

Gastrointestinal Fistula: Audit of management in a remote hospital

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Abstract:

Background: The management of gastrointestinal fistula continues to present considerable challenge to the surgeon in general and gastrointestinal surgeon in particular.

Objectives: To audit the management and report the outcome of the gastrointestinal fistula in a remote hospital.

Setup: Eldamazeen Hospital is a regional hospital in the Blue Nile state, south east of Sudan.

Methods: Retrospective analysis of demographic and clinical data of patients with gastrointestinal fistula admitted to the surgical department in the period from Feb 2003 through Feb 2008.

Results: 10(83.3%) patients had high out-put fistula. Two fistulas were complex and 10 were simple. The small intestine was the commonest site of fistula followed by the large bowel. The commonest causes of the gastrointestinal fistula are emergency operations for stab wounds, laparotomy and caesarean section. The overall mortality rate is 2(16, 7%) patients mainly due to inter-abdominal abscesses.

Conclusion: Conservative treatment with nutritional support is the corner stay for successful treatment. However, early surgical management of septic foci should be considered.

Keywords: Eldamazeen, laparotomy, caesarean, abscesses.

Fistula is an abnormal communication that permits the passage of fluid or secretions between two epithelial surfaces. Fistulae are associated with considerable morbidity and mortality. Death is related to high output gastrointestinal (GIT) fistula that remains high. Commonly GIT fistula is a complication of abdominal surgery, however it can be due to inflammatory bowel diseases e.g. Crohn's disease, tuberculosis, bowel ischaemia, trauma, malignancy or radiation. Sepsis is a leading cause of death in cases of GIT fistulas.

Favorable outcome is due to an early control of sepsis, adequate nutritional support, treatment of fluid and electrolyte imbalance and skin protection. Yet, the management of fistula continues to present considerable challenge to the surgeons in general and the gastrointestinal surgeon in particular.

The mortality rate in patients with GIT fistula have been decreased significantly during the past few decades i.e. from 40-65 %

to 5.3-21.5%¹ as a result of advances in intensive care, nutritional support, antimicrobial therapy, wound care and improved operative technique.

Objectives: To audit the management and report the outcome of the gastrointestinal fistula in a remote hospital.

Setup: Eldamazeen Hospital is a regional hospital in the Blue Nile state, south east of Sudan. There are 45 beds in the surgical wards of this 280 bed-hospital. For the last six years surgery is being conducted by a single surgeon who is the first author of this paper. The hospital has ultrasound facility served by a junior hospital staff that is not trained in interventional radiology. The hospital serves about 700,000 inhabitants. The work load in the surgical department, apart of the admissions for observations and those who receives conservative treatment, is about 40 operations/ month. Out of this number there are a considerable number of cases of penetrating trauma due to stab wounds and bullet injuries. Our hospital policy is to relay on enteral feeding whenever it could be instituted because Total parenteral Nutrition is not available.

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Material and method

All-patients admitted to Eldmazeen Hospital with GIT fistula in the period from Feb 2003 through Feb 2008 were included in this study. Medical records were reviewed for sex, age, symptoms and signs, diagnosis, volume of out-put of fistula and magnitude of electrolytes disturbance were noted.

DIT fistulae were classified according to the anatomical site into small and large bowel fistulae. Also the fistulae were classified according the volume of output into high output fistula with >500ml/24hours and low output fistula with < 500ml/24hours. Complexity of the fistula was noted whether it has a direct or branching tract with multiple external orifices and internal collections or abscesses.

On arrival to the unit, patients was allowed sips of fluid, a record was kept for the volume of the fistula output, presence of urine, bile and/or fecal matter. The out-put during this time fluid was replaced with intravenous fluids containing sodium, potassium, and calcium. High calorie high protein diet was introduced as early as possible. The oral-intake often requires supplementary enteral feeding through nasogastric tube. Total parenteral feeding is not available. All patients received high calorie-high protein sachets (Forceval- Alliance Pharmaceuticals Ltd. UK), blood transfusion and metronidazole and third generation cephalosporin Ceftriaxone (Samixon-Alhikma Pharmaceuticals Ltd. Jordan). Sources of sepsis were identified with the aid of ultrasonic scanning. The intra-abdominal abscesses and collections were drained surgically. Samples were taken from infected sites for culture and sensitivity. Patients were encouraged to ambulate as early and frequently as possible. All patients were followed up to six month.

