

## ENTEROCUTANEOUS FISTULA IN AN OPERATED CASE OF TOTAL ABDOMINAL HYSTERECTOMY: A RARE CASE REPORT

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### Abstract

Enterocutaneous fistula is a pathological communication between the gastrointestinal tract and skin. It causes considerable morbidity and mortality. It is the most distressing situation to the patient, their relatives, and the treating surgeon. As aetiologically, most of them are iatrogenic and few are spontaneous. Among iatrogenic causes, it occurs most commonly after surgeries on the gastrointestinal tract. but rare after gynecological procedures. Although adjacent organ fistulae such as the vesicovaginal and rectovaginal fistulae are common after hysterectomy. We report a unique case of enterocutaneous fistula following total abdominal hysterectomy. The patient was managed with definitive surgical repair of fistula..

**Keywords--** Gynecological surgeries, resection, and anastomosis of the small intestine, hysterectomy, iatrogenic

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### INTRODUCTION

A fistula is defined as a pathological communication between two epithelialized surfaces. An enterocutaneous fistula (ECF) is defined as an abnormal connection between the gastrointestinal (GI) tract and skin<sup>(1)</sup>. Many classifications are available to classify fistulas, based on anatomic, etiologic, and physiologic properties of fistula<sup>(2)</sup>. Anatomically based can be categorized into type I (esophagus, stomach, and duodenum), type II (small intestine), type III (large intestine), and type IV (external)<sup>(3)</sup>. This classification gives a clue about prognosis and management strategy. Besides, it helps to understand the underline pathological process. Physiologically based on output from fistula, is classified into a) low output (<200 mL/24-hour periods), and b) high output (>500 mL/24-hour period). This is very important to manage conservatively. Etiologically around 80% of fistulas are postoperative. Operations for carcinomas of the gastrointestinal tract (GIT), inflammatory bowel disease, and adhesiolysis are the leading operations preceding enterocutaneous fistula formation<sup>(2)</sup>. Gynecological surgery is a rare cause of enterocutaneous fistulae (ECF)<sup>(4)</sup>. Traumatic ECF is increasing due to the rising trend of damage control surgery to save a life in trauma<sup>(4)</sup>. Spontaneous fistula forms 20% part of all enterocutaneous fistulas. Radiation, inflammatory bowel disease, diverticular disease, appendicitis, ischemic bowel, erosion of indwelling catheters, duodenal ulcers, and pancreatic cancers are the reasons behind spontaneous fistulas<sup>(2)</sup>. The first sign of a fistula will be an excess of fluid draining from the wound site. Fistulae may be single or multiple, and simple or complicated. Usually, distal luminal obstruction is common. Simple single fistulae with no obstruction have a greater chance of closing than multiple complex fistulae if good supportive care is given<sup>(5)</sup>. The treatment objective is the achievement of enteral feeding with the restoration of intestinal tract continuity. The help of a multi disciplinary team is needed to overcome this dreaded nightmare of both surgeon and patient<sup>(6)</sup>. As it can lead to significant morbidity and even death also<sup>(7)</sup>. Surgical care of these patients can be very challenging, frustrating, and rewarding. To meet these challenges, the surgeon must have complete knowledge of anatomy, physiology, and metabolism to overcome the hurdles in

the management of entero-cutaneous fistula. This case reported documenting a unique presentation of enterocutaneous fistula encountered in a patient who underwent total abdominal hysterectomy.

