

Endoscopic Management of GI Fistulas

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In general, a fistula is defined as an abnormal connection between an organ or vessel and another organ, vessel, or skin. Mostly, fistulas are rather thin tube-like structures of various length and can be iatrogenic - caused by injury or surgery, or spontaneous - caused by inflammation, infection, neoplasia, or foreign body.

GI fistulas represent abnormal communication between the part of GI tract and other organ, vessel, or skin. Similarly to a fistula, the GI sinus tract is a tube-shaped structure that begins from the GI tract but ends blindly in the surrounding structures. Fistulas can be asymptomatic or cause symptoms of various intensity. The main concerns are infective complications and sepsis, dehydration, and malabsorption with malnutrition.

GI fistulas are named according to the site of origin and the site of termination, the site of origin forming the first part of the name, and the site of termination the last part (eg, enteroenteric, enterocolic, gastroenteric, gastrocolic, cholecystocolic, choledochocolic, colovesical, rectovaginal, enterocutaneous, oesophagotracheal, etc.)

The therapeutic approach depends on presentation, type of fistula, aetiology, and patient condition and preferences. In acute presentation, the first step is to control infection/sepsis and electrolyte imbalance if present, following nutritional support and control of fistula output. Once patient is stabilized thorough diagnostic evaluation is needed. This includes clinical examination, radiological methods such as MDCT, magnetic resonance imaging, and GI con-

trast studies, fistulography, endoscopy, and fistuloscopy. The treatment of chronic fistula can be very challenging. It includes medications to control underlying disease, nutrition support, endoscopy, and / or surgery, all in multidisciplinary fashion with various specialists and therapists. However, it is not uncommon for fistulas to close spontaneously, depending on aetiology (postoperative and acute inflammatory more likely to close), site (gastric, at the level of Treitz and ileal are less likely to close), defect size (the smaller the better) and length of the fistula tract length (the longer the better), condition of adjacent GI tract, and presence of abscess or distal obstruction.

Endoscopy has the role in diagnostic evaluation of GI tract fistulas, and can be used in selected patients with therapeutic intention. In addition to visualising and analysing the fistula opening in the GI tract, endoscopy can be used to inject dye (eg, methylene-blue or indigo-carmin) into the GI tract orally to the fistula or directly to the opening / cannal of the fistula, allowing 'functional' diagnostics. On the other hand, endoscopy plays an important role in the evaluation of the surrounding GI tract mucosa and the underlying disease.

Endoscopy plays an important role in the management of early postoperative leaks and perforations that can be closed by through-the-scope (TTS) or over-the-scope (OTS) clips, and suturing devices, the latest with limited clinical experience. Another approach in acute/early setting is stenting via covered metal stent, which can serve as an escape or bridging therapy, but sometimes proves to be definitive, espe-

cially if defects are small. The main concern is stent migration which occurs in around one third of the patients and necessitates reintervention but also can cause serious adverse events such as perforation and obstruction of the GI tract. TTS clips are relatively ineffective for the closure of chronic fistulas, but the effectiveness of OTS clips is greater, with higher rates of fistula closures. This tool encompasses a large clip that can be used in combination with a tool to anchor-and-pull or to grasp-and-pull the fistula opening into the device for firm capture of the tissue. Data from the literature shows promising results, with good technical success, but clinical success in follow-up of around 50%. Endoscopic suturing is a complex new endoscopic technique allowing full-thickness suturing theoretically translating to high closure rates. However, clinical experience in this setting is very limited, and more clinical data are eagerly awaited. The application of endoscopic tissue sealants (fibrin glue or cyanoacrylate) can also be effective in selected group of patients, i.e., patients with thin long and low output fistulas. This method can be combined with other methods such as clipping. Endoscopic therapy is especially interesting for patients who are not good surgical candidates.

Conclusion: Management of GI tract fistulas is very complex and must include various experts in a multidisciplinary approach. Endoscopy has a role in diagnostic workup and is the first line therapeutic option in the acute setting such as early postoperative leaks. There is an increasing role for new endoscopic modalities such as stenting, OTS clipping, application of tissue sealants, and endoscopic suturing in chronic fistula management, which are less invasive compared to surgery and have the potential to replace complex surgical procedures for the management of these conditions. Even though widely acceptable algorithm that covers endoscopic therapy for GI fistulas is not available, endoscopists should be familiar with endoscopic therapeutic options as well as the site and other fistula features defining suitability for endoscopic therapy. Only experienced therapeutic endoscopist should perform therapeutic procedures for GI fistula closure.

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