

Transhumeral amputation in brachial plexus lesion patients. A multicenter case series.

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Introduction: A flail limb can be the result of a traumatic complete brachial plexus lesion. If the useless limb interferes with return to normal life and occupation, all other treatment options failed and there is a persisting patient's wish for amputation then elective amputation has a place in the rehabilitation[1-5]. The aim of this study is to evaluate the long-term outcome of this rare and life changing operation.



Figure 1. Patient after mid-arm amputation. A, lateral view; B, frontal view [4].

Results: After 9.4 years median follow-up, 7 out of 8 patients would undergo the operation again and were satisfied with the results. One patient was dissatisfied, despite, thoroughly explanation, that the neuropathic pain would not resolve. This patient also had a poor functional- and psychological outcome. At latest follow-up the median DASH score was 37.3 (range 8.3-61.7), the median SIP-68 score was 6.5 (range 0-43) and the median HADS score was 3.0 (range 0-14) for anxiety and 3.0 (range 1-19) for depression. In the EQ-5D-5L patients had most difficulties in self-care, usual activities and pain/discomfort. The median overall health status was 69 (range 20-95). No glenohumeral arthrodesis were executed and no prosthesis were fitted.

Methods: 8 Patients were included. Psychological disorders were preoperatively excluded by psychological investigation. Patients had to wait at least one year to be convinced of a persisting wish for amputation. 8 Transhumeral amputations were executed in two specialized medical centers. The functional- and psychological outcome were postoperatively studied with standardized patient reported outcome measures (PROMs; DASH, SIP-68, EQ-5D-5L and HADS).

Indication requirements for amputation

- 1 There is a complete non-functional arm.
- 2 The useless limb interferes with return to normal life and occupation.
- 3 There is a high amount of nociceptive pain due to glenohumeral (sub-) luxation.
- 4 All other treatment options have been tried, but failed.
- 5 There is a persisting wish for amputation and no psychological disorders may interfere with this wish.

Conclusion: With the right indication a transhumeral amputation has a place in the rehabilitation of traumatic complete brachial plexus lesion patients with satisfying long-term results.

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Abbreviations: PROMs: Patient Reported Outcome Measures; DASH: Disabilities of the Arm, Shoulder, and Hand; SIP: Sickness Impact Profile; HADS: Hospital Anxiety and Depression Scale

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