

Background

Minimally invasive cardiac surgery is performed frequently in common practice, leading to an increased incidence of specific complications related to the operative techniques. Cardiac herniation is a potential example of these. In this video, we present a patient with herniation of the cardiac apex through the chest wall after minimally invasive coronary artery bypass graft surgery.

Case

A 62 year-old male with a history of minimally invasive coronary artery bypass 2 years ago in another center was admitted with visualisation of the cardiac pulse just below the incision. Cardiac apex was palpable directly around the nipple. CT angiogram revealed herniation of the cardiac apex and a deformity in the 4th intercostal space. The decision was to reconstruct and reinforce the chest wall to prevent any potentially fatal injury.

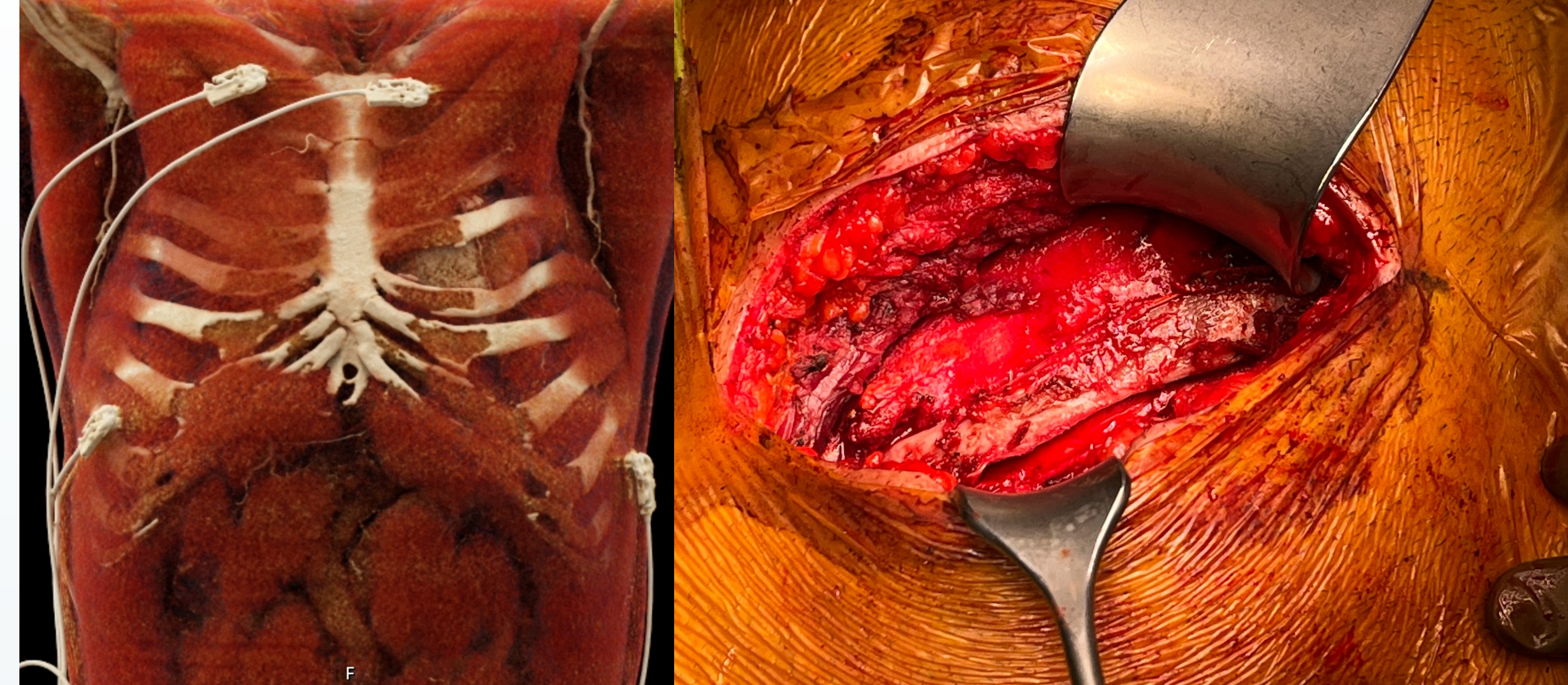


Figure 1: Preoperative CT angiogram and intraoperative view of the defected chest wall

