

**Peer Review File**

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**Reviewer A**

Thank you for your short resume of the new sternal closure technique.

1. Please, compare with this article and cite in comment "greater clinical advantages in terms of pain and sternal dehiscence post surgery" with yours "significant reduction in postoperative pain on day of discharge, and similar pain at 30 and 60 days." - Line 50-51: Nezafati P, Shomali A, Kahrom M, Omidvar Tehrani S, Dianatkhah M, Nezafati MH. ZipFix Versus Conventional Sternal Closure: One-Year Follow-Up. *Heart Lung Circ.* 2019 Mar;28(3):443-449. doi: 10.1016/j.hlc.2018.01.010. Epub 2018 Feb 8. PMID: 29548913.

Reply: We agree there are similarities between the FlatWire system and the ZipFix implant as they both result in less postoperative pain when compared to conventional wires. We (the authors) have not studied sternal dehiscence in the FlatWire patient cohort, and thus future studies are warranted to study long-term outcomes in these patients.

Changes in the text: We have modified our text as advised: Similar findings were demonstrated in a study comparing poly-ether-ether-ketone based sternal ZipFix implant to conventional wires: patients with ZipFix had lower mean pain severity scores at 1, 3, 6, and 12 months after discharge and also lower incidence of sternal dehiscence. In the authors' experience, there have not been any post-procedural issues or any increase in sternal dehiscence in the FlatWire patient cohort. In order to evaluate this, it would require a long-term study that involved performing computed tomography imaging as follow-up for these patients. (see page 4, lines 87-93)

2. I would prefer other formulation in line No. 35: "open access to the mediastinum (not thoracic cavity)". There are many other accesses to the thoracic cavity....

Reply: We agree that "mediastinum" is a better term to use than "thoracic cavity."

Changes in the text: We have modified our text as advised: open access to the mediastinum (page 2, line 36)

**Reviewer B**

Excellent technique and well done.

**Reviewer C**

Presented here is a stepwise approach to implementation of a FlatWire sternal closure system with review of potential benefits over standard wire cerclage. The authors present an organized instruction on the potential benefits of this approach to closure, and include an instructional video to supplement this work. I presume emergent and preoperative reentry is straightforward and can be completed with standard wire cutters, but I would be interested to hear the authors experience with these situations.

Reply: Yes, according to manufacturers of the FlatWire system, emergent and preoperative reentry for patients with the FlatWire system can be completed with standard wire cutters. We (the authors) have not had to perform redo sternotomy on any of these patients.

Changes in the text: We have modified our text as advised: In cases of redo sternotomy, standard wire cutters can be utilized. (page 4, line 85)

#### **Reviewer D**

In the current report Khoury et. al. briefly describes a sternal closure system. The system consists of wires placed around the sternum in standard fashion but a unique system exists for twisting the wires together.

1. While this is an interesting report, as a brief review of a system not very different from standard approaches (ie not a new plating system etc, but still requiring standard wires around the sternum) and without any original data not much new is added to the current understanding. Could the authors provide data on their experience, regarding cost, time, ? follow up data on sternal healing (? Follow up CT scans performed on patients with the traditional and new wires)?

Reply: In our experience, there has been no difference in operative time using flat sternal wires. Finances and costs are determined by the manufacturing company, and these flat sternal wires are more expensive than conventional sternal wires but less expensive than sternal plates. In our experience, we have not noticed any post-procedural issues or any increase in sternal dehiscence in our flat sternal wire patient cohort. In order to evaluate this, we would need to perform a long-term study that involved performing CT imaging as follow-up for these patients.

Changes in the text: We have modified our text as advised with the paragraph above (page 4, lines 90-101).