

Post-sternectomy Severe Chest Wall Instability and Abdominal Herniation: Repair With Polypropylene Mesh

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Background: Osteomyelitis of the sternum after median sternotomy is a serious complication. Aggressive debridement and sternectomy, with closure of the defect by pectoralis muscles or omentum is the accepted repair of choice. It is known that in some patients, this operation may lead to thoracic instability of varying degrees, limiting a patients quality of life. We present a simplified technique for repair of unstable anterior chest wall and abdominal herniation following sternectomy and aggressive debridement.

Materials and method: Two patients (ages 72 and 75 years old) were admitted to our hospital with severe instability of the anterior chest wall and upper abdominal herniation. Both of them had a history of cardiac surgery through median sternotomy, complicated by deep infection of the sternum. This complication was treated in the usual manner by total sternectomy. In the first patient, the defect after sternectomy was closed by omentum, and in the second patient pectoralis muscle flaps were used. Postoperative healing of both wounds were uneventful but thoracic instability and upper abdominal herniation developed. One of the patient s used a special chest corset with abdominal support. The other patient employed the handle of a hammer for counter pressure against the chest during coughing or physical exertion. Extensive cardiac evaluation including echocardiogram was done before and after operation. Both patients underwent repair using the following technique. Under general anesthesia, an incision was made along the previous sternectomy scar. The skin flaps were then dissected. Polypropylene mesh (4 layers) was trimmed according to the size of the anterior chest wall and upper abdominal defects. Holes were drilled into the rib stumps and the mesh was placed on the anterior chest wall and abdominal defects for suturing. The mesh was then fixed to the rib stumps by interrupted sutures, and to the margins of aponeurosis by running sutures. A 16 FR drainage tube was then inserted under the mesh. Finally, the skin flaps were sewn to each other in the midline with resorbable suture material.

Results: In both our patients, we received good stabilization of the anterior chest wall defect and resolution of upper abdominal herniation at 2-year follow up.

Conclusion: Polypropylene mesh was a suitable alternative for stabilization of post-sternectomy anterior chest wall large defect combined with abdominal herniation.