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CORR Insights®: High Irritation and Removal Rates After Plate or Nail Fixation in Patients With Displaced Midshaft Clavicle Fractures

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Where Are We Now?

Midshaft clavicle fractures historically have been considered to carry a good prognosis when treated nonsurgically [4, 6]. Midshaft clavicle fractures tend

to heal reliably, and leave the patient with few residual symptoms. In the past, surgery for this injury was associated with a high risk of nonunion and surgical complications [4, 6].

Recently, however, several studies [2, 3] analyzing patients with displaced midshaft clavicle fractures pointed out a number of problems associated with the nonsurgical care of this injury pattern, including nonunion, residual pain, brachial plexus irritation and cosmetic complaints. Additionally, randomized clinical trials [1, 7, 8] comparing nonoperative treatment with operative treatment in patients with displaced midshaft clavicle fracture showed that internal fixation improved functional outcomes and considerably decreased the risk of long-term complications such as nonunion and malunion.

In their study, Hulsmans and colleagues performed a multicenter randomized control trial that compared plate fixation with intramedullary nailing for a group of patients with displaced midshaft clavicle fracture and at least 30 months of followup. The study authors focused on hardware irritation and removal rate, which is very interesting because in daily practice, hardware-related issues after clavicle fixation are by far the most-frequent patient complaint.

Although several studies have reported on the frequency of hardware removal [5, 7–9], information regarding hardware irritation rates is scarce, with some studies not mentioning it at all. However, some published studies do report irritation as a complication. One of the issues related to analyzing irritation is that it has both subjective components (patient perception) and objective components (the type of fracture and the design of internal fixation).

We recently reported a low hardware-removal rate with the use of precontoured plates (13.2%) in a group of patients with displaced midshaft

This CORR Insights® is a commentary on the article “High Irritation and Removal Rates After Plate or Nail Fixation in Patients With Displaced Midshaft Clavicle Fractures” by Hulsmans and colleagues available at: DOI: 10.1007/s11999-016-5113-8.

The author certifies that he, or a member of his immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

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This *CORR Insights*® comment refers to the article available at DOI: 10.1007/s11999-016-5113-8.

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clavicle fracture [5]. However, we still have several questions because we did not focus our study on hardware irritation. Do we discourage our patients from undergoing a second surgery? Is our patient population more tolerant than other populations? Do we influence our patients to keep plates in place? Do precontoured plates produce less irritation than noncontoured ones?

Where Do We Need To Go?

It seems clear that the way we analyze discomfort related to internal fixation should be reconsidered. Irritation may have been underreported in previous studies, and its impact in patients' daily living underestimated. A closer view of hardware irritation could potentially determine the real impact in a patient's quality of life.

The authors answered several questions regarding hardware irritation, but many others still remain. Should we assume that surgical treatment of displaced midshaft clavicle fracture is a two-stage procedure for most patients? Should we expect that most of our patients treated surgically for midshaft clavicle fracture will likely have some sort of problem along this line after surgery? Can we lower the high irritation rates with internal fixation methods?

How Do We Get There?

The renewed interest in clavicle fractures will help improve our treatment of displaced midshaft clavicle fracture. Nevertheless, we need more evidence-based studies with unbiased data to fill the gaps in our knowledge.

As physicians, we should have as many tools in our toolbox as necessary to treat our patients. We need to develop a more-precise definition of irritation, better classifications, and improved measurements to properly gauge its severity. The authors laid the foundation by proposing an interesting questionnaire that can be done by phone. Future studies will need to validate either this approach or different tools to identify and classify irritation. Until we obtain better information, talks with our patients about discomfort or irritation following this injury and its surgical treatment will remain imprecise. The goal is to answer which kind of hardware, if any, produces less irritation.

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