

Game Changers

A GAME-CHANGER IN FREE-TISSUE SURGERY: THE FUTURE'S BRIGHT, THE FUTURE'S FLUORESCENT...

Microvascular free tissue reconstruction is the highest 'rung' of the reconstructive ladder and a well-established tool in the plastic surgeon's armoury. A resource intensive peri-operative course is often anticipated given the significant technical demands of free-flap surgery and the concentrated 'monitoring' period following successful restoration of perfusion.

Various intrinsic and extrinsic factors contribute to free-flap survival. Perforator angiosome is one of such factors responsible for most cases of partial flap loss and marginal necrosis, in addition to experience in clinical monitoring¹. Advancing technologies are permitting reconstructive surgeons to augment the age-old, subjective clinical methods of flap assessment via capillary bleeding, blanching, temperature and Doppler pulse with real-time dynamic assessment of tissue perfusion. Indocyanine-green angiography (ICGa) is one such modality gaining

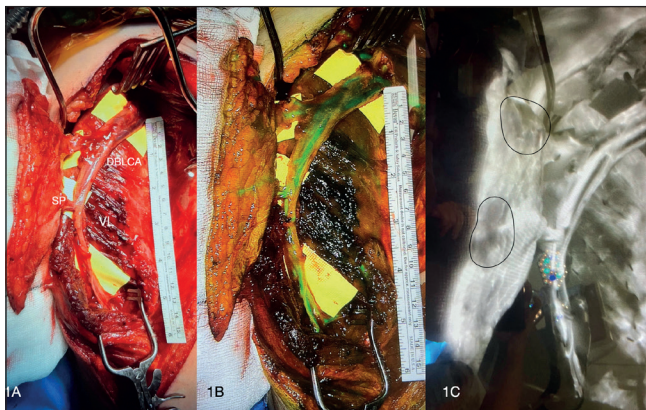


Figure 1A demonstrating an anterolateral thigh free flap prior to pedicle division. It is perfused by a single skin perforator (SP), dissected from its intramuscular course via vastus lateralis (VL) and adjoining to its parent vessel: the descending branch of the lateral circumflex artery (DBLCA).

Figure 1B highlights the effect of ICG a on the same intra-operative image, with fluorescence of the parent vessel and perforator system.

Figure 1C shows an alternate setting on the Stryker Hand-Held SPY-PHI camera used to refine the fasciocutaneous flap. Areas evidencing reduced fluorescence via SPY-Q scoring are deemed to have reduced perfusion and are trimmed accordingly.

traction in surgical literature with applications including perforator selection, angiosome definition and post-operative monitoring². We have employed this technology effectively in the Regional Reconstructive Plastic Surgery Unit, Dundonald recognising reduced rates of marginal flap necrosis, partial flap loss and re-exploration since its



Figure 2A demonstrating a left anteromedial soft tissue defect of the leg secondary to debridement of unstable scar tissue in the setting of infected metalwork and associated osteomyelitis.

Figure 2B representing post-reconstructive appearances, with refined free anterolateral thigh flap in-situ demonstrating a highly aesthetic contour and homogenous perfusion following ICGa assessment.

introduction. Navigating perfusion issues intra-operatively is no longer a subjective effort and whilst ICGa is not a substitute for clinical acumen, it can provide significant aid in taking the decision to revise an anastomosis, re-orientate flap inset or discard poorly perfused regions, ultimately reducing costly interventions for avoidable morbidity³.

With growing evidence for its efficacy, the adoption of ICGa as a 'standard of care' in free tissue surgery is surely a not-to-distant future...

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