

Displaced multifragmented mid-shaft clavicular fractures with non-operative treatment

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Background

Since the impact multicenter randomized controlled study by the Canadian Orthopedic Trauma Society in 2007 suggested that operative treatment for displaced clavicle fractures improved both patient and surgeon outcomes when compared to non-operative treatment, there has been widespread enthusiasm towards operative treatment (1). This was reinforced by the 2013 Edinburgh study of 941 displaced clavicle fractures in demonstrating a 13.3 % of nonunion particularly in displaced comminuted segmental fractures (2). This swing towards operative treatment is mirrored by the orthopedic implant companies proliferation of anatomically shaped implants.

Yet a number of meta-analyses of randomized controlled trials comparing operative to non-operative treatment of displaced mid-clavicular fractures revealed that there was not enough evidence to support operative treatment for all patients with displaced comminuted clavicular fractures (3, 4).

The ICUC data base of over 1000 fracture cases currently have 77 fully documented clavicle fractures with 46 being complex mid-diaphyseal fractures. Included are 6 consecutive patients recently seen and treated non-operatively for complex displaced multi-fragmented mid-diaphyseal fractures. These were relatively young adult males with ages ranged from 17-37 with injuries from bicycle falls to karate to rugby injuries, including one case where skin tenting was present (Fig. 1-3). All were treated for comfort only and regained full shoulder girdle function by 6-8 weeks with minimal to no discomfort and complete function at follow up ranging from 9 to 27 weeks (5).

These cases offer support for non-operative treatment even for complex displaced mid-diaphyseal fractures.

The importance of 3D interactive colored bone models.

A CT scan and a 3D interactive colored bone model were done for each one of the 6 consecutive cases. Follow-up images, as well as, X-rays, CT images and the colored model are available at icuc.net website (6).