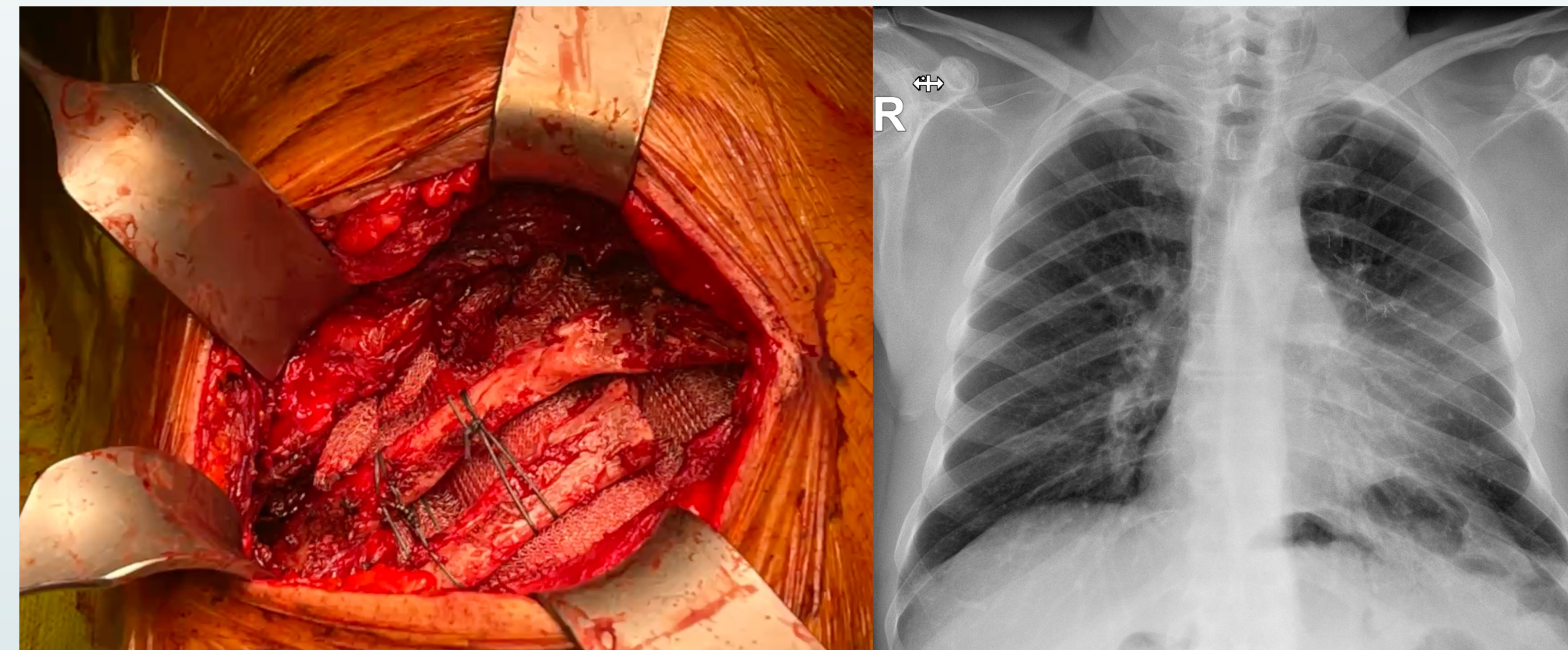


Figure 2: Intraoperative view and postoperative chest X-ray after reconstruction

Operative Technique

Patient was laid on the operation table in supine position and left femoral artery and vein were marked with ultrasound guidance for initiation of cardiopulmonary bypass in case of major cardiac injury. Incision was done over the previous incision and 4th intercostal space was explored. Cardiac apex with overlying fibrotic tissues was visible between 4th and 5th ribs. Both ribs were decorticated and divided on the anterior sides. The gap anterior to cardiac apex was reinforced with a polypropylene mesh and the divided ribs were repositioned over the mesh. Subcutaneous tissue and skin were closed in routine fashion.

Conclusion

Minimally invasive cardiac surgery is increasingly performed and various thoracotomy incisions are used as a part of operative techniques. Chest wall deformities on the thoracotomy sites can be seen after these kind of operations. Any minor damage to the chest might cause lethal injury to major organs like heart or lung in case of herniation, so it is important to take preventive measures and to properly manage these complications when encountered.