

## A STUDY ON MANAGEMENT OPTIONS ON ENTEROCUTANEOUS FISTULA

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### ABSTRACT

#### BACKGROUND & OBJECTIVES

Enterocutaneous Fistulas (ECF) present as a deadly complication following abdominal surgery in the postoperative period. Over the past four decades, the mortality from enterocutaneous fistula has diminished from 40-60% to approximately 15-20%. This improvement in prognosis is due to recent advances in treatment modalities. In the present era, sepsis accounts for more than 80% of deaths.

#### METHODS

41 cases of gastrointestinal fistulas were included; 34 patients were male and 7 patients were female and aged 40-60 years.

#### RESULTS

95% of the fistulas seen in the postoperative setting and maximum in the age group of 40-60. The incidence is high in males.

#### CONCLUSION

Concluded from the study that postoperative causes account for the majority of gastrointestinal fistulas and associated factors like sepsis, malnutrition, malignancy, low serum albumin level are the factors that prevent the spontaneous closure.

#### KEYWORDS

EC fistulas, Adverse Factors, Spontaneous Closure, Total Parenteral Nutrition and Surgical Intervention.

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**INTRODUCTION:** Enterocutaneous Fistulas<sup>1</sup> (ECF) present as a deadly complication following abdominal surgery in the postoperative period. Over the past four decades, the mortality from enterocutaneous fistula has diminished from 40-60% to approximately 15-20%. This improvement in prognosis is due to recent advances in treatment modalities. In the present era, sepsis accounts for more than 80% of deaths.

Management of ECF consists of fluid and electrolyte therapy, blood administration, critical care, ventilator management, antibiotic regimen and nutritional management.<sup>2</sup>

Anatomically classified as,

Type I- ECF originates from oesophageal, gastric and duodenal sources.

Type II- From small bowel.

Type III- From Large bowel.

Type IV- From large abdominal wall defects greater than 20 cm<sup>2</sup>.

It has highest mortality of 66%.

Physiologically Classified as,<sup>3</sup>

1. Low volume fistula <200 mL/24 hours.
2. Moderate volume between 200 and 500 mL/24 hours.
3. High volume >500 mL/24 hours.

Rober et al found that out of 120 small bowel fistulas, 60% were ileal. Soeters et al found that patients with high output fistula have high morbidity and mortality. Usually proximal small bowel fistulas are high output fistula. High output fistula has low rate of spontaneous closure and low output fistula has high rate of spontaneous closure.<sup>1</sup>

**AIM OF THE STUDY:** Includes finding out the causes, factors influencing the spontaneous closure and importance of parenteral nutrition in the management of fistulas.

**MATERIALS AND METHODS:** Enterocutaneous fistulas arising from stomach, duodenum, small bowel, and colon were included in this study. Enterocutaneous fistulas arising from oesophagus, biliary tract, rectum and anal canal were excluded from this study.

**RESULTS & OBSERVATIONS:** The present study of 41 cases of gastrointestinal fistulas revealed information, of which 34(83%) patients were males and 7(17%) patients were females. Most patients with ECF were aged 40-60 yrs. (Mean age, 41.23±2.72). A total of 95% of the fistulas were seen in the postoperative setting. Of 41 patients, 2 had gastric fistula and were excluded from further analysis.

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7 patients had colonic fistula and 32 patients had small bowel fistula; 14 ileal, 10 duodenal, and 8 jejunal. There were 20 patients (48.8%) with high-output fistula as compared to 21 patients (51.2%) with low output fistula. Duodenal and jejuna fistulae accounted for 70% of high-output fistulae.

Sl. No.	Age Group	No. of Patients	%
1	Up to 30-40 years	2	5%
2	40-60 years	37	90%
3	Above 60 years	2	5%
<b>Age Related Incidence</b>			

	Favourable	Unfavourable
Output	Low - <500 mL	High >500 mL
Anatomy of Fistula Tract	Long and Narrow	Short and Wide
Small Bowel	No Active Disease No Distal Obstruction No Mucocutaneous Continuity No Intestinal Continuity	Active Disease Distal Obstruction Mucocutaneous Continuity Intestinal Discontinuity
Patient	Previously Fit and Well	Significant Comorbidity
<b>Factors Influencing the Likelihood of Spontaneous Closure of ECF.<sup>4,5</sup></b>		

	Healed	Died	P
High output fistula (n=16)	10	6	0.0318
Low output fistula (n=19)	18	1	
<b>Comparison of Mortality</b>			

**Investigations:** It includes serum electrolyte level and renal function test and radiological investigations are fistulogram<sup>6</sup> and barium contrast study. Ultrasound and CT scan are done to detect intra-abdominal sepsis.

