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Automatic detection of perforators for microsurgical reconstruction

Sir:

We read with interest the article by Mavioso et al. this is a valuable pilot study on the use of artificial intelligence (AI) in preoperative mapping of perforators with computed tomography (CTA) [1]. Selection of the best perforators is of uttermost importance, as it is the only source of blood supply to the flap. This selection reduces operative time, lower complication rates and ensure an overall better result [2]. The current gold standard for perforator selection is CTA but it has disadvantages: use of intravenous (IV) contrast agents and ionizing radiation, high purchasing costs, a lack of perioperative usability, and a lack of physiological information on flow characteristics [3]. The use of AI will improve reproducibility and decrease time-consuming human input in perforator selection [1]. Dynamic Infrared Thermography (DIRT) can be an alternative technique in perforator mapping and perfusion assesment [4,5]. DIRT is less invasive than CTA as it does not use radiation nor contrast agents [4–7]. We developed a standardized measuremet set-up for the use of DIRT during breast reconstruction with perforator flaps [8]. With this set-up AI can potentialy be an interesting tool in assessing perforators and perfusion pre-, per- and postoperatively with DIRT.

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