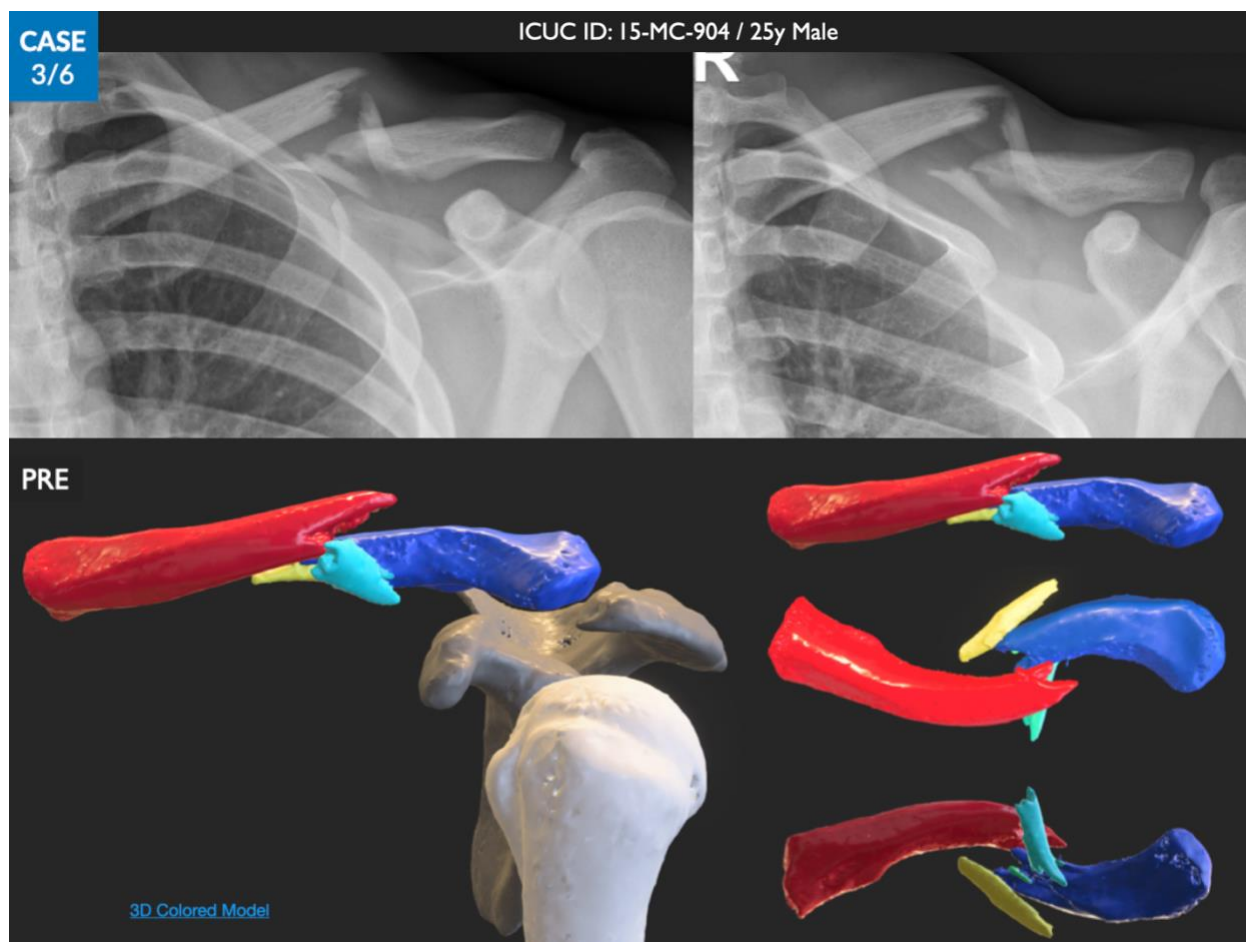


Fig. 1. 25-year-old male patient, rugby accident. [ICUC ID: 15-MC-904](http://icuc.net)

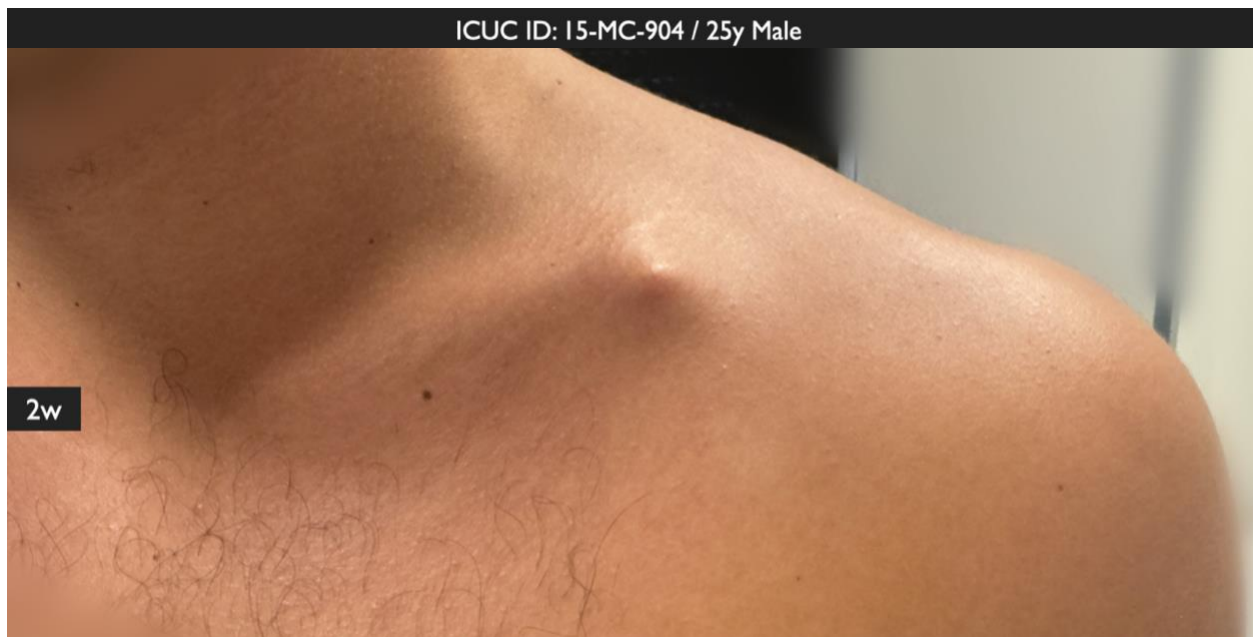


Fig 2. Skin tenting is still evident at 2 weeks.



Fig 3. Full range of motion, zero pain at 9 weeks. ICUC Score FL 0, P 0.

References

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