The Insides Company

What is an Enterocutaneous Fistula and Enteroatmospheric Fistula?

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An enterocutaneous fistula (ECF) or an enteroatmospheric fistula (EAF) is a catastrophic complication requiring intense care and optimized nutrition to help accelerate the patient's journey to recovery.

An ECF is an abnormal connection or tract (fistula) that develops between the intestine (entero) and the skin (cutaneous). An EAF is a special type of ECF where the intestines surface through the skin, exposing the intestines to the atmosphere and external environment (atmospheric).

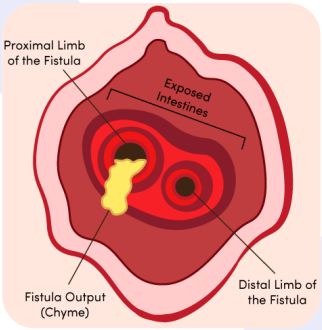

Figure 1. Schematic of an Enteroatmospheric Fistula with exposed intestines displayed. Fistula Output (Chyme) is shown leaking from the proximal (upstream) end of the Fistula.

ECFs and EAFs are complications that can arise as a result of bowel surgery, or secondaryto gut diseases, radiotherapy, abdominal injury or other spontaneous causes. ECFs occur in 10%-30% of cases of bowel surgery. EAF patients make up 5%-19% of those cases. Only thirty years ago, the mortality rate or risk of death from an ECF or EAF was as high as 50%. However with surgical advances and improvement in patient management, the mortality rates have seen a reduction to 20%-30% of cases.

Between 75%-85% of ECFs and EAFs form from iatrogenic reasons (i.e. from having surgery), mostly attributed to surgical join (anastomosis) break downs, or trauma related to surgery. The remaining 15%-25% of fistulas form secondary to inflammatory bowel diseases (IBD), radiological damage and incidental causes.

The perforation of the intestine generally happens due to inflammation that is present as a result of recent surgery. Once the intestine is compromised, intestinal contents called chyme migrate through the tear in the intestinal wall into the abdomen, finding an easy path/tract to the skin. When chyme spills out onto the skin, it severely exacerbates damage to the wound, causing further skin breakdown. As discussed in our previous blog "What is Chyme", chyme contains valuable nutrients, fluids and enzymes critical to nourishing the body. So when chyme is lost via the fistula, patients with an ECF or EAF will often require intravenous nutrition or parenteral nutrition (PN) to compensate for the fluid and nutrients lost in the fistula output.

Figure 2. Photo of a Patient with an Enteroatmospheric Fistula.

Of the ECF's that form, approximately 90% have an output of less than 200mL/24hr. These low output fistulas typically heal and close spontaneously over a period of months. The other 10% are high-output fistulas, which includes all EAF patients, and have an output of more than 500ml/24hr. These require immediate intervention in a hospital setting to prevent sepsis (body-wide infection caused by the bowel contents spreading into the abdominal cavity), dehydration, and to maintain their

nutritional status. The severity of the sepsis and amount of output coming through the fistula determines how long it takes to stabilise the patient, which is usually between 2 to 10 days.

The Insides Company has developed The Insides™ System, a therapeutic chyme reinfusion solution for the management of high-output enterocutaneous and enteroatmospheric fistulas.

References

1. Rahman, F. N., & Stavas, J. M. (2015, 2015/01/01/). Interventional Radiologic Managementand Treatment of Enterocutaneous Fistulae. Journal of Vascular and Interventional Radiology, 26(1), 7-19. https://doi.org/https://doi.org/10.1016/j.jvir.2014.09.009