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Response to "Observation about 'Open Surgical Release of Posttraumatic Elbow Contracture in Children and Adolescents'"

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Keywords

Elbow; post-traumatic; contracture; stiffness; open surgical release; arthrolysis; pediatric; children; adolescent; ulnar nerve; ultrasound

We appreciate the authors' thoughtful letter and thank them for their comments.

Pre-operative planning is important in these challenging cases, and we agree that it may be useful to supplement the surgeon's clinical exam with a variety of modalities, including ultrasound.

We would like to emphasize, however, that while pre-operative ultrasound of the ulnar nerve may aid in localization of the nerve, use of this modality in the setting of elbow contracture is limited. Dynamic ultrasound evaluation of ulnar nerve subluxation requires a full elbow range of motion, with the expectation that the nerve will subluxate anteriorly as it tensions longitudinally with increasing elbow flexion. For example, if a contracture prevents the elbow from flexing past 100 degrees pre-operatively, the nerve may not subluxate. However, after the contracture has been released intra-operatively, if the elbow can now flex to 130 degrees, the nerve may become unstable or be at risk for post-operative traction neuropathy if left untransposed^{1,2}. In this situation, the surgeon should assess nerve subluxation, which may not have been evident pre-operatively, by visualizing the ulnar nerve through a full range of elbow motion in the operating room.

It is also important to note that ulnar neuropathy is a frequently reported complication following elbow contracture release³. It is unlikely that this is related to poor pre-operative planning or inability to identify the nerve intra-operatively. Instead, it is thought to be related to traction across a nerve that may not have been stretched to its pre-injury length for months to years, depending on the duration and severity of the elbow contracture². The development

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of post-operative ulnar neuropathy following elbow contracture release is unpredictable, and cannot be reliably prevented with even the most rigorous pre-operative evaluation⁴.

References

1. Novak CB, Mehdian H, von Schroeder HP. Laxity of the ulnar nerve during elbow flexion and extension. *J Hand Surg Am.* 2012;37(6):1163–1167. [PubMed: 22551955]
2. Antuna SA, Morrey BF, Adams RA, O'Driscoll SW. Ulnohumeral arthroplasty for primary degenerative arthritis of the elbow: long-term outcome and complications. *J Bone Joint Surg Am.* 2002;84-A(12):2168–2173. [PubMed: 12473704]
3. Ring D, Adey L, Zurakowski D, Jupiter JB. Elbow capsulectomy for posttraumatic elbow stiffness. *J Hand Surg Am.* 2006;31(8):1264–1271. [PubMed: 17027785]
4. Chen NC, Liu A. The role of prophylactic ulnar nerve release during elbow contracture release. *J Hand Surg Am.* 2014;39(9):1837–1839. [PubMed: 24855967]