**Management:** Management is decision making on the management of fistula.<sup>2,7</sup> Reber et al found that 90% of fistulas close spontaneously within 1 month. Less than 10% closed after 2 months. There is no chance of closure after 3 months. If the fistula has not closed by 4 to 6 weeks, it is unlikely to do so and operative intervention is needed.

I	Stabilisation	Rehydration Correction of Anaemia Drainage of Sepsis Electrolyte Repletion Nutritional Support institution Control of Fistula Drainage Local Skin Care	Within 24-48 hrs.
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II	Investigation	Fistulogram USG/CT OGD/Colonoscopy	After 7-10 days
III	Decision	Assess the Likelihood of Spontaneous Closure Plan Therapeutic Course Decide Surgical Timing	7-10 days 4-6 weeks
IV	Definite Therapy	Plan Operative Approach Bowel Resection Secure Abdominal Closure Gastrostomy/Jejunostomy	When spontaneous Closure is unlikely (or) after 4-6 weeks
<b>Management Phases for Gastrointestinal Fistulas.<sup>8</sup></b>			

**Observations of the Study:** The present study of 41 cases of gastrointestinal fistulas revealed information, of which 34(83%) patients were males and 7(17%) patients were females. Most patients with ECF were aged 40-60 yrs. (Mean age, 41.23 # 2.72). A total of 95% of the fistulas were seen in the postoperative setting. Of 41 patients, 2 had gastric fistula and were excluded from further analysis. 7 patients had colonic fistula and 32 patients had small bowel fistula; 14 ileal, 10 duodenal, and 8 jejunal. There were 20 patients (48.8%) with high output fistula as compared to 21 patients (51.2%) with low output fistula. Duodenal and jejuna fistulae accounted for 70% of high output fistulae.

Sl. No.	Age Group	No. of Patients	%
1	Up to 30-40 Years	2	5%
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<b>Table 1: Age Related Incidence</b>			

The incidence of postoperative enterocutaneous fistula was maximum in the age group of 40-60 years. Above 90 % of the people were in this age group. This implies that enterocutaneous fistula increases with age.

Type	No. of Cases	%
External	41	100
Internal	0	0
<b>Table 2</b>		

In this study, no cases were diagnosed as internal fistulas. This reflects the epidemiological status of the diseases like Crohn's disease, diverticulitis which are the major causes for internal fistulas. These diseases are rare in our territory. In this study, definitive surgery was carried out in following patients:

- Fistula with >2 cm bowel wall defect.<sup>3,9</sup>
- Internal fistula–gastrojejunal fistulas.
- Fistula with only 1-foot small bowel.
- Fistula with distal obstruction.

#### DISCUSSION:

- In this study, 95%<sup>4</sup> of the patients developed fistula postoperatively due to anastomotic line disruption<sup>10</sup>. The most common causes are intestinal anastomotic, or closure of ileal perforation and gangrene gut.
- In this study, 64.5% patients were fed with enteral route, 19.5% started on enteral feeds through FJ tube and 16% were started on total parenteral nutrition.
- There is no significant difference in mortality in the patients managed with either TPN or enteral nutrition.
- Patients with high output fistulae<sup>6</sup> have more incidences of fistula-related complications such as electrolyte disturbance, sepsis, and dermal excoriation, resulting in difficult management. The fistula healing rate is also lower and mortality is higher.
- Serum albumin is definitely an important prognostic factor that affects healing of fistula and mortality.
- In this study, 80% of cases were treated non-operatively with success rate of 81%. Remaining 20% of patients were managed surgically with a mortality rate of 17%.

#### CONCLUSIONS: Concluded from this study that

- Postoperative causes account for the majority of gastrointestinal fistulas.
- Anatomical origin of the fistula, length of the tract, bowel wall defect, associated adverse factors like sepsis, malnutrition, malignancy, serum albumin level are factors that influence the spontaneous closure.

#### Definitive Surgery Should be carried out in Following Patients:

- Spontaneous closure not occurred after 4-6 weeks of conservative therapy.<sup>3,11</sup>
- Patient having complex fistula anatomy.
- Patient having distal bowel obstruction.
- Patient having bowel defect of more than 2 cm in diameter.

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