Reconstruction Of Sternal Wounds, With And Without Rigid Plate Fixation

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Background: Management of sternal wound complications remains a significant challenge despite advancements over the last 50 years, notably the development of muscle flap coverage. Some have advocated for sternal plating in addition to flap coverage. There is evidence that plating high-risk patients at the time of sternotomy may reduce the incidence of sternal complications,\(^1\) and several authors have reported using rigid plating in secondary reconstruction after wound complications.\(^2\)\(^3\)\(^4\) We reviewed our experience with sternal reconstruction over the past 12 years, comparing the use of flaps alone versus the use of sternal plating and flap coverage.

Purpose: To examine outcomes of plating in secondary sternal reconstruction and compare them with outcomes for traditional flap reconstruction, and to assess how plating is being used in our institution.

Methods: 68 cases of sternal reconstruction from 1997-2011 met inclusion criteria. Plates with muscle flap coverage were used in 20 patients. Flaps alone were used in the other 48. Baseline characteristics and risk factors for wound complications were obtained, as well as indications for reconstruction and primary sternotomy. Outcome data included dehiscence, infection, reoperation, other wound complications, and length of hospital stay.

Results: Comorbidities and reason for primary sternotomy were similar between groups, but indication for reconstruction differed considerably: 60% of plated patients had sterile dehiscence, while 69% of non-plated patients were acutely infected (p < 0.01). No plated patients dehisced, vs 20.8% of non-plated (p = 0.03). 30% of plated had a post-op complication, vs 45.8% of non-plated (p = 0.3). Reoperation was necessary in 20% of plated vs 27.1% of non-plated (p = 0.6). 2 plated patients (10%) had their hardware removed. Four patients with acute infections were plated; none had complications.

Conclusions: At our institution, more sternal reconstructions in recent years have utilized plate fixation, with good results. However, plates have been used selectively, and less commonly in acutely infected sternums. None of the plated patients dehisced after reconstruction, suggesting there is a role for plating, at least in non-infected patients at high risk for wound re-dehiscence. The small number of patients with acute infections who were plated fared well, but further study is needed to evaluate the use of plates in this setting.


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