

Role of Human Amniotic Tissue Derived Allograft in Reducing Colonic Anastomotic Leaks

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Objective

Anastomotic leak is one of the most feared complications of intestinal surgery. Despite many advances in surgical techniques, anastomotic leaks remain a challenge for surgeons and a devastating postoperative complication for the patient. Patients with anastomotic leaks have higher lengths of stay, higher mortality rates, higher readmission rates, more reoperations, and an overall greater impact on quality of life¹. Literature suggests that specifically colocolonic and colorectal anastomosis leak rates are as high as 3-6% and 7-13% respectively².

Over the years many various surgical techniques have emerged in an attempt to minimize anastomotic leaks associated with colorectal surgery. Biologic graft such as dehydrated human placental membranes have recently gained ground in various aspects of surgery. Our group hypothesized whether reinforcing colocolonic and colorectal anastomoses intraoperatively could decrease anastomotic leak rates.

With several placental products available today we focused our interest on surgiGRAFT, an amniotic tissue allograft. This product is an amniotic tissue biologic graft harvested from pre-screened healthy donors during cesarean childbirth. It was FDA approved in 2016 and is intended for reconstruction, repair or replacement of a donor recipient's tissue. This is the only placental biologic graft free of chorion – the portion which contains donor DNA and theoretically can transfer disease to the recipient. To date there are no studies evaluating the role of this amniotic chorion-free graft in potentially reducing anastomotic leak rates.

Methods

In our surgical practice we began to reinforce all colocolonic and colorectal anastomoses with surgiGRAFT amniotic tissue derived allograft. We present our initial experience with the first 15 cases. All patients were randomized to a single control group, regardless of BMI, diagnosis, comorbidities, age or ASA (American Society of Anesthesiologist) class. This cohort included emergent and elective cases. Patients were evaluated postoperatively at 2 weeks and 3 months. No exclusion criteria were utilized. Cases reviewed included both emergent and elective resections. Complications, specifically presence of anastomotic leak, were retrospectively analyzed.

¹ Hammond J, Lim S, Wan Y, Gao X, Patkar A. The burden of gastrointestinal anastomotic leaks: an evaluation of clinical and economic outcomes. *J Gastrointest Surg*. 2014 Jun; 18 (6): 1176-85.

² Phillips B. Reducing gastrointestinal anastomotic leak rates: review of challenges and solutions. *Open Access Surgery*. 22 January 2016 Volume 2016:9 Pages 5-14.

Preliminary results

A total of 15 cases involving colocolonic or colorectal anastomosis were performed over a 3-month period. Mean age was 62.5 (46–84), mean BMI was 31 (20–50) and mean ASA was 3 (2–4). Total operative time was 68 minutes (25–130 minutes). The patient cohort diagnosis breakdown was 6 (40%) with inflammatory disease (acute and chronic diverticulitis) and 9 (60%) with malignant process. Diagnosis was confirmed by post-operative pathology report. There were no anastomotic leaks in patients with either type of anastomosis.

Conclusions/Future directions

Reinforcing colocolonic and colorectal anastomoses with amniotic tissue derived allograft is safe to perform on any patient requiring colorectal surgery regardless of diagnosis, BMI, age and ASA and may be effective at reducing the risk of anastomotic leak.