

Peer Review File

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Review comments

I have the following comments:

Abstract:

- The statement in line 22-23 (sternal fractures are common findings, occurring in 15% of trauma patients and 55% of polytrauma patients) contradicts the given data in line 62-63 of the Introduction section. In fact, sternal fractures are not encountered very frequent, with reported incidence rates of respectively 8 and 18% (Doyle et al., *Mediastinum* 2021).

Answer: Thanks for the notice. This mistake was due to a typo we corrected this statement in line 45-46 of the manuscript.

- The authors state that conservative (non-operative) treatment of non-displaced sternal fractures increases the risk of pseudarthrosis. This is a rather bold statement, since no comparative literature between operative and conservative treatment is available.

Answer: Yes there is a great lack of comparative or any kind of literature concerning this subject which was our main motivation to perform this analysis. We modified the statement accordingly in line 47.

- 24/32 patients had to be excluded from analysis because they did not meet the inclusion criteria. Please rephrase, for example: 32 patients underwent sternal osteosynthesis, of which 8 for pseudarthrosis.

Answer: Your suggestion has been included in the manuscript in line 61-62.

Introduction:

- See earlier comment on incidence and prevalence of sternal injuries.

Answer: 18% incidence of sternal fractures in polytrauma patients should still be accepted as a common finding. This represents 1 in every 5 patients.

Materials and Methods:

- Line 81: gender = sex

Answer: We have modified this section according to your suggestion.

- Line 85-85: what was the definition of symptomatic pseudarthrosis? What was your follow-up regimen for patients after sternal injury? What was your work-up regimen for patients suspected for symptomatic nonunion? Did all patients underwent CT-scanning? Why did you include patients with a follow-up of only 3 months, whereas the common definition of non-union is at least 6-12 months?

Answer: We didn't include any patients with a follow-up of 3 months after surgery (The delay between injury and surgery ranged from 211 days to 2158 days). Patients with persistent pain first undergo symptomatic treatment and are then reexamined at our outpatient department after

3 months. We rephrased this paragraph in order to answer your questions. Line 106-110.

Surgical technique

- Line 105: sentence is incomplete. Answer: We have corrected this passage.
- Did you use any type of void fillers or bone grafts, especially in cases with bone defects after debridement of the non-union?

Results:

- Line 122: 24/32 patients did not meet the inclusion criteria. Please elaborate.
- Line 125-126: please provide median + range time between trauma and non-union repair.

Answer: we have added this data. Line 150

- Line 127: idem for follow up.

Answer: we have added this data. Line 150

- What was the union percentage after pseudarthrosis repair? Was follow-up CT performed in every case, demonstrating union?

Answer: Our postoperative assessment was based on clinical examination (mainly presence or absence of pain), so no CT scan has been performed.

Discussion:

- Line 147: pseudarthrosis's = pseudarthrosis. For the international readership, my advice however would be to use the more common term "nonunion" throughout your manuscript. We have performed the changed according to your advice throughout the manuscript.