

Free Fibular Flaps in Management of Sternal Dehiscence

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Abstract : Sternal dehiscence is defined as the persistent separation of sternal bones that are often complicated with mediastinitis. Etiologies that lead to sternal dehiscence vary, with cardiovascular and thoracic surgeries being the most common. Early diagnosis in susceptible patients is crucial to the management of such cases, as they are associated with high mortality rates. A recent meta-analysis of more than four hundred thousand patients concluded that deep sternal wound infections were the leading cause of mortality and morbidity in patients undergoing cardiac procedures. Long-term complications associated with sternal dehiscence include increased hospitalizations, cardiac infarctions, and renal and respiratory failures. Numerous osteosynthesis methods have been described in the literature. Surgical materials offer enough rigidity to support the sternum and can be flexible enough to allow physiological breathing movements of the chest; however, these materials fall short when managing patients with extensive bone loss, osteopenia, or general poor bone quality, for such cases, flaps offer a better closure system. Early utilization of flaps yields better survival rates compared to delayed closure or to patients treated with sternal rewiring and closed drainage. The utilization of pectoralis major flaps, rectus abdominus, and latissimus muscle flaps have all been described in the literature as great alternatives. Flap selection depends on a variety of factors, mainly the size of the sternal defect, infection, and the availability of local tissues. Free fibular flaps are commonly harvested flaps utilized in reconstruction around the body. In cases regarding sternal reconstruction with free fibular flaps, the literature exclusively discussed the flap applied vertically to the chest wall. We present a different technique applying the free fibular triple barrel flap oriented in a transverse manner, in parallel to the ribs. In our experience, this method could have enhanced results and improved prognosis as it contributes to the normal circumferential shape of the chest wall.

Keywords : sternal dehiscence, management, free fibular flaps, novel surgical techniques

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