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AIM: Extralevator abdominoperineal excision (ELAPE) is becoming the main treatment modality for locally advanced low rectal cancer as substantial evidence link ELAPE with superior oncological outcomes than conventional abdominoperineal excision.¹

However, the extended resection performed in ELAPE creates an extensive three-dimensional soft tissue perineal defect within a previously irradiated field, increasing perineal wound complications to 40–60%.¹ Various methods have been described in order to reduce perineal wound morbidity including primary closure, flaps and biological meshes but the ideal technique remains controversial, making perineal reconstruction post-ELAPE challenging for the plastic surgeon.¹

The primary objective of this study is to appraise the post-ELAPE perineal reconstruction techniques in a UK tertiary institution. The secondary aim is to identify the technique that fulfils the principles of an ideal perineal reconstruction (function, reliability, and cosmesis).

METHODS: All patients that had undergone ELAPE and perineal reconstruction between 2009 and 2017 were reviewed retrospectively. Data included patients’ demographics, neo-adjuvant chemoradiotherapy, histopathology, imaging, duration of surgery, reconstructive method, follow-up period and complications.

RESULTS: Seventy-three (n=73) cases were identified. 81% of the patients had neo-adjuvant chemoradiotherapy. Gluteus maximus muscular flaps (35%, 26) were associated with a higher complication rate(62%). These included perineal collection(36%), perineal pain(35%) and perineal hernia(19%). Vertical Rectus Abdominal Muscular flaps’ (9.5%, 7) complication rate was 33% (1 flap necrosis, 1 perineal sinus and 1 perineal collection). Lotus petal (8%, 4) and Inferior Gluteal Artery Perforator V-Y advancement flaps’ (8%, 4) complication rates were 75% and 16% respectively. The above flaps required an average of 134 min (range 118-145) additional operating time.

Internal pudendal artery (IPA) perforator flaps, predominantly the PTO (Perineal Turn Over) flap², were introduced in 2014 and gained popularity (35%, 26) as they are quick (mean operating time 52 min) and provide good results with only 8.6% complication rate (1 perineal hernia and 1 superficial wound dehiscence). Review of this group’s radiotherapy scans showed that IPA perforators are consistently out of radiotherapy zone.

Overall complications in all flaps were higher in irradiated patients and smokers.

CONCLUSION: Techniques involving muscular dissection are associated with higher morbidity rates (20–62%) reflecting similar trends in the literature.¹ IPA turnover perforator flaps such as the PTO flap², that do not involve perforator transposition at 90° angle (as in lotus petal flaps) are associated with the lowest morbidity rate. Their concept supports the ideal reconstruction principles:

a) Function: the thick gluteal dermis acts as an autologous (as opposed to biological meshes) dermal vascularised substitute that strengthens the pelvic floor and prevents perineal hernia.²

b) Reliability: the perforators are consistent and always protected from radiotherapy ensuring good flap vascularity; the gluteal subcutaneous fat obliterates the dead space reducing collections and infections.²

c) Cosmesis: recreation of the natal cleft providing good aesthetic outcome.

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Optimizing Outcomes in Hemipelvectomy Reconstruction with the Free Fillet of Leg Flap

Presenter: Melissa Ann Mueller, MD
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**PURPOSE:** A hemipelvectomy is a high-level pelvic amputation, in which half of the pelvis and ipsilateral lower limb are removed, often due to sarcoma in the proximal thigh/pelvis. Reconstruction after hemipelvectomy in these cases presents many challenges due to a large defect size, multiple critical structures that need coverage, potential hernia space that must be repaired/obliterated, and difficulty with fitting an adequate prosthesis. Commonly, very large caliber vessels are contained within the area of resection to obtain tumor-free margins, leading to size mismatches with recipient vessels during free tissue transfer. The free fillet of leg flap is a powerful tool in the reconstruction of hemipelvectomy defects that would otherwise require sacrifice of the distal leg, particularly when a pedicled fillet option is not available and locoregional flaps do not offer enough tissue bulk. Only a few cases of the free fillet of leg/thigh have been presented in the literature world-wide, with most performed in large cancer centers.

**METHODS:** This is a case study of a 68-year-old male with a 22.5x9.8x27 cm, biopsy-proven synovial sarcoma of the right proximal thigh, who required reconstruction after oncologic resection involving a hemi-pelvectomy. Metastatic workup was negative and no chemotherapy or radiation was planned. The goals of reconstruction were to repair the post-resection hernia, support the genitourinary organs, eliminate sufficient dead space, and provide enough tissue bulk/projection to allow the patient the ability to sit and to wear a prosthesis. The patient suffered no complications and demonstrated a well-healed hemipelvis at one-month follow-up. At 12-months follow-up the patient was recurrence free and able to comfortably sit and able to wear a strap-on bucket leg prosthesis for standing and ambulation.

**CONCLUSION:** By providing a substantially larger volume of tissue than other free tissue transfer options, the free fillet of leg flap is a “spare parts” flap that offers no increase in donor site morbidity while providing adequate bulk for sitting or wearing a prosthesis after a hemipelvectomy for proximal thigh/pelvic tumors.

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**Modified Nipple Flap with Free Areolar Graft for Component Nipple-Areola Complex Construction: Outcomes with a Novel Technique for Chest Wall Reconstruction in Transgender Men**

**Presenter:** Jordan D. Frey, MD

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**PURPOSE:** A primary goal in chest wall reconstruction (‘top surgery’) for trans men is achieving a symmetrical, aesthetically pleasing position of the reconstructed male NAC. In the context of existing surgical techniques for top surgery, the ability to achieve this goal is limited.

**METHODS:** The senior author’s experience with component NAC creation in chest wall reconstruction for trans men with a modified skate flap and free areolar graft, in conjunction with double-incision mastectomy, is described. A retrospective analysis of 50 consecutive patients who underwent primary, bilateral chest wall reconstruction with this technique was undertaken for the period of March 2015 to October 2016.

In this technique, the native NAC is first excised and carefully thinned. Mastectomy is then performed using a double incision technique. The position of the new NAC is marked at the level of the fourth to fifth ribs along the inferolateral margin of the pectoralis using a 2 by 3 cm...