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Iatrogenic Enteroatmospheric Fistulae – Choosing Right Management Strategy

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I. Introduction

Iatrogenic bowel injury during surgery is the most common cause of enteroatmospheric fistula (EAF). Management of high-output EAF, especially multiple fistulas with distal obstruction, often fails when nutritional support is neglected.

II. Case report

A 65-year-old man with obstructed sigmoid adenocarcinoma underwent multiple laparotomies with further segmental bowel resection after anterior resection and ileostomy for adhesive obstruction, resulting in two EAFs. The small bowel fistulae produced 1,100–2,000 mL/day for more than 4 months.

A trial of enteral feeding after 1 month increased fistula output, compromising wound care and making fistula isolation difficult. Inadequate fluid replacement further compounded the complexity. Radiological evidence of obstruction between the distal fistula and stoma precluded enteroclysis, although the patient could afford the Insides® System.

He was managed with six months of total parenteral nutrition (TPN), high-dose antimotility therapy for output control (Loperamide 40 mg daily and Lomotil three tablets TDS in divided time dosing) (Figure 1).

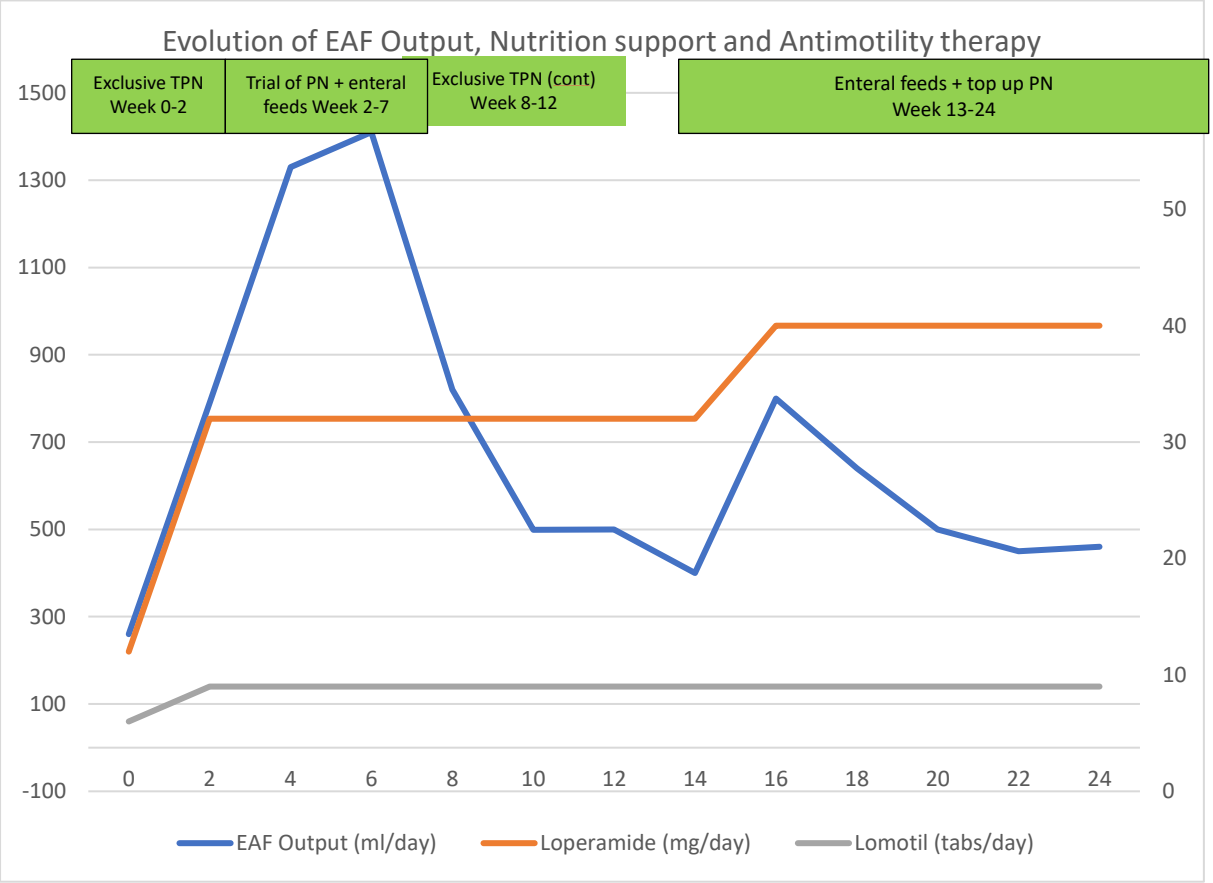

Figure 1: Evolution of EAF output, nutrition support and antimotility therapy

Furthermore, customized isolative dressings were required until wound maturation was achieved. (Figures 2-4) He was kept on supplemental PN until adequate bowel adaptation for home discharge on enteral feeds. This was supported by weekly, then fortnightly readmissions for 3-day PN. A reassessment scan is planned in 6–9 months for carcinoma surveillance and anatomical evaluation for surgical planning.

Figure 2: EAFs at Week 0 – placed on negative pressure wound therapy

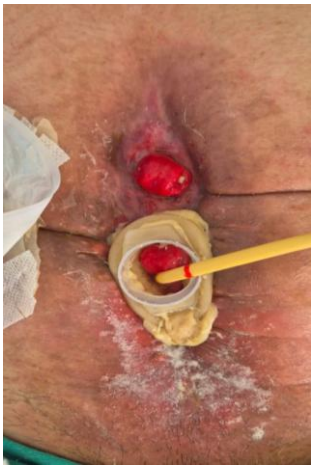

Figure 3: EAFs at Week 16 – use of customized isolative dressing with modified syringe flange and catheter to divert effluents

Figure 4: EAFs at Week 24

III. Discussion

The optimal timing to establish enteral feeding in EAF remains debated. Balancing wound care, fistula output, and understanding bowel adaptation physiology is essential to guide the type and timing of nutritional support.

