ENTEROCUTANOUS FISTULA: CAUSES AND MANAGEMENT 2 YEARS EXPERIENCE AT SURGICAL UNIT I, CMC HOSPITAL LARKANA

KHEEO RAM DHOLIA, M. SALEEM SHAIKH, YASMEEN BHATTI, SIKANDAR ALI SHAIKH, SHAHID H. SOOMRO, MUHARRAM A. ABBASI
Department of Surgery, Unit I, Chandka Medical College, Larkana

ABSTRACT
Objective: *To study the different causes of enterocutanous fistula, common site and Different modes of management*
Study Design: *Descriptive study.*
Setting & Duration: *Surgical Unit I, Chandka Medical College, Larkana from January 2007 to December 2008.*
Methodology: *A total number of 22 patients presented with enterocutanous fistula after surgery for trauma, abdominal tuberculosis, ileal perforation, gynaecological cause, perforated appendicitis, gastric perforation and reversal of stoma, were performed in our unit or referred were included in this study. Where as patients with malignant diseases were excluded from the study. All the patients were initially managed conservatively. Those patients who did not respond were operated. All the patients were followed after discharge and closely watched for recurrent leakage and other complications.*
Results: *Out of 22 patients 14(64%) were male while 8(36%) were female with M: F ratio of 1.7: 1. Age ranged from 18 to 62 years with mean of 40 years. Most of the patients belong to age group of 41 to 50 years. Indications of first surgery were abdominal tuberculosis 10(45%), gynaecological surgery 3(14%), reversal of stoma 2(09%), FAI (fire arm injury) 2(09%), blunt abdominal trauma 2(09%), perforated appendicitis 2(09%), and gastric perforation 1(5%). 16(73%) fistulae were of high out put while 6(27%) were low out put. 9(41%) patients responded to conservative treatment, while 13(59%) non responders were operated. Causes of enterocutanous fistula (operative findings) were anastomotic/ repair leakage in 7(31%) patients and missed perforation in 6(27%).*
The most common site of fistulae was ileum in13(59%), colon in 4(18%), caecum in 2(09%), Jejunum in 2(09%) and Gastric in 1(05%) patient. 5 patients expired with mortality rate of 23%.
Conclusion: *Intestinal tuberculosis was most common cause of enterocutanous fistula involving smal intestine. Anastomotic leakage/repair was the common operative finding after exploration.*

KEYWORDS: *Enterocutanous Fistula, Tuberculosis, Anastomotic Leakage*

INTRODUCTION

Enterocutanous fistula is a complex entity and despite the advancement in medical sciences it still has significant morbidity and mortality.[1,2] The mortality in 1950's was around 50%.[3] With the introduction of central line, total parenteral nutrition, correct evaluation and maintenance of electrolytes, skin care, prolonged respiratory support and advances in antibiotic therapy, the mortality has significantly dropped down to 10 to 20%.[4]

Post-operative gastrointestinal fistula is a dread complication of gastrointestinal surgery, with reported incidence of up to 27%.[5] Primary fistulae occur due to a disease in the intestinal wall e.g. tuberculosis, crohn's disease and malignancy. Secondary fistulae can arise due to injury to normal gut e.g. surgical resection. Postoperative fistulae are result of anastomotic breakdown, sepsis or unrecognized injury of intestinal wall. Due to fistulation there may be peritonitis, multi organ failure and discharge of enteric fluid from abdominal wound.[6] These patients are usually treated conservatively by rest to gut, using

Correspondence:
Dr. Kheeo Ram Dholia
Almas Medical Complex Station Road,
Dari Muhalla, Larkana.
Phones: 074-4045231, 0300-3415279.
E-mail: dr.kheeoramdholia@yahoo.com

TPN, somatostatin and correction of fluid and electrolytes. Surgery is limited to those who are toxic with signs of peritonitis, failure of conservative treatment and major leaks from anastomotic site. Factors impeding spontaneous closure include sepsis, malnutrition, crohn's disease, radiation, chemotherapy, malignancy, foreign material, total discontinuity between bowel ends and distal obstruction. Sepsis, in all its forms, is an important cause of morbidity and mortality and requires aggressive treatment.[4,7]

There are types of fistula, low out put and high output depending upon the amount in 24 hours. In low type the amount is less than 1000 ml/ 24 hours, while in high type the amount is more than 1000 ml/ 24 hours.[8] They can be described anatomically as simple (with direct communication between the gut and the skin) or complex (with one or more tracts or associated with intervening abscess cavity half-way along the tract. The site of leakage and length of the fistula can be determined by small bowel enema, barium enema, by fistulography and CT scan abdomen. The aim of this study is to high light the different causes of enterocutanous fistula, common sites and different modes of management in our setup.

METHODOLOGY

A total number of 22 patients were analyzed with enterocutaneous fistula after surgery for trauma, abdominal tuberculosis, ileal perforation, gynaecological cause, perforated appendicitis, gastric perforation and reversal of stoma, performed in our unit or referred from out side, where as patients with malignant diseases were excluded from study. All the patients were thoroughly investigated including nutritional assessment and CBC, Blood sugar, urea, urine DR, Serum electrolytes, LFT with viral markers and total protein with A/G ratio.

All the patients were initially managed conservatively including bowel rest, TPN, somatostatin, antibiotics, skin care by applying zinc oxide for excoriation and collecting bag over fistula site. Dehydration and electrolyte imbalance was corrected. Three patients were found having diabetes which were corrected by insulin therapy. 5 patients were jaundiced with deranged LFT, which were treated by the advise of physician. Those patients who did not respond were re-operated. Criteria for non-responding were increased pulse rate, raised temperature, decreasing urine out put and same or increase amount of fistula contents. Tuberculosis was confirmed on histopathology. All patients were followed after discharge and closely watched for recurrent leakage and other complications.

