach in patients with enterocutaneous fistulas and to identify the time of convalescence prior to restorative surgery thereby reducing the morbidity and mortality associated with them. The focus of this study was to determine whether, in patients with fistulae, early intervention resulted in low mortality and morbidity.

Results: In the present study, 64 cases of small bowel enterocutaneous fistulas were taken, which were either operated in Patna medical college and hospital or outside in year 2011-13. Majority of patients were <60 years of age. Out of the total population (n=64), 50 patients were <60 years and 14 patients were ≥60 years, with mean age of 46 years (range 17-75 years). The percentage of male population was 56.2 and that of female was 43.8. Mortality was also higher in patients with sepsis, age>60 years and in patients with preoperative albumin below 3.0g/dl (p value>0.05). Early surgical intervention resulted in good patient outcomes as compared to conservative treatment (p value=0.0418). Mortality was higher in patients with foregut fistulae (p value=0.0178) and high output fistulae (p value=0.0309).

Conclusions: This study shows that early surgery can result in good patient outcomes. Initial emphasis should be on the treatment of septic foci, aim to improve to patient's condition. Rather than following a prolonged conservative line of management, surgical repair should be performed when the patient is stable.

Keywords: Enterocutaneous fistula, Early surgery, Octreotide

INTRODUCTION

Fistulas are abnormal communications linking two epithelialized surfaces. Enterocutaneous fistula is an abnormal communication between the GI tract and skin. Enterocutaneous fistula represents a group of complex

intraperitoneal infectious processes.¹ Even with recent advances in Para surgical management, critical care and nutritional support, enterocutaneous fistulas remain great challenges to the general surgeon. Mortality remains high largely due to frequent complications of sepsis and malnutrition.²

Regardless of etiology or specific nature of the fistula the ultimate goals in treating patients with enterocutaneous fistula are the re-establishment of bowel continuity, the ability to achieve oral nutrition and closure of the fistula.

The mortality and morbidity associated with only conservative management is often high and expensive because most patients cannot afford prolonged parenteral nutrition. More over total parenteral nutrition itself carries a high incidence of mechanical, metabolic and infectious complications (such as increased septic morbidity, intestinal atrophy, increased bacterial translocations, liver enzyme abnormalities).³

Although operations are difficult, if performed early they may be lifesaving.

The social and psychological impact cannot be overlooked due to the complicated wound care required, malnutrition and disability, patients with fistulas are unlikely to be able to work and lose their employment. More over the psychological impact of a difficult draining foul smelling wound and the major impact on the patient's daily activities of living cannot be underestimated.⁴

Mortality rate is 44% in patients with enterocutaneous fistula.⁵ Since the mid 90's much energy has been invested in optimizing the management. In the second half of the last century the mortality in reputed centres decreased to 5-25%.⁶ This was because of imposed surgical, metabolic and medical care.

Expectant treatment consisting of octreotide, TPN, and antibiotics waiting for spontaneous closure is associated with high costs, high mortality and prolonged morbidity.⁷

In our country, there is need to abandon expectant lines of management for a more aggressive surgical approach once the fluid and electrolyte disturbance and sepsis have been corrected.

The aim of the present study was to audit the result of an aggressive approach in patients with enterocutaneous fistulas and to identify the time of convalescence prior to restorative surgery thereby reducing the morbidity and mortality associated with them.

The focus of this study was to determine whether, in patients with fistulae, early intervention resulted in low mortality and morbidity.

METHODS

This was a prospective study carried out in Department of General Surgery at the Patna medical college and Hospital, Patna between July 2011-13. Cases were selected from those patients admitted in surgical wards of

PMCH either from emergency services or from outpatient department.

The post-operative patients with enterocutaneous fistulae from the small intestine were included in the study. Patients with salivary, colonic, pancreatic, biliary and perianal fistulae were excluded from the study.

Recurrence was defined as a renewed connection between the intestine and skin after the fistula had either been surgically removed or has closed spontaneously. An abdominal wall defect is defined as any defect of all layers of the abdominal wall leaving the abdominal contents exposed.

All patients were clinically evaluated with meticulous history and physical examination and were investigated by available tests. Information regarding the primary disease and its nature whether inflammatory, traumatic or neoplastic was collected.

A complete review of the surgical notes was done and particular emphasis was given to operative findings, history of bowel injury or any other difficulty encountered during surgery. Details like the method of closing a perforation or doing resection anastomosis were also reviewed.

In postoperative phase, particular emphasis was given to the signs such as fever, shock, abdominal distension, prolonged ileus and insidious jaundice during the third and fifth postoperative day. Abdominal tenderness was also noted. All these signs heralded the occurrence of external fistula. Special consideration was given to signs of sepsis, fluid and electrolyte imbalance, anaemia and haemorrhage.

The diagnosis of a fistula is rarely a problem. Once a fistula had become established the next thing we did was to ascertain the amount and nature of the fistula output. Also noted was the number of external opening and whether wound dehiscence occurred or not.

Degree of malnutrition was the skin around the fistulous opening was noted. The degree of skin excoriation was assessed.

Patients were managed via following protocol

- Fluid and electrolytes resuscitation (first 48 hours)
- Sepsis Control
- Nutritional state built up-by rehydration and electrolyte correction and enteral nutrition
- Fistula opening covered with stoma bag for skin protection from excoriation
- Defining site of fistula, fistulography and a gastrografin contrast study to define the site of the fistula

- Planning Time of surgery, after control of infection foci and nutritionally optimization patients were planned for surgery.

After patients were optimized, according to site of enterocutaneous fistula there type of surgery was chosen from the following list:

- Laparotomy, drainage and feeding jejunotomy for duodenum leaks
- Laparotomy, exteriorization of fistula and feeding jejunotomy for jejunum leaks
- Laparotomy, ileostomy and mucus fistula for ileal injuries
- Excision of fistula, end to end anastomosis if circumstances were favorable e.g. a clean abdomen in a well-nourished patient.

Octreotide was used in a dose of 100 micrograms eight hourly subcutaneously for a period of 14 days in all cases of high output fistulae, to decrease the fistula output and to correct fluid, electrolyte and nutritional disturbances. Octreotide was used both before and after the initial surgery.

RESULTS

In the present study, 64 cases of small bowel enterocutaneous fistulas were taken, which were either operated in Patna medical college and hospital or outside in year 2011-13. Majority of patients were <60 years of age. Out of the total population (n=64), 50 patients were <60 years and 14 patients were ≥60 years, with mean age of 46 years (range 17-75 years). The percentage of male population was 56.2 and that of female was 43.8.

The most common cause was surgical (78.13%) mainly emergency procedures. Other causes were tuberculosis, malignancy, radiation and inflammatory bowel disease.

In <60 years group 10 patients were put on conservative treatment and 40 patients had early surgery. Spontaneous closure occurred in only 4 patients (40%) and surgical closure in 34 patients (85%).

In ≥60 years group 6 patients were put on conservative treatment and 8 patients had early surgery. Among these spontaneous closures occurred in 2 patients (33.3%) and surgical closure occurred in 4 patients (50%).

42 patients were operated within three weeks (65.63%) and 6 patients were operated after three weeks (9.3%). The median period of surgical intervention was 15 days (range 3-34 days) from the occurrence of fistula. Surgery was performed when the patient's condition was stable and no signs of sepsis were present. Conservative treatment was done in 16 patients. Spontaneous closure was in six patients (37.5%). Early surgical intervention resulted in good patient outcomes as compared to

conservative treatment (p value-0.0418). The median length of hospital stay was 19.8 days (range 5-86 days).

Total mortality was 12.5% (eight patients). Multi-organ failure due to sepsis was the main cause of death. Mortality was higher in patients with foregut fistulae (p value-0.0178) and high output fistulae (p value-0.0309).

Mortality was also higher in patients with sepsis, age >60 years and in patients with preoperative albumin below 3.0g/dl (p value>0.05).

Table 1: Outcomes of treatment.

	Total population (n=64)	%
Surgical closure (48)		
Success of surgery	38	59.37
Releak	6	9.37
Mortality	4	6.25
Conservative approach (16)		
Success	6	9.37
Mortality	4	6.25

DISCUSSION

Enterocutaneous fistula is a common postoperative complication of bowel surgery mainly from disrupted anastomosis. The treatment of patients with small bowel enterocutaneous fistulae is complex and a challenge for every surgeon.

This study shows that adherence to a strict treatment guideline for patients with small bowel ECFs results in a good outcome with a relatively short period convalescence.

In the study, after diagnosing the patient's condition had been established and once all septic foci had been adequately treated, majority of patients underwent surgery.

Closure rates were better in patients <60 years group than in patients above 60 years. Surgical closure rates were higher than spontaneous closure rates in both groups. This was very much similar to that analysis done by Gupta M Mortality was higher in ≥60 year's group (28.5%) than in <60 years group (8%), but the data was statistically significant (p value- 0.1548).⁸

Octreotide was used in all cases of high output fistulas and it was found that there was a significant reduction in fistula output within the first 48 hrs. Significant reduction in fistula output after octreotide has also been reported by Paran et al, Sleth et al and Kocak et al.⁹⁻¹¹ Although somatostatin effectively reduces the fistula output, the rate of spontaneous closure is not changed.^{11,12}

Surgical closure rates were better than spontaneous closure in patients with or without sepsis. In patients without sepsis the closure rates were better than in patients with sepsis. Surgical closure was better after controlling the sepsis.

Closure rates were significantly higher in patients with midgut fistulae than in patients with foregut fistulae. Surgical closure rates were higher than spontaneous closure rates in both groups. Miller and Dorn et al, observed that closure rate was good in proximal fistulae (i.e. gastric, duodenal and jejuna) but lower than distal small bowel fistulae (i.e. Ileal).

Closure rates were best in patients receiving both forms of nutrition. Surgical closure rates were better than spontaneous closure rates in patients receiving enteral nutrition alone.¹³

Closure rates were higher in patients with albumin level ≥ 3.0 gm/dl. Surgical closure rates were higher than spontaneous closure rates in both populations.⁸

Surgical intervention was performed after a median period of 15 days (range 3-34 days) from the occurrence of the fistula. The goal was to perform surgery as soon as the patient condition was stabilized and any septic and any septic foci had been adequately treated. Sonar P et al, were almost similar observation on timing of surgery after minimizing the weeks occurrence lead to better fistula closure rate as compared to intervention after 3 weeks (p value-0.049).⁸

CONCLUSION

This study shows that early surgery can result in good patient outcomes. Initial emphasis should be on the treatment of septic foci, aim to improve to patient's condition. Rather than following a prolonged conservative line of management, surgical repair should be performed when the patient is stable.

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