

EFFECT OF PRIMARY STERNAL PLATING ON MAJOR STERNOTOMY WOUND COMPLICATIONS

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BACKGROUND: Median sternotomy stabilization using rigid titanium plates has been reported to reduce instability-related sternal wound complications. Primary sternal plating has been a regular practice in high-risk patients at our center since mid-2007. We compared the rates of major sternal wound complications in patients who underwent primary sternal plating with a non-plated, risk-matched historical control group.

METHODS: Patients at high risk for sternal wound complications who underwent cardiac surgery between 2003 and 2008 were included. High risk status was defined as ≥ 1 of the following risk factors: obesity (body mass index > 30), manual laborer, intra-operative sternal fracture, or off-midline sternotomy. Records were reviewed to identify demographics, risk factors, plate status, operative details, and outcomes. Deep sternal wound infection (DSWI) was defined according to CDC criteria. Symptomatic sternal instability was defined as sternal discomfort plus clinical or radiographic evidence of sterile non-union. Risk factors and outcomes were compared between the plated and non-plated groups using chi-square and Kruskal-Wallis tests.

RESULTS: 136 patients (28 plated, 108 non-plated) met inclusion criteria; the median age was 59 and BMI was 32. Major baseline risk factors were similar between the plated and non-plated groups. Zero cases of DSWI occurred in the plated group and 12 (11%) in the non-plated group ($p=0.06$). The rate of symptomatic sternal instability was 7% in the plated group and 10% in the non-plated group ($p=0.63$). The 6-month mortality rate was 4% in both groups ($p=0.97$).

CONCLUSIONS: A strong trend was observed toward decreased DSWI among those undergoing primary sternal plating, suggesting that this practice may provide high-risk patients with a measure of protection against early instability and infection. No differences were seen in the longer-term outcome measures of symptomatic sternal instability and mortality.