Table I. Sex incidence (n=22)

Sex	No. of Cases	Percentage
Male	14	64
Female	8	36

Age Group	No. of Cases	Percentage
< 20 years	1	5
21-30 years	2	9
31-40 years	4	18
41-50 years	8	36
51-60 years	5	23
> 61 years	2	9

Table II. Age distribution (n=22)

Age Group	No.	%
Abdominal Tuberculosis	10	45
Gynaecological Procedure	3	14
Reversal of Stoma	2	9
Fire Arm Injury	2	9
Blunt Abdominal Trauma	2	9
Perforated Appendicitis	2	9
Gastric Perforation	1	5
Total	22	100

Table III. Indication of first surgery (n=22)

RESULTS

Out of 22 patients 14(64%) were male while 8(36%) were female with M: F ratio of 1.7:1 (Table I). Age ranged from 18 to 62 years with the mean of 40 years. Most of the patients belong to age group 41 to 50 years (Table II).

Indications of first surgery were abdominal tuberculosis 10(45%), gynaecological surgery 3(14%), reversal of stoma 2(09%), FAI 2(09%), blunt abdominal trauma 2(09%), perforated appendicitis 2(09%) and gastric

Table IV. Fistula types (n=22)

Type of Fistula	No.	%
Low Output	6	27
High Output	16	73

Causes	Conservative	Re-operated	Total
Abdominal Tuberculosis	4	6	10
Gynaecological Procedure	1	2	3
Reversal of Stoma	-	2	2
Fire Arm Injury	1	1	2
Blunt Abdominal Trauma (Colonic Injury)	1	1	2
Perforated Appendicitis	1	1	2
Gastric Perforation	1	-	1
Total	9	13	22

Table V. Management of Entracutaneous Fistula (n=22)

perforation 1(05%) Table III.

16(73%) patients were having high output fistulae, while 6(27%) were low out put type (Table IV). 9(41%) patients responded to conservative treatment, while 13(59%) non responders were operated (Table V). Causes of enterocutanous fistula (operative findings) were anastomotic leakage in 7(31%) patients and missed perforation in 6(27%), (Table VI). The most common site of fistula was ileum in 13(59%) patients, colon in 4(18%), caecum in 2(9%), Jejunum in 2(9%) and Gastric in1 patient (5%), (Table VII). Five patients expired with mortality rate of 23%.

DISCUSSION

Enterocutaneous fistulae are abnormal communications between the small or large bowel and skin, which may be lined with epithelium or associated with intra-abdominal sepsis.[4] It is a drastic complication of gastrointestinal surgery. Since 1970's the mainstay of fistula treatment has been intravenous nutrition to stabilize patient, induce gastrointestinal tract rest and TPN. Introduction of TPN has reduced the mortality and increase closure rate. Patients included in this study were either operated in our unit or referred from peripheral area. They were admitted in ward in malnourished state and in sepsis. Initially all patients were resuscitated by correcting fluid and electrolyte imbalance, providing nutrition, antibiotic cover and chest physiotherapy. Majority of patients were male with M: F ratio of 1.7: 1. while other studies show 0.6:1[9], 1.4: 1.[10] Age ranged from 18 to 62 with mean of 40 years, while other studies show age ranged from 39 to 75 years[9], 16 to 65 years[11] and mean age in other studies were 36[10] and 33.9.[12] In this study the most commonly enterocutanous fistula occurred in patients with tuberculosis (45%). Qureshi[10] also mentioned in his study tuberculosis, the most common cause of fistula. Conservative management was successful in 41% of patients. Different studies observed conservative response in 77.7%[12], 71.1%[13], and 74%[14] of patients. In this study the most common site of fistula was ileum in 59%. Study conducted by Jamil also stated ileal fistula in 52%[15] of cases. In this study most of the patients were of high out put 73%. In Qureshi[10] study 67% fistulae were of high type. The most common cause of enterocutanous fistula observed was anastomotic leakage repair in 7(31%) patients. Gondal[11] also mentioned in his study anastomotic leakage is the most common cause of fistulae. In this study the mortality rate was

Table VI. Causes of Fistula after exploration (n=13)

Indication of 1st Surgery	Anastomotic / Repair Leakage	Missed Perforation	Total
Abdominal Tuberculosis	3	3	6
Gynaecological Cause	1	1	2
Reversal of Stoma	1	1	2
Fire Arm Injury	-	-	1
Blunt Abdominal Trauma (Colonic Injury)	1	-	1
Perforated Appendicitis	1	1	1
Total	7	6	13

Site	No. of Cases	Percentage
Ileum	13	59
Colon	4	18
Caecum	2	9
Jejunum	2	9
Gastric	1	5

Table VII. Common Site Fistula (n=22)

23%, while mortality rate in other studies were 22.5%[9], 18%[10] and 26.8%[11] respectively.

CONCLUSION

Intestinal tuberculosis was most common cause of enterocutanous fistula involving small intestine Anastomotic leakage repair was the common operative finding after exploration.

RECOMMENDATIONS

Majority of the emergency surgery are usually performed by the residents. This must be supervised by seniors for decision making regarding stoma formation or primary repair resection and anastomosis, to reduce the frequency of anastomotic leakage. In the presence of sepsis, if patient is not responding to conservative treatment early exploration is mandatory.

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