Sternal semi-closure using a bioresorbable osteosynthesis device: a new method for delayed sternal closure

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Abstrak

ABSTRACT
Purpose: To evaluate the safety and efficacy of our new delayed sternal closure (DSC) method, involving sternal semi-closure using a bioresorbable osteosynthesis device and complete skin closure.
Methods: Between 2013 and 2017, 36 patients underwent DCS at our hospital. The patients were divided into two groups based on the method used for DSC. The later conventional DSC group consisted of 18 patients undergoing late complete sternal closure following fixation of pulmonary and hemodynamic instability, and the new DSC group consisted of 18 patients undergoing early sternal semi-closure a few days after surgery. In the new DSC group, the sternum was fixed with Super Fixsorb MX40, followed by complete skin closure.
Results: Respiratory and hemodynamic conditions, such as systolic blood pressure, cardiac index, tidal volume, and regional oxygen saturation, were significantly more stable in the new DCS group than in the conventional DSC group. The hospital stay was also significantly shorter in the new DSC group. Although there were no serious complications, one patient from the new DCS group suffered deformity of the sternum, which was managed successfully.
Conclusion: The sternal semi-closure method decreases pulmonary and cardiac instability during DSC, making early DSC possible.