

Figure 1 Time from referral to plastic surgeons to initial review.

In a similar manner, median time until initial plastic surgical intervention was 9 days in the retrospective group and 3 days in the prospective group (see Figure 2). Median time until definitive soft tissue coverage was 12 days in the retrospective group (range 0-23 days) compared to 3 days in the prospective group (range 0-11 days).

Length of stay also followed a similar pattern, with a mean of 19 days (range 7–34 days) in the retrospective group compared to only 4 days (range 0–11 days) in the prospective group, with the cost of inpatient stay equating to $\pm 12,452.66$ and ± 2750.28 per patient in the retrospective and prospective groups respectively.

As the above results highlight, the incorporation of an on-site consultant plastic surgeon to our Trauma and orthopaedics (T&O) team resulted in an 83% reduction in time until review and 67% decrease in time until soft tissue intervention, by preventing the need for transfer to a specialist plastic surgical unit. Furthermore, there was a 79% reduction in length of inpatient stay, with a significant reduction in cost of inpatient stay between the two groups.

This reduction in time until review and intervention was not merely due to the constant availability of an on-site plastic surgeon but also due to enhanced communication between the two specialities and the constant availability of a dedicated trauma theatre. The initial results are promising and provide a model for the formation of other regional ortho-plastic units within the UK. Nonetheless, challenges remain which need addressing. The considerable



Figure 2 Time from initial review to initial soft tissue intervention.

size of this trauma unit, with a lack of plastic surgery juniors results in great pressure on the plastic surgeon. Furthermore, due to the complex nature of the injuries there is a lack of general plastic surgical practice, which may lead to de-skilling of the surgeon in some areas.

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Pelvic-perineal reconstruction with the combined transverse upper gracilis and profunda artery perforator (TUG-PAP) flap

Dear Sir,

The goals of pelvic-perineal reconstruction are to provide stable coverage while ensuring containment of the peritoneal contents and obliteration of dead space to prevent



Figure 1 The two pedicles of the TUG-PAP flap along with the muscular and fasciocutaneous components (30×8 cm). Inclusion of two pedicles ensures vascularity of the large skin paddle. This large defect consisted of pelvic floor as well as most of the perineum.

herniation and infection respectively. The vertical rectus abdominis muscle (VRAM) flap has traditionally been favoured due to its large bulk and ease of transfer.¹ However, when the abdomen is not available as a donor site, secondary sites need to be considered. The gracilis muscle or musculocutaneous flap has been used as a pedicled flap for perineal reconstruction.^{2,3} The adjacent profunda artery perforator flap has been well described for autologous breast reconstruction.⁴ Herein we report the reconstruction of two complex cases of extensive pelvic-perineal defects using a novel combination of the transverse upper gracilis (TUG) and the profunda artery perforator (PAP) flap; the TUG-PAP flap. This flap has recently been described by our unit for microvascular breast reconstruction.⁵ To the best of our knowledge, the present report is the first in the literature describing application of this flap for pelvic-perineal reconstruction.

In this study, both pelvic-perineal defects were reconstructed using a combination TUG-PAP flap. (Figure 1) The pedicle of both these flaps originates from the femoral artery; the TUG from the ascending branch of the medial circumflex femoral artery, and the PAP from the profunda artery. Preoperative computed tomographic angiography (CTA) was used to confirm the presence of both pedicles and to rule out anatomical variations. A handheld Doppler device was used to confirm and mark the location of the PAP flap perforator. The flap was centered on this perforator with the anterior flap border being marked medial to the femoral vessels and the posterior border being restricted to a point just medial to the midline of the inferior gluteal fold. The superior border of the skin paddle was marked 1 cm below the inguinal crease and gluteal fold. The width of the flap was marked approximately 8 cm below this, estimated by pinching so as to ensure tension-free closure. The final skin paddle dimension achieved in both cases was approximately 30 \times 8 cm. Flap harvest proceeded as previously described.⁵

Inset of the flap into the pelvic cavity was aided by incision of the skin bridge between the flap and the defect. The gracilis muscle portion of the TUG-PAP flap was sutured to the ischial periosteum and distal part of the sacrotuberous ligament to reconstruct the pelvic floor and prevent herniation. The skin paddle was then deepithelialized and mobilized into the perineum to obliterate the dead space. taking care to preserve a cutaneous component in order to match the skin cover requirements.

There were no post-operative complications during the follow up period. The CT scan of the abdomen and pelvis at 6 months showed a reconstructed pelvic floor and confirmed the absence of any herniation and dead space (Figure 2).



Figure 2 An elderly male with history of advanced prostate cancer and previous laparotomy, underwent wide local excision for his disease. He was referred to our unit for reconstruction. Post operative CT scan at 6 months follow-up shows successful reconstruction of the pelvic floor with the gracilis muscle with the rest of the TUG-PAP component filling up the perineal space and preventing internal herniation of bowel loops.

For large volume pelvic-perineal defects, the combined TUG-PAP flap is an excellent option where the VRAM is unavailable. The inclusion of two pedicles increases the vascular reliability of the flap while their common origin from the same parent vessel helps in achieving an adequate pedicle length. Skeletonization of the pedicles may further improve flap reach as well as helping to prevent kinking. The flap can also be tunnelled instead of incising the skin bridge, but care needs to be taken to avoid pedicle compression.

Our technique allows flexibility in cases where a large dead space component exists alongside a smaller skin defect. In such cases, most of the cutaneous component can simply be excised and the remaining tissue used to obliterate the dead space.

The disadvantages of the combined flap include longer operating time and increased complexity of flap harvest as compared to the VRAM flap. However, these are largely offset due to distinct advantages such as reliable perfusion of the skin paddle and well hidden scar as well as the eliminination of any possible abdominal wall hernia.

In summary, we report two cases of large volume pelvicperineal reconstruction using a combined TUG-PAP flap with good outcomes. We consider this to be a reliable and safe reconstructive option and it may well replace the VRAM flap in selected cases.

Conflict of interest

None of the authors received any funds or has any financial interests to disclose.

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The acute effects of electronic cigarette smoking on the cutaneous circulation $\stackrel{\star}{\sim}$



Dear Sirs,

Electronic cigarettes (e cigarettes) have become increasingly popular in recent years and are used by 2.6 million adults in the United Kingdom.¹ Their use is subject to very little regulation. They are marketed as an adjunct to smoking cessation by providing the sensation of smoking

^{*} This work has been presented at the BAPRAS Winter Scientific Meeting, 27th November 2015.