



ORAL PRESENTATION

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# Endoscopic ICG perfusion imaging for flap transplants: clinical results

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## Objective

Malfunction of microvascular anastomoses in the early postoperative period is regarded as the main reason for failure of free-tissue transfer. It was the aim of the current investigation to prove the feasibility and to explore the clinical benefit of endoscopically guided free-flap perfusion measurements in the head and neck region using red-excited indocyanine green (ICG).

## Methods

A total of 25 patients who underwent major ablative surgery followed by free-flap reconstruction of the upper aerodigestive tract took part in this study. Each participant underwent three ICG-angiographies (intraoperatively, and 24 and 72 h postoperatively). The obtained data were evaluated both online and offline on a PC, and the results compared to the clinical outcome.

## Results

There were no partial or complete losses of transplants. Two flaps with an early arterial failure were successfully salvaged by revision surgery. The ICG-angiographies were tolerated well. The gain of fluorescence was delayed in the transplanted tissue when compared to the surrounding tissue, whereas the final maximum fluorescence intensities were comparable. The two flaps with the initial compromise in perfusion showed relative fluorescence maxima (transplant vs. surrounding) of 33% or 37%, respectively, whereas these values lay above 64% for all other examinations.

## Conclusion

It was possible to prove the feasibility of endoscopic ICG-angiographies in patients with free-tissue transfer to the upper aerodigestive tract. The method is easy to

perform and there were no adverse events. Particularly in difficult situations, such as questionable Doppler signals, or flaps situated far down in the pharynx, the method seems to be a welcome adjunct to conventional screening.

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