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Predicting venous insufficiency in flaps rose on the deep inferior epigastric system using CT angiography

Rachael Pillay[1], Michael Wagels[2], Alys Saylor[2], Lily Vrtik[1,2], Paul Belt[1,2,3], Gerard Bayley[2] and **Shireen Senewiratne[2]**
[1]Mater Misericordiae University Hospital, Ireland
[2]Princess Alexandra Hospital, Australia
[3]Greenslopes Private Hospital, Australia

Venous insufficiency occurs in 4% of flaps raised on the Deep Inferior Epigastric System (DIES), typically in perforator flaps. Computed Tomography Angiogram (CTA) has become a routine part of pre-operative assessment of vascular anatomy and design in these flaps. We aim to identify CTA signs that predict venous congestion. This is a retrospective cohort study of flaps raised on the DIES at our institution where a CTA was performed pre-operatively. 98 consecutive patients had 124 DIES flaps raised of which four (3.2%) developed venous congestion. In these flaps, predictors of venous congestion included a type I pedicle (75 vs. 64.2%, p=0.22), a superficial Inferior Epigastric Vein (SIEV) that did not connect to the depp. system perforations and was larger at origin (5.2 vs. 3.5mm, p=0.007) and less likely to arborise (0 vs. 96.7%, p<0.001), the perforators of congested flaps were less likely to connect to the superficial system (38.1 vs. 88.8%, p<0.001) and an SIEV that was larger in diameter that the DIEV at origin had a correlation coefficient with congestion of 1, suggesting that that a SIEV>DIEV at origin is highly predictive of congestion. We concluded that a CTA is an important pre-operative study for the identification of risk factors for venous compromise. These findings should prompt a robust discussion of the risk of flap failure with patients and contingency planning to augment venous drainage with the superficial system if required.

Biography

Rachael Pillay is a surgical registrar in Brisbane, Australia with an interest in oncology and reconstructive surgery. She is currently completing a Masters of Philosophy with the University of Queensland looking at the development of patient derived xenograft models of squamous cell carcinoma.

rachaelpillay@icloud.com

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