

ABSTRACT NO. 21

**INITIAL EXPERIENCE WITH STERNAL PLATING IN CARDIAC SURGERY PATIENTS**

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**Introduction:** Rigid sternal fixation with titanium plates is advocated by some Thoracic, Orthopedic and Plastic surgeons to reduce complications in patients at risk for sternal instability and fibrous non-union.

**Methods:** We performed a retrospective review of all cardiac surgery patients who had sternal plating at our institution between April 2005 and November 2007. Patients were selected by the surgeon for sternal plating in a non-randomized fashion based on pre-operative risk factors (obesity, diabetes, mesomorphic habitus, smoking). Patients underwent sternal fixation with one to two sternal plates (manubrium only versus manubrium and caudal sternum) as an adjunct to standard 6-wire cerclage.

**Results:** Twenty male patients underwent adjunctive sternal plating. Mean age was 58.9 years and mean BMI was 34 (range 24-47). 35% (7/20) of patients had diabetes and 85% (17/20) were active smokers. Eleven patients had a single plate (manubrium), while nine patients had two plates (manubrium and caudal sternal body). No patients developed mediastinitis. One patient with a single plate had fracture of a caudal sternal wire two years after initial operation. He underwent successful wire removal and placement of a second plate. Among patients with two plates, no primary sternal instability or fibrous non-union was observed. However, one patient developed sternal osteomyelitis three months after operation. He required sternectomy with muscle flap closure.

**Discussion:** These initial results suggest that sternal plating will reduce the risk of primary sternal instability and fibrous non-union, especially when two plates are used. However, the use of multiple plates with wires introduces more foreign material, which may increase the risk of sternal infection. A prospective, randomized trial is needed to better define the technical aspects (i.e. number and position of plates) and cost-effectiveness of primary sternal plating in cardiac surgery patients.