### CASE REPORT

A 45-year-old female patient came to Acharya Vinobha Bhave Rural Hospital with complaints of increased frequency of menses and increased bleeding during menses for 2 months. The patient was examined and was subjected to all routine investigations which were unremarkable. Per Speculum examination revealed active bleed from cervical opening (OS) and polypoidal mass of size around 1x1 cm. Ultrasonography of the patient was done on admission, suggestive of multiple small intramural uterine fibroids. The patient was advised total abdominal hysterectomy (TAH) by the gynecologist. An elective procedure- Total Abdominal hysterectomy with salpingo-oophorectomy was planned for 3<sup>rd</sup> day of admission after obtaining fitness from the department of medicine and anesthesia. During the procedure, while separating severe bowel adhesions inadvertently there is an injury to the bowel. The injury was in the form of perforation of distal jejunum and multiple black spots were identified on both jejunum and proximal ileum over a very large part of small bowel possibly because of cautery use. Surgeon's opinion was taken on table and closure of perforation in two-layer was done. Multiple black spots present on jejunoileal junction were improved partially after warm sponge application hence decided to manage conservatively. This decision was taken to avoid resection of a very large part of the bowel can lead to short bowel syndrome. Total abdominal hysterectomy was performed. The specimen was sent for histopathological examination. Rest surgery went uneventful. The patient was shifted to the surgical intensive care unit (SICU) for post-operative care. On 8<sup>th</sup>-day post-surgery, the patient had a faecal collection in the drain and presented features of peritonitis for which the patient underwent emergency exploratory laparotomy. During the procedure, after opening the abdomen, multiple perforations were seen in the small intestine. The bowel was found to be fragile and adherent to each other.

The separation wasn't possible due to the fragility and more risk of perforation of the intestine. All the visible perforation was closed and the abdomen was left open to allow to form enterocutaneous fistula. The patient was later shifted to SICU and a colostomy bag was attached. The patient was later shifted to the female ward where she was being managed conservatively. The patient was discharged with a colostomy bag in situ and advised for regular follow up.

After 5 months from the date of discharge from the hospital, a patient came for a follow up to the surgery OPD with a complaint of excessive drainage of fluid from the open abdomen into a colostomy bag attached to it. A Fistulogram was performed with water-soluble contrast (See Fig No.1) and a diagnosis of enterocutaneous fistula was made. Since it was a low output fistula patient was managed conservatively with oral antibiotics, oral nutrition, proper wound care by application of colostomy bag with periodic washing, and changing of a colostomy bag. However, the patient didn't show any signs of spontaneous closure of ECF.

Fistulogram revealed entry of dye into the small bowel when injected through external openings of bowel loops through large open abdominal wall defect suggestive of small bowel fistula. Elaborated clinical examination and performing a fistulogram was sufficient enough to make a diagnosis of small bowel enteroatmospheric fistula (Type IV Enterocutaneous Fistula) in our case.



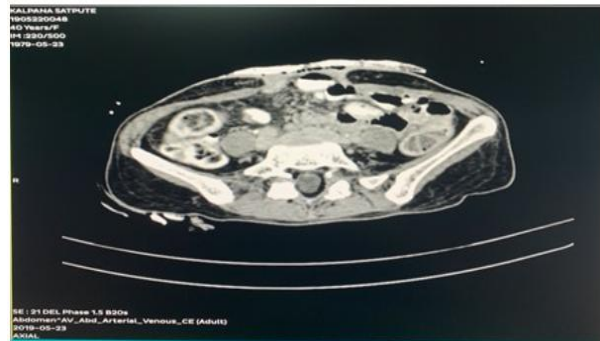
**Figure 1.** Fistulogram performed with water-soluble contrast showing extravasation of it through a fistula



**Figure 2.** Clinical photograph showing enterocutaneous fistula with abdominal wall defect

A diagnosis of non-healing low output Enterocutaneous fecal fistula with abdominal wall defect (open abdomen) was made. On clinical examination, there was an abdominal defect of size 15x10cm in the midline(see Figure2). The skin around the defect was excoriated and erythematous. Bowel loops were seen through the defect with multiple discharging fecal fistulas. The patient was advised to contrast-enhanced computed tomography (CECT) abdomen done. Which was suggestive of large lower abdominal wall midline defect with the bulging of bowel and the omentum through it(postoperative) with clumped small bowel

loops under the defect. There was Extravasation of the orally administered contrast from one of the ileal loops on the right iliac fossa reaching to extraperitoneal spaces in the midline defect and few similar linear areas of extravasated oral contrast seen arising from the clumped small bowel loops in the region of defect possibility of fistulous communication between small bowel loops and abdominal wall defect(See Figure3).