Early and adequate PN is recommended to prevent severe protein–energy malnutrition, support wound healing, and optimize the patient before any attempt at definitive reconstructive surgery [1-3]. High-output EAFs cause substantial fluid, electrolyte, and nutrient losses and often limit the feasibility of enteral nutrition (EN), particularly when EN directly increases fistula output and compromises wound care, as occurred in this case [4]. PN should not be reduced until sufficient bowel adaptation permits adequate enteral absorption [5].

Pharmacologic reduction of fistula output is a cornerstone of care in high-output stoma and EAF. High doses of antimotility drugs beyond standard recommendations are often required, as these agents may be poorly absorbed in high-output EAFs. It is reported that doses up to 16 mg four times daily (64 mg/day) may be required in selected patients, with codeine phosphate or diphenoxylate/atropine added if monotherapy is insufficient. However, such dosing is off-label and requires careful monitoring for constipation, ileus, and potential cardiac toxicity [2,5,6,7].

Successful EAF management depends on diverting and containing effluent, protecting the surrounding skin, and allowing progressive granulation and wound maturation, often using a combination of customized dressings, ostomy appliances, and negative-pressure systems tailored to individual anatomy [5,8]. These measures support wound maturation and eventual transformation of the EAF into a stoma, enabling subsequent reconstruction.

IV. Conclusion

Individualised management strategies for complex EAFs require understanding of bowel anatomy and physiology. The successful treatment of high-output EAFs complicated by type 2 intestinal failure requires a coordinated multidisciplinary approach to address profound metabolic, nutritional, and wound care challenges. As demonstrated in this case, balancing prolonged parenteral nutrition, high-dose antimotility therapy, and customized wound isolation is crucial when early enteral feeding is not feasible.

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