Neurosurg Clin N Am. 2009 Jan;20(1):27-38, vi.

Nerve transfers for severe nerve injury.

Addas BM, Midha R.

Division of Neurosurgery, Department of Surgery, King Abdulaziz University Hospital, Jeddah, Kingdom of Saudi Arabia.

Abstract

Nerve transfers are becoming used increasingly for repair of severe nerve injures, especially brachial plexus injuries, where the proximal spinal nerve roots have been avulsed from the spinal cord. The procedure essentially involves the coaptation of a proximal foreign (donor) nerve to the distal denervated (recipient) nerve, so that the latter's end-organs will be reinnervated by the donated axons. Cortical plasticity appears to play an important physiologic role in the functional recovery of the reinnervated muscles. This article provides the indications for nerve transfer, principles for their use, and a comprehensive survey on various intraplexal and extraplexal nerves that have been used for transfer to repair clinical nerve injuries. Specific transfers to reanimate muscles denervated by the common patterns of brachial plexus are emphasized, including expected clinical outcomes based on the existing literature.