

TACTILE AND TECHNICAL PROBLEMS IN SURGERY OF THE RESIDUAL PLEURAL SPACE IN POSTTUBERCULOSIS SYNDROMES – CASE REPORT

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Abstract: The severity of tuberculosis as an endemic malady in our country is a consequence of the complexity of surgical cases which often reach service as serious surgical emergencies, requiring a complex surgical management. We are reporting the case of a 56-year old patient, whose right pleural tuberculosis etiology is known, having a residual cavity with limestone walls which got infected after a limited and insufficient C4-C7 thoracoplasty performed in another thoracic surgery clinic. A complex solution was chosen in order to eliminate this cavity, consisting of an iterative thoracopleuroplasty. Boțianu, on six ribs in a single-operator real-time, with a closed-circuit suction-irrigation system, associated with the transposition of latissimus dorsi muscle and serratus anterior on a common vascular pedicle and intercostal flap. The postsurgery course was favourable, the cavity being eliminated permanently and completely within 34 days.

Cuvinte cheie: cavitate pleurală reziduală, toracopleuromioplastie, transpoziție musculară

Rezumat: Severitatea endemiei tuberculoase din țara noastră rezultă din complexitatea unor cazuri chirurgicale care ajung deseori în servicii de chirurgie, necesitând un management medico-chirurgical complex. Prezentăm cazul unui pacient în vârstă de 56 de ani, cunoscut în antecedente cu pleurezie dreaptă de etiologie tuberculoasă, cu o cavitate reziduală cu pereți calcari suprainfectată după o toracoplastie limitată și insuficientă C4-C7 efectuată în altă clinică de chirurgie toracică. Pentru desființarea acestei cavități s-a ales o soluție complexă, constând într-o toracopleuroplastie iterativă Boțianu pe 6 coaste într-un singur timp operator, cu sistem de irigație – aspirație în circuit închis, asociată cu plombaj muscular cu mare dorsal și dințat anterior pe pediculul vascular comun și lambouri intercostale. Evoluția postoperatorie a fost favorabilă, cu obliterarea completă și definitivă a cavității și externare la 34 zile.

INTRODUCTION

The syndrome of post-tuberculous residual pleural cavities accumulates all the remaining parts of the tuberculous pleural cavities: cavities which remain after encysted pneumothorax, persistent cavities after pulmonary resection, residual pockets after therapeutic intrapleural or extrapleural pneumothorax.(1) On a case by case basis, these bags can benefit from decortication, thoracoplasty or both, according to the state of the remaining lung parenchyma which should be resected or not, depending on the lesion extension.(2)

CASE REPORT

We are reporting the case of a 56-year old patient, former smoker, and a history of right pathological tuberculous pleurisy, treated with puncture and medical treatment for tuberculosis 25 years ago. The disease reappeared in 1997 and 2010. In September 2010, an insufficient right topographical C4-C7 thoracoplasty was performed by another thoracic surgery clinic, which was insufficient. The histopathology performed from the visceral pleura during the surgery shows a specific inflammation; the patient is following a treatment for tuberculosis.

The postoperative course was unfavourable, with the persistence of a large suppurating pleural cavity with multiