Cochlear implant skin flap design: the vascular pattern of the postauricular region

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Cochlear implantation proved to be a safe surgical procedure. Complications are rare, but the most significant of them are skin flap related problems, occasionally resulting in removal of the device.

To evaluate the vascular pattern of the scalp and its implications for cochlear implant skin flap design we performed a dye injection study on cadavers. Our results on ten specimens indicate, that the blood supply for the skin in the postauricular region is provided inferiorly by indirect musculocutaneous perforators, posteriorly by the occipital artery, superiorly by the superficial temporal artery and anteriorly by the network around the base of the auricle and by cutaneous branches of the postauricular artery.

A flap for cochlear implantation raised in this region cannot be based on one single axial source artery and has to rely on a variable number of different arterial contributors, resulting in a combination of random, axial and/or musculocutaneous flap. Inferiorly-based flaps as the inverted U shaped or the extended enaural (Hannover) are considered to be superior to the C-shaped anteriorly-based flap.

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