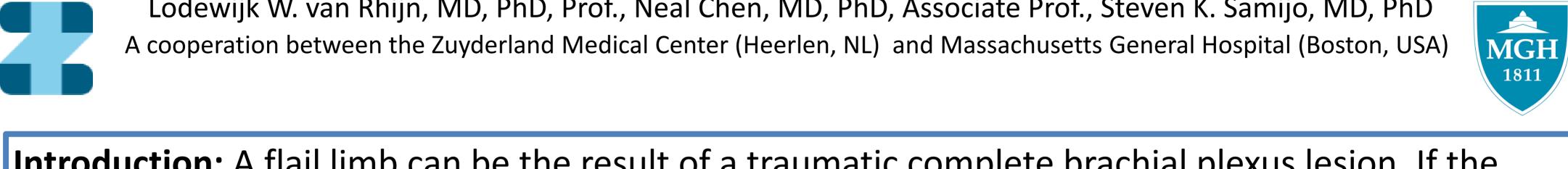
Transhumeral amputation in brachial plexus lesion patients. A multicenter case series.

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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

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 whish 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.

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.

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

References:

- 1. Wilkinson, M.C., R. Birch, and G. Bonney, Brachial plexus injury: when to amputate? Injury, 1993. 24(9): p. 603-5.
- 2. Maldonado, A.A., et al., The role of elective amputation in patients with traumatic brachial plexus injury. J Plast Reconstr Aesthet Surg, 2016. 69(3): p. 311-7.
- 3. Choong, C., A. Shalimar, and S. Jamari, Complete Brachial Plexus Injury An Amputation Dilemma. A Case Report. Malays Orthop J, 2015. 9(3): p. 52-54.
- 4. Siqueira, M.G., et al., Elective amputation of the upper limb is an option in the treatment of traumatic injuries of the brachial plexus? Arq Neuropsiquiatr, 2017. **75**(9): p. 667-670.
- 5. Bedi, A., B. Miller, and P.J. Jebson, Combined glenohumeral arthrodesis and above-elbow amputation for the flail limb following a complete posttraumatic brachial plexus injury. Tech Hand Up Extrem Surg, 2005. 9(2): p. 113-9.