**Figure 3.** CE-CT Abdomen and Pelvis imaging showing extravasation of orally administered contrast into abdominal wall defect

Because of multiple small bowel fistulas, the patient underwent Re-exploratory laparotomy. Intra-operatively all the fistulas were seen confined to the proximal part of the ileum and distal part of the jejunum.Hence around 30 cm of distal jejunum and proximal ileum was resected followed by an end to end jejunoileal anastomosis(See Figures 4 and 5).



**Figure 4.** Intra-operative photograph showing multiple fistulas in the distal jejunum and proximal ileum



**Figure 5.** Photograph showing resected distal jejunum and proximal ileum

The postoperative course in the hospital was uneventful and the patient was discharged with a healthy suture line in situ (See Figure 6). A regular follow-up of the patient was done and found no fresh symptoms or signs of recurrence.



**Figure 6.** Post-operative clinical picture showing healthy suture line

**DISCUSSION**

Enterocutaneous fistulas are classified based on their etiology, anatomy, or physiology which will predict the possibility of spontaneous closure of the fistula, morbidity, and mortality (6).

Local, regional, and general factors are responsible for ECF. Local factors include anastomosis under tension, excess and inappropriate cauterization or poor blood supply, diseased or infected cut ends, etc. Regional factors include intraperitoneal collections, associated severe pancreatitis, and distal luminal obstruction. General factors include Severe malnutrition, uncontrolled diabetes mellitus, obesity, chemotherapy, and steroid therapy(1). In the present case, the definitive cause for the formation of fistula could be iatrogenic i.e, bowel injury caused while doing adhesiolysis and possibly because of the use of cauterization to separate bowels. Inadvertently cauterization leads to multiple black spots on the bowel. In the present case, the patient developed Type IV (Enteroatmospheric) fistula arising from the small bowel. Physiologically, The present case being low output fistula ( approx.150ml per day) indicates a good prognosis(8).

The diagnosis of the enterocutaneous fistula needs the help of imaging with clinical observation (small or large intestine contents ). Yellow-colored fluid drainage with rapid excoriation of surrounding skin due to enzyme action suggests small bowel fistula whereas brown fecal drainage preceding by a purulent discharge from the site suggests large bowel fistula(5).

Medical evidence from the last 20 years suggests that the primary treatment of ECF is conservative. Nutritional support, resuscitation, treatment of sepsis, and wound care are the pillars of conservative management [See Table No.1](9). In the present case, it was initially managed with oral antibiotics, Enteral feeding with protein-rich diet and supplementation, proper wound care by application of colostomy bag with periodic washing and changing of a colostomy bag.

**Table 1.** Medical line of management of EC Fistula

S.No	Components	Description
1	Resuscitation	Central Venous assess for intravenous administration Crystalloids administration Transfusion of PRC(Packed Red Cells)

2	Control of Sepsis	Drainage of abscesses if present Specific antibiotics if there is evidence of sepsis
3	Nutritional support	Total Parenteral Nutrition(TPN) Enteral feeding
4	Control of fistula drainage	Long term Nasogastric tube insertion Somatostatin and its analog
5	Wound care	Vacuum-Assisted Closure(VAC) system Placement of Colostomy bags

Generally, adequate nutrition support without sepsis will lead to spontaneous closure of enterocutaneous fistulas in one and a half months(8). This happens in most of the patients but in few patients required surgical intervention (7). In the present case, conservative management showed no signs of spontaneous closure of ECF.

No guidelines are present in the medical literature regarding the appropriate time for surgical intervention. Lee et al(4) suggest that the duration of conservative management should depend on the anatomical evaluation of the fistula tract and presence of unfavorable elements like - foreign body, radiation, infection, inflammatory bowel disease, epithelization, cancer, and distal obstruction(4). Datta V et al(9) advised to wait for at least 6 months to improve the patient's nutritional status (9). Study done by Irena Gribovskaja-Rupp et al(3) suggested three months before definitive surgery after treatment of malnutrition and sepsis.

**CONCLUSION**

Fecal fistula or ECF is a rare complication of hysterectomy. Surgeons who operate such cases should be wisely vigilant while suturing and handling bowel. However, ECF remains the most dreaded complication and a challenge for the entire surgical team to manage. Multidisciplinary help and patience of both treating team and patients relatives with some financial help from funding agencies here worked a lot.

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