

Background: Locoregional options for head and neck reconstruction are sparse, with existing options limited in their utility by both donor site morbidity and robustness. A recently described flap has involved the use of redundant anterior neck skin to reach defects as cranial as the temple. We undertook an anatomical study to identify the vascular basis for this flap, and to modify flap design to improve its versatility and donor morbidity.

Methods: Thirty-five consecutive computed tomographic angiograms (CTAs) of the neck were reviewed, assessing the vascular supply of the anterior skin of the neck. Based on these findings, 5 consecutive patients underwent head and neck reconstruction using a flap based on the dominant perforator of the region.

Results: In all cases, a perforator over 0.5mm was identified within a 2cm radius of the midpoint of sternocleidomastoid at its anterior border. This perforator was seen to emerge through the investing layer of deep cervical fascia as a fasciocutaneous perforator, and to perforate the platysma on its ipsilateral side of the neck, proximal to the midline. This was seen to be a superior thyroid artery perforator (STAP) in 29 of 30 cases and an inferior thyroid artery perforator (ITAP) in 1 case. Five consecutive patients underwent preoperative imaging and successful flap planning and execution based on this dominant perforator.

Conclusion: The STAP flap is a newly described flap, with reliable vascular anatomy and broad application for head and neck reconstruction.