



GAVIN CONFERENCES

International Conference on Surgery and Medicine

July 16-17, 2018 Bangkok, Thailand

Longitudinal rigid sternal reconstruction: A reliable fixation technique in the setting of chest wall dehiscence and infection following cardiac surgery

Jeko Madjarov, David Fisher, Svetozar Madzharov and Francis Robicsek

Sanger Heart and Vascular Institute-Charlotte, USA

Objective: While infection following median sternotomy occurs in only a small population of patients with incidence reported at 1.32%, mortality from mediastinitis is currently reported as high as 33%. Failure of the sternum to reunite carries an incidence of 0.3-5% and increases the potential for mediastinitis. Various forms of sternal fixation have been introduced, whereas traditional sternal wires remain the most commonly used. We introduce a novel fixation technique that has been used to successfully salvage sternal fixation while treating the underlying infection.

Methods: From 2013 to 2017, eight patients met criteria of having had sternotomies with culture-confirmed postoperative chest wall infection. All patients were treated with serial debridement and culture-selected antimicrobial therapy. Once gross infection was controlled, the sternum was fixated with a rigid longitudinal plate and screws on either side of the sternotomy. Traditional sternal wires were then used to reduce the sternotomy. Using this method, longitudinal sternal fixation encompassing the entire length of the sternum was performed allowing placement of additional wires in the area of the Xiphoid process, thus extending the line of coaptation and reinforcing the lower pole of the wound, a previously unaddressed area of weakness.

Results: In all patients, the sternum was salvaged without need of sternectomy. Mechanical ventilation requirements were also minimized in between surgical procedures by providing a physiologically intact chest wall. In patients who developed infection with sternal hardware in place, successful treatment of the infection was achieved without hardware removal. No patients died from sternal wound infection in our series.

Conclusion: Sternal dehiscence and mediastinitis remain a potentially devastating complication following median sternotomy. Our technique of plate and screw fixation of the sternum united with sternal wires offers a potential reconstructive option and may assist in infection resolution, especially in the case of sternal fragmentation which is poorly handled by other modalities. The sternal plates additionally serve to secure any horizontal instability of the sternum or ribs and serve as a rigid platform for the transverse wires to purchase. Further study is required to determine the degree of long-term healing and more specific infection clearance patterns.

Biography

Jeko Madjarov is a board-certified general, thoracic and vascular/endovascular Surgeon. His clinical interests include adult cardiac and thoracic surgery; aortic surgery, including complex/endovascular aortic repair; and minimally invasive coronary and thoracic surgery. He received his medical degree summa cum laude from Sofia Medical University, Bulgaria. In the U.S., he completed general surgery residencies at Yale-New Haven Hospital, New Haven, CT; and Baystate Medical Center/Tufts University School of Medicine, Springfield, MA. He then completed fellowships in vascular/endovascular surgery and cardiovascular/thoracic surgery and at Carolinas Medical Center, Charlotte, NC. An active researcher, he is engaged in several research studies and is also involved in the development of new medical technology. He has authored more than 25 publications in peer-reviewed journals and has presented his work at more than 20 national and international medical meetings.

Jeko.Madjarov@carolinashealthcare.org