postoperatively. The patient was symptom-free at the 5-year follow-up with unchanged FEV₁.

DISCUSSION

This case illustrates that the interpretation of respiratory functional evaluation must not be considered independently of the patient context. At first, surgery was declined by overlooking the role of a neurologic deficit as the cause of the inability to perform expiratory maneuvers. We could not find other examples of lobectomy performed in quadriplegic patients with such a low preoperative FEV₁. No functional data were available in the 3 lobectomies (performed by standard thoracotomy) reported by Rocco and colleagues,¹ but the authors reported that preoperative evaluation may be limited, and the major emphasis must be on clinical expertise and arterial blood gas analysis to approximately determine the surgical risk. In the absence of diffuse pulmonary disease that explains major respiratory insufficiency, low preoperative FEV₁ may not necessarily constitute a contraindication to surgery. In addition, vital capacity, which has been proposed as a single global measure of overall ventilatory function status in these cases,⁴ was not helpful. To avoid postoperative pulmonary infectious complications related to low expiratory flow rates and incapacity to expectorate, temporary tracheostomy might be a good adjunct to the surgical treatment. In a randomized controlled trial⁵ including 102 high-risk patients undergoing lung resection,

a significantly lower rate of sputum retention was observed in the group with prophylactic tracheostomy compared with the control group, without early mortality linked to infectious lung complication.

CONCLUSIONS

The validity of pulmonary function tests in severe neurologic impairment should be considered with caution. These test results must not singly influence the decision-making for the anticipated operation when other criteria seem normal (rest of parenchyma, oxygen saturation). Prevention of complementary procedures, such as tracheostomy, might help to obtain better postoperative results.

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Four-flap compound repair of thoracic hernia after sternum osteomyelitis and omentum flap

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Sternal wound infections represent potentially life-threatening complications in patients undergoing cardiovascular surgery. Although the incidence ranges from only 0.3% to 5%, the condition is associated with

significant mortality of 14% to 47% in the published data.¹

Different approaches have been tried to manage post-sternotomy osteomyelitis, including surgical revision followed by open dressings or closed irrigation and reconstruction with vascularized soft tissue flaps. The omentum flap represents an alternative technique that was primarily used in the past.² Its use was hampered by the additional surgical trauma, turning a “1-cavity” into a “2-cavity” surgery, with a much wider range of possible complications, such as pain, reduced thoracic compliance, and a significant risk of hiatal and midline hernia formation.¹

The standard techniques of sternal wound coverage such as the pectoralis major flap have limited applicability in defects in the lower third of the sternum, and a cranially

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FIGURE 1. Preoperative situation.

pedicled myocutaneous flap design using the rectus muscle cannot be performed safely if ipsilateral coronary bypass surgery has been previously performed. Mobilization and transfer of the pectoralis major muscle, together with the rectus muscle, in a single unit from each side into the defect has been previously described as an

alternative approach for the treatment of sternum osteomyelitis.³

Because the repair of midline and hiatal hernia after omental harvest—particularly in a formerly infected site—can be challenging, we developed a simple and reliable biologic approach that makes use of the anatomic situation in this type of hernia. Our approach represents a modification of the technique introduced by Ramirez and colleagues⁴ for the treatment of large lumbosacral meningocele defects. In contrast to the bilateral pectoralis flap, this type of flap design facilitates sufficient hernia repair, even in the lower third of the sternum.

CASE REPORT

A 43-year-old male patient developed sternum osteomyelitis after cardiovascular surgery (Figure 1). This was initially successfully treated with an omentum flap. However, a prethoracic colonic hernia and upside-down stomach developed over time. Hence, the patient underwent hernia repair. After the colon was mobilized and repositioned into the peritoneal cavity, the peritoneum was sealed and stabilized using a polypropylene mesh. The overlying defect was reconstructed using a compound flap modified from the technique of Ramirez and colleagues.⁴ In so doing, the interconnected myocutaneous units of the pectoralis major and rectus abdominis muscles were advanced en bloc without any relaxing incisions or back cuts. The muscles were then compounded over the former gap, and skin closure could be performed without tension (Figure 2). The postoperative course was uneventful, and no relapse of the hernia or sternum osteomyelitis was observed.

DISCUSSION

Although sufficient treatment of sternum osteomyelitis can be achieved with an omentum flap, it can be associated with significant morbidity. The current treatment of sternum osteomyelitis involves several steps that commonly include minute and sometimes repetitive surgical debridement of all affected tissues combined with negative pressure wound therapy. When a clean wound situation has been achieved, the current state of the art treatment involves transposition of muscle tissue such as pectoralis major or rectus abdominis muscle. Nevertheless, many surgeons still use omentum flaps to treat sternum osteomyelitis. In the present case, the omentum flap was successfully used to treat the sternum osteomyelitis. However, the subsequent clinical course was complicated by herniation of the colon ventral to the thoracic wall associated with an upside-down stomach. The compound 4-flap repair provides a valuable resource to correct a thoracic wall hernia after omentum flap transposition.

FIGURE 2. Surgical approach.

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Coronary artery thromboembolism as a result of left ventricular sump aneurysm after congenital heart surgery

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Video clip is available online.

Placement of a sump drain to vent the left ventricle during cardiac surgery often leaves a small apical aneurysm, which is generally considered to be a harmless remnant. We report the first case of a thromboembolic complication from

a sump aneurysm in an adult man 41 years after ventricular septal defect repair.

CLINICAL SUMMARY

A 46-year-old man with a history of a ventricular septal defect repair in 1968 presented with intermittent chest discomfort of approximately 4 weeks duration. The episodes were infrequent and nonexertional but were characterized by gripping tightness in the upper anterior chest. One month earlier, he had a sudden witnessed event in which he lost feeling on his right side and collapsed with loss of control of his right arm and leg. The episode lasted for 1 minute with spontaneous resolution, and the patient did not seek medical attention. He was not taking any medications at the time of presentation. Family history was notable for sudden cardiac death in a brother at age 39 years, whose autopsy showed coronary artery disease as the cause of death. His mother died of a myocardial infarction at age 62 years, and his father had coronary bypass surgery at age 60 and is alive at 74 years of age.

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