Mini symposium: Rib Fracture Fixation and the Surgical Management of Flail Chest Injuries: State of the Art

**Rib fracture fixation: When do the risks outweigh the benefits?**

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**Objectives:**

* Understand the risks of surgical fixation
* Indications: Which patients benefit from surgical fixation?
* Contraindications: Which patients don’t benefit from surgical fixation?
* Decision making on who to operate on.

**Summary:**

Prior studies of surgical fixation of chest wall injuries have used variety of surgical methods such as K-wires, Judet struts, intramedullary nail fixation, and various plate types. These have demonstrated excellent results in terms of bony union and correction of deformity, with a surprisingly low complication rate. Of the 650 operative cases reported in the literature since 1975, complications included 1.2% superficial wound infections, 1.2% fixation failure, and 1.4% plate removal due to discomfort 1

According to the available literature, the current indications for fixation of acute unstable chest injuries include 1–3:

* Flail chest, without severe pulmonary contusion or significant brain injury.
* Chest wall deformity: crush injury with loss of thoracic volume; severely displaced fractures impeding lung expansion; or rib fractures impaling the lung.
* Reduction of pain and disability: painful movable rib fractures with failure of narcotics or epidural pain catheter.

**References:**

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3. Voggenreiter G, Neudeck F, Aufmkolk M, Obertacke U, Schmit-Neuerburg KP. Operative chest wall stabilization in flail chest--outcomes of patients with or without pulmonary contusion. *J Am Coll Surg*. 1998;187(2):130-138.