Opportunistic primary index finger pollicization pedicled on the first dorsal metacarpal artery in a multidigital replantation - a case report.

Background
The necessity to reconstruct the thumb in complex hand injuries is well accepted, but in some cases, the thumb is lost or cannot be replanted. In multidigital amputations the thumb can also be reconstructed through the heterotopic replantation of another finger. In this case the index finger was still vascularized through the first dorsal metacarpal artery (FDMCA) and was the only possibility available. We report on its successful primary pollicization using only the dorsal vascular supply.

The case
A 82-years old patient suffered a traumatic amputation of thumb, middle, ring and small finger in zone 2 with a circular saw. The index finger was sub-amputated and still attached to the hand through a dorsal skin bridge and the extensor tendons. At inspection the index finger was still vascularized through the FDMCA. The thumb was the only digit not available for replantation. We transferred the index finger to the thumb position without any microvascular anastomosis, relying only on the remaining dorsal skin bridge with the inclusion of the first dorsal metacarpal artery. Digits III, IV and V were replanted.

Results
The neopollex survived completely with no further operations needed. The replanted fingers survived as well. The patient achieved a satisfactory function of the hand for daily activities and his hobby (constructing little wire sculptures). He regained grasp function with a maximum opposition of Kapandji 8.

Conclusion
The FDMCA consistently arises from the radial artery in the first intermetacarpal space and divides into a radial branch to the thumb, the intermediate branch to the first web space, and the ulnar branch to the index finger.

In this case report the intermediate and ulnar branch sufficed as vascularization for the subamputated index finger and thus the neopollex

Anatomic studies have demonstrated that the dorsal metacarpal arteries up to distal branches on the dorsum of the fingers regularly anastomose with braches from the palmar digital arteries.

In this patient these anastomoses were big enough to secure survival of the digit thus making the FDMCA the only major vessel on which this digit survives. This case report demonstrate how patent the anastomosing network between dorsal and palmar vascular supply to the digits can be.