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# Abstract: Esophageal Reconstruction with Supercharged Jejunal Interposition: A Reliable Intervention for Establishing Esophageal Continuity in a Pediatric Population

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levels. 30.6% of patients had high aFXa levels, including 12.2% of the population who were therapeutically anti-coagulated. Patient weight predicted enoxaparin metabolism ( $r^2$ -value of 0.45). When compared to patients given enoxaparin 40mg once daily, patients given enoxaparin 40mg twice daily 1) were significantly less likely to have low aFXa (9.2% vs. 44.1%,  $p<0.001$ ), 2) had non-significant increase in clinically relevant bleeding (6.1% vs. 3.2%,  $p=0.34$ ), and 3) had significantly fewer post-operative VTE (0% vs. 5.3%  $p=0.021$ ).

**CONCLUSION:** With enoxaparin 40mg twice daily, only 9.2% of patients receive inadequate prophylaxis based on aFXa level. This is relevant because prior work has correlated inadequate prophylaxis with symptomatic VTE after plastic surgery procedures. When compared to patients who receive enoxaparin 40mg per day, patients who receive enoxaparin 40mg twice daily had significantly fewer VTE and had non-significant increase in clinically relevant bleeding. Ongoing patient recruitment will further define the effectiveness and safety profile of this intervention.

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### **Esophageal Reconstruction with Supercharged Jejunal Interposition: A Reliable Intervention for Establishing Esophageal Continuity in a Pediatric Population**

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**INTRODUCTION:** In children, esophageal defects cause significant morbidity. The Foker procedure, gastric pull-up, and colonic interposition have demonstrated success in establishing esophageal

continuity. However, these forms of esophageal repair are susceptible to failure. Additionally, cases exist where varied anatomy and previous surgery may preclude the application of these procedures. In such cases, jejunal interposition may be considered. "Supercharging" pedicled jejunal flaps allows for longer conduits, and serves to improve flap perfusion, healing, and function. Previous studies have questioned the feasibility of this intervention in a pediatric population. The purpose of this study is to describe the outcomes of pediatric patients who underwent supercharged jejunal interposition for esophageal reconstruction at our institution.

**METHODS:** We reviewed the records of patients who underwent esophageal reconstruction using supercharged pedicled jejunal (SPJ) flaps at our institution from 2013–2017.

**RESULTS:** Thirteen patients, aged 1.4–23.8 years, underwent esophageal reconstruction with SPJ flaps. Eleven patients had esophageal atresia and two developed esophageal strictures secondary to caustic ingestion. All had previously undergone failed attempts at restoring esophageal continuity. Patients have been followed-up for an average of 19.7 months. Reconstruction with SPJ flaps was laborious and technically demanding, taking an average of  $11.8\pm 3.1$  hours. Most cases (92.3%) involved the microsurgical anastomoses of an internal thoracic artery and vein to jejunal arterial and venous branches, respectively. All patients were discharged with an intact SPJ flap, and there were no morbidities. For two children, the postoperative course was complicated by chest wall infections; another individual experienced small bowel obstruction. So far, four patients have required endoscopic stricture dilation, and one child has returned to the operating room for relocation of their jejunogastric anastomosis. Following reconstruction, patients were intubated for an average of  $8.7\pm 3.7$  days, and monitored in the intensive care unit for a mean of  $18.0\pm 7.3$  days. By postoperative day 50 (range, 15–50 days), all were able to meet their caloric needs enterally. Currently, eleven patients (84.6%) are tolerating oral feeds.

**CONCLUSION:** Although the complexity of SPJ flaps limits their widespread use, our group's experience with this technique demonstrates the feasibility of this intervention in the pediatric population. When performed by an experienced, multidisciplinary team, this approach is reliable and should be considered for children with limited reconstructive options.