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**INTRODUCTION:** Vaginal reconstruction is indicated in vaginal agenesis, following pelvic tumor resection, trauma and for sexual-reassignment surgery. Different surgical options have been described for vaginal reconstruction. Herein, we present the clinical outcomes and sexual function evaluation using the pedicle transverse colon flap (TCF) for gender reassignment surgery in transgender women.

**METHODS:** This is a retrospective chart review of all transgender women who underwent gender reassignment surgery using the pedicle TCF. Demographics, etiology, procedure specifics and surgical outcomes were recorded and analyzed. Sexual function was measured using the Female Sexual Function Index (FSFI) and the female genital self-image scale (FGSIS) one year after surgery.

**RESULTS:** 15 patients underwent gender reassignment surgery using the pedicle transverse colon flap. Average age was 20, (range: 18–32 years), average OR time was 10.1 hours; (8–12.5 hrs.). The average length and width of the flaps was 15 cm and 2.8 cm respectively. During a 12-year follow-up, two complications were reported: one patient had pain due to narrowing at the neovaginal inlet, which required re-intervention and one patient had excessive amount of secretions in the first month which subsided at the third month after surgery. The mean FSFI score was 28.6 (range 24–31). All patients achieved a normal sexual function as indicated by a FSFI score of 25 or more. For the FGSIS, the mean total score was 20.0 ± 4.5 (range: 7- 28).

**CONCLUSION:** The pedicle transverse colon flap is another valuable alternative method for vaginal reconstruction with promising results and minor complications.

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**INTRODUCTION:** With recent advances in microsurgical instruments and technique, microvascular anastomosis has become a universal surgical technique however, thrombosis still presents in a number of cases. Tension, twisting and compression to the anastomotic site are the main causes of thrombus however disorder of the coagulation fibrinolysis system also need to be considered. To date, only few reports exist regarding thrombosis caused by disorder of coagulant system in microvascular anastomosis. Here we report our three cases in which multiple thrombus formation occurred intraoperatively caused by decrease of antithrombin (AT) activity.

**CASE REPORTS:**

Case 1: A 70-year-old male presenting with an esophageal and intestinal fistula after gastric tube cancer were subjected to jejunal pull-up through ante-thoracic route and vascular augmentation to the jejunal artery and vein with the internal thoracic artery and vein was performed. During the operation, arterial thromboses occurred three time and venous thromboses occurred four time. Intraoperative examination showed AT activity decrease (50 %) and AT transfusion was performed. After transfusion, arterial or venous thrombosis was not observed. The intraoperative bleeding volume was 1100ml and the operation time was 12 hours 20 minutes.

Case 2: A 77-year-old man presenting with a right hepatic artery injury during hepatectomy for hilar cholangiocarcinoma. Resection of injured artery followed by vascular anastomosis were performed however thrombosis was observed 3 times. Intraoperative blood test showed marked decrease of AT activity (25 %) and AT transfusion was performed. Fourth arterial anastomosis was performed after AT transfusion and no further thrombosis was observed thereafter. Intraoperative bleeding volume was 403ml and operation time was 13 hours 23 minutes.

Case 3: A 78-year-old man presenting with extensive left maxillary sinus carcinoma underwent left total maxillectomy, anterior and middle skull base resection, and subsequent free rectus abdominis myocutaneous flap
During the operation, arterial thrombosis was observed 3 times in the microvascular anastomotic site. Intraoperative examination showed AT activity decrease (37 %) and AT transfusion was performed. Fourth arterial anastomosis was performed after AT transfusion and no further thrombosis was observed. Intraoperative bleeding volume was 1480ml and operation time was 18 hours 20 minutes.

RESULTS: Thrombosis was not observed in any of three patients intraoperatively after the transfusion or postoperatively and no other complications were observed.

DISCUSSION: AT deficiency was thought to be a main reason for the thromboses observed during the operation in all three cases. AT is synthesized in the liver and inhibits thrombus formation. It accounts for about 80 % of the thrombin inactivation in the blood, and is greatly related to the balance of the coagulation-fibrinolytic system. Various factors are thought to explain the decrease of AT activity observed in the cases presented; including hereditary AT deficiency, severe intraoperative blood loss, highly invasive operation, malnutrition and impaired liver function. It is necessary to consider AT deficiency in case repeated thrombosis developed intraoperatively.

Fasciocutaneous Free Flaps in Extremity Reconstruction: Safety of Re-Elevation

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PURPOSE: Free flap-based extremity reconstruction in the settings of chronic osteomyelitis and acute traumatic wounds can be a complex, multi-staged process that requires elevation of the free flap at each stage. Use of fasciocutaneous flaps is a safe and effect option in this situation, and may actually be preferable to muscle or musculocutaneous flaps despite traditional recommendations. Here the authors present their experience in utilizing fasciocutaneous flaps for reconstruction of the lower extremity in the settings of chronic osteomyelitis and acute traumatic wounds.

METHODS: A retrospective review of a single-center's experience with lower extremity fasciocutaneous free flap reconstruction in the setting of chronic osteomyelitis and acute traumatic wounds was performed. Patients were identified from the senior surgeon's prospective database. Osteomyelitis was diagnosed with tissue culture as well as corresponding radiographic changes. Charts were reviewed for relevant risk factors, operative details, and outcomes.

RESULTS: Twenty-one patients underwent reconstruction with free anterolateral thigh fasciocutaneous flaps. Of the fourteen trauma patients, there were seven Gustilo IIIB lower extremity injuries, three open hand or wrist fractures, two degloving injuries of the foot, one crush injury to the foot, and one traumatic hand amputation. Of the seven chronic osteomyelitis patients, the original mechanism of injury leading to chronic osteomyelitis was traumatic bony fracture in five patients and neoplasm excision in two patients. Mean patient age in our series was 44.3 (7 to 80) years. Mean BMI at time of reconstruction was 27.8 kg/m² (21.5 to 36.5 kg/m²). The average defect size was 270 cm² (32 cm² to 525 cm²). The average length of hospital stay was 32 days. Patients required a mean of 3.7 debridements prior to flap reconstruction and a mean of 6.9 surgeries to complete the reconstructive process. The average time from initial debridement to flap was 15.5 days; mean time from flap to final surgery was 122 days. Mean follow-up time period was 10 months. There were two urgent returns to the operating room with two flap losses. Nine flaps were re-elevated 13 times (1 to 4 re-elevations per flap) for flap debulking, draining wound, antibiotic spacer replacement or removal, bone grafting, and ligament or tendon reconstruction; there were no major complications following flap re-elevation.

CONCLUSION: Use of fasciocutaneous flaps in lower extremity reconstruction in the settings of chronic osteomyelitis and acute traumatic wounds appears to be safe and effective, even when the flap is subsequently re-elevated during revision surgery. Fasciocutaneous flaps allow for soft tissue coverage and the potential for protective sensation. Despite operating on a Western population with an overweight BMI, it was possible to utilize fasciocutaneous flaps for reconstruction. The optimal time from the initial injury to flap reconstruction may actually be longer than once thought.

Revisiting the Reverse Sural Artery Flap in Lower Extremity Reconstruction: A Systematic Review and Pooled Analysis