Managing Anastomotic Leaks: A Promising and Novel Technique

Alisa Khomutova, Isabelle Van Roy, Paula Denoya, Deborah Nagle

Stony Brook Medicine
Department of Surgery

Renaissance School of Medicine
Stony Brook University

BACKGROUND

Intestinal perforations and anastomotic leaks present significant challenges during surgery, often necessitating bowel resection with associated morbidity and prolonged recovery. The use of biologic patches represents a promising alternative for managing select cases of intestinal perforations, offering a novel solution for achieving primary closure and promoting healing.

METHODS



CASE

We present a 73-year-old male with a complex surgical history including short bowel syndrome and several high output enterocutaneous fistulae secondary to multiple exploratory laparotomies and bowel resections. He was managed with TPN and output reducing medications, including teduglutide. While he responded well to conservative measures, however his fistulae never fully closed, and he remained unable to tolerate significant oral intake. Seven months later he was taken for elective exploratory laparotomy for planned takedown of enterocutaneous fistulae. The abdomen was found to be frozen, necessitating extensive adhesiolysis. Two small bowel resections were performed with primary stapled anastomoses, and the common enterotomy was closed in two layers.

Unfortunately, on postoperative day 1, the patient's drain became bilious, and a CT scan with oral contrast revealed a leak with extensive extravasation. He was immediately taken back to the operating room for repeat laparotomy, where an 8mm defect was found at the proximal jejunal anastomotic staple line. Due to the proximal location of the breakdown, the patient's limited bowel length and the extensive adhesions, the decision was made to close the defect with a slowly absorbable 4-0 barbed suture and reinforce it with a bovine pericardial patch, which was secured to the serosa with 4-0 PDS suture. An NGT methylene blue leak test was negative. Postoperatively, the patient recovered well. His diet was gradually advanced and his chronic wounds healed.

DISCUSSION

In this case, the application of a biologic patch proved successful in achieving durable closure of a small bowel anastomotic leak, avoiding the need for further bowel resection or potential ostomy creation in a patient with foreshortened bowel and a frozen abdomen. The current literature on the use of biomaterials for anastomotic leak is extremely limited, with the majority focusing on animal models.

The few studies that have been done in humans have reported positive results with fibrin sealants, collagen patches (including bovine pericardium) and omentoplasty, however nearly all of these are studied in the context of preventing anastomotic leaks and not treating them. Further studies are warranted to evaluate the long-term outcomes and cost-effectiveness of this innovative approach in intestinal perforation repair.

REFERENCES

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