The unspoken truth: operative treatment of midshaft clavicle fracture is still not widespread for a very good reason

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Sepehri et al offers an interesting insight to the midshaft clavicle fracture management practices post COTS study of 2007 (1), some described it as a watershed moment in the push to surgically fix this type of fracture, previously largely treated non-operatively. While the COTS study is not the only high-quality RCT study around nowadays not based on meta-analyses, it did represent a bellwether of change in outlook/perception in these condition away from Neer’s historical and highly influential recommendation for non-operative management.

It is important to keep in view that Michael D McKee the lead investigator of the COTS study spent the last 15 years asking colleagues to temper their enthusiasm in routine fixation midshaft clavicle fracture based on the COTS’s conclusion. As McKee had pointed out (2), the number needed to treat (NNT) to prevent a nonunion/malunion complication is between 4.6 to 6.2; that means between 3 to 4 out of every 5 displaced midshaft clavicle fracture fixed with plate would not have made any difference to the clinical outcome for the patient.

He is also a co-author later to a meta-analysis (3) of operative vs non-operative management of displaced midshaft clavicular fractures, in which though there is still significant evidence of lower non-union rates in operative fixation group, the authors cautioned readers that this “information should not be used to justify an indiscriminate approach to surgical fixation of all clavicular fractures”.

Obremskey in a commentary (4) picked up the change in tone and congratulated him “for his part in the initial study and for his clear view of this timely topic”.

In response to another article (5) which “do not support routine primary open reduction and plate fixation for the treatment of displaced midshaft clavicular fractures”, McKee commented that this result was “very similar and complementary, not contradictory, and some clear facts emerge” (6). He pointed out that many will respond well to non operative treatment and stated that operative fixation has at best modest improvement in functional outcome though results are variable between studies. He suggested consideration for individual and possibly cultural difference to response to pain and disability, and asserted readers to “use this information in a clear, nonbiased fashion to assist our patients in making the appropriate therapeutic choice”

In the OTA Annual Meeting Oct 12, 2013. Dr McKee continued to stress the need for a well informed discussion and stated “the choice to proceed with operative intervention for a displaced mid-shaft fracture of the clavicle will be a decision made between surgeon and patient.”.

Returning the attention back to this retrospective cohort study, it is interesting to note that while the authors “found
that the proportion of clavicle fractures that were treated with surgery for malunion or nonunion also increased, from 3.4% pre-publication to 4.1% post-publication”, they attribute the “observed increase in the operative fixation rate” not as an “increase in the incidence rates of clavicle malunion and nonunion, but rather improved recognition of these pathologies by surgeons and their comfort with operative treatment.”

It will of interest to see if there is any data on the non-union rates of clavicle fracture post fixation; although the study set out to determine “proportion of acute midshaft clavicle fractures that underwent operative treatment” it is unclear how the authors can differentiate “acute” fracture fixation versus delayed fixation (after a trial of non-operative measures) or even a revision of a previously fixed clavicle fracture which had not united post-operatively. without access to the actual clinical record (as the retrieval of information is reliant of big data access).

If there is any observation of particular interest to be made from this study, it is the fact that despite the “widespread response to the COTS RCT” and “cultural shift”, the operative fixation rate for midshaft clavicle fracture is still well under 10%. This suggests the shared-decision making to operate is not a mindless knee-jerk reaction to the study by all clinicians and patients alike with a large proportion of patients still choosing non-operative measures, possibly after a considered discussion with the right information.

“All that glisters is not gold”
William Shakespeare, Merchant of Venice, Act II Scene 7

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References


Conflict of Interest: None Declared