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Free-flap cover of complex defects around the knee using the descending genicular artery as the recipient pedicle



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Summary *Background:* Selection of ideal recipient vessels is one of the most important factors determining success in free-flap reconstruction of the lower limb. At the knee, the choice of vessels has traditionally been either the common femoral or the popliteal vessels and their branches but these are often difficult to use or cannot be used.

Methods: A series of 32 free flaps for cover of complex injuries of the knee involving the distal femur, the knee joint and the upper tibia were reconstructed using the descending genicular branch of the femoral artery in the adductor canal and its muscular branches to the vastus medialis as the recipient vessels.

Result: All but one flap survived with no major complications.

Conclusion: The use of the descending genicular artery as the recipient vessel for reconstruction with free flaps around the knee has various advantages including: (i) it is mostly remote from the zone of trauma, (ii) it is constant in location, (iii) the recipient vessels are an excellent size match for end-to-end anastomosis, (iv) there is no need for changes of position of the patient when using most free flaps commonly used for knee reconstruction, (v) it is easy to harvest these simultaneously, (vi) secondary exposure of the underlying skeleton from all quadrants is unlikely to divide the flap pedicle as it is superior and (vii), perhaps most important of all, it obviates the need for exploration of the popliteal fossa.

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