

MEETING ABSTRACT

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Reduction in deep sternal wound infection with use of a peristernal cable-tie closure system

Meghan M Stelly^{1*}, Charles B Rodning², Terry C Stelly^{1,2}

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Background/Introduction

Deep sternal wound infections (DSWI) are a rare but serious complication after median sternotomy.

Aims/Objectives

We evaluated postoperative outcomes associated with two sternal-closure techniques.

Method

Methods and outcomes of sternal closure were reviewed in consecutive patients undergoing a variety of cardiothoracic surgical procedures. Sternal closure in the historical control group was performed using trans-sternal, stainless-steel wire sutures; subsequent patients were closed using wire sutures together with a novel, peristernal cable-tie closure system to reinforce the corpus sterni. Perioperative care was standardized between groups.

Results

Between July 2010 and July 2014, 609 consecutive adult patients underwent sternal closure following open median sternotomy at a single hospital in Mobile, Alabama. Sternal closure was accomplished with wire sutures in the first 309 patients and with cable-tie reinforcement in the subsequent 300 patients. One author performed 71.8% (222/309) of the wire suture procedures and 92.7% (278/300) of the cable-tie procedures; the others were performed by a single other partner in his practice. Baseline characteristics were comparable between groups, except that the cable-tie group exhibited greater preoperative comorbidity. Mean body mass index was comparable between groups (30.2 ± 6.6 kg/m² wire suture versus 30.5 ± 7.7 cable-tie, $p = 0.568$). DSWI occurred in 2.6% (8/309) patients in the wire-suture group, whereas no DSWI were observed in the cable tie

group ($p = 0.008$). Analysis of STS data shows the authors' rate of DSWI to be 0.0% in each of the years from 2012 - 2014 (corresponding with adoption of the cable-tie system), compared to an overall institutional rate of 0.2% and an overall STS database rate of 0.3% for 2014.

Discussion/Conclusion

The peristernal cable-tie system was a simple and reliable method for sternal closure after open median sternotomy, and was associated with a reduced risk of deep sternal wound infection, even in an obese and comorbid population.

Authors' details

¹Cardiothoracic and Vascular Surgical Associates, Mobile, AL, USA.

²Department of Surgery, College of Medicine, Medical Center, University of South Alabama, Mobile, AL, USA.

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¹Cardiothoracic and Vascular Surgical Associates, Mobile, AL, USA
Full list of author information is available at the end of the article