Results

In the period from Feb 2004-2008 a total of 12 patients diagnosed to have GIT fistulae were admitted to the surgical department of Eldmazeen Hospital,. They were nine males and 3 females. The median age was 28 range (11-75) years.

The age distribution is shown in table 1.

Table 1: distribution of patients by age

Age group	Age	Number of patients
A	10 – 20	3 (25%)
B	20 – 30	8(66.7%)
C	> 30	1(08.3%)

The majority of patients did not have significant co- morbidity factors. 10(83.3%) patients had high out-put fistula. Two fistulas were complex and 10 were simple. The small intestine was the commonest site of fistula followed by large bowel. Predisposing factors are shown in table 2 and the type of surgery patient underwent before developing the fistula is shown in table 3

Table 2: Predisposing factors encountered in patients with GIT fistula.

Post-appendectomy	1(8.3%)
Small bowel obstruction	2(16.7%)
Lower segment cesarean section	2(16.7%)
Laparotomy	3(25%)
Stab wound	4(33.3%)

Table 3: Type of surgery

Urgent	8(66.6%)
Elective	2(16.7%)
No surgery	2(16.7%)

Signs and symptoms of sepsis were observed in nine patients. Two patients required laparotomy for control of sepsis. Malnutrition was observed in 10(83.3%) patients and electrolyte disturbance was detected in nine patients.

Spontaneous healing occurred in 10(83.3%) patients. The average time of fistula closure in small large bowel is depicted in table4

Table 4: Healing time of GIT fistula

Small bowel	12range (10 – 14) weeks
Large bowel	06range (03 – 09) weeks

After complete fistula closure we kept the patients in the hospital for one to two weeks because we were afraid of complications at home due to poor housing, poor hygiene and low socioeconomic status. In this study we encountered two deaths due to septicaemia following inter-abdominal collections which were treated by laparotomy making an overall mortality rate (16.7%).

Discussion

Gastrointestinal fistulae are one of the most difficult complications that a surgeon faces²⁻⁵. In spite of the advances in management the mortality remains high. Early recognition and control of sepsis, management of fluid and electrolyte imbalance, meticulous wound care, nutritional support and the delay of definitive surgery for at least four months has resulted in low mortality⁶.

The site of origin of fistula also plays a crucial role in the outcome, because high output proximal fistulas are difficult to control^{5, 10-12}.

The risk of dehydration, electrolyte imbalance, malnutrition and sepsis increases in patients with high fistula¹¹⁻¹⁵. The probability and timing of spontaneous closure is therefore related to location of fistula. The proximal small bowel fistulas have longer time interval between identification of fistula and spontaneous closure than the large bowel fistulas^{4, 10-14}.

The policy in our unit is to start enteric feeding and encourage oral intake early in treatment of our patients. This policy is in keeping with the methods of management in the medical literature^{11, 17, 19}.

Early treatment of sepsis is very important and in this study sepsis led to deaths in two out of 12 patients. Similarly, adequate nutritional support is recognized as a key factor in reducing the mortality associated with both conservative and operative treatment of gastrointestinal fistula. On the other hand, the fistula out-put, mortality rate and spontaneous closure rate are improved with nutritional support^{11, 19}.

Protein-calorie malnutrition leads to an

impairment of many components of immune system. Enteral feeding prevents mucosal atrophy, and plays an important role in immune system in preservation of the mucosal barrier and preventing of bacterial translocation¹⁷. Enteral feeding facilitates more rapid healing, and helps preventing sepsis, especially when prolonged non-operative management is contemplated¹⁷.

Conclusion

Treatment of GIT fistula should concentrate initially on correction of fluid and electrolyte imbalance, drainage of collections, treatment of sepsis and control of fistula output. Malnutrition is common, and nutritional assessment and provision are essential. Although restriction of enteral intake and bowel rest is often advocated, there is no evidence to suggest that such practice results in increased rate of fistula closure. On the contrary it may increase incidence of complications. Therefore, enteral feeding is easy to formulate and should be instituted as early as possible.

Operative repair should be performed when spontaneous closure does not occur and should be delayed for at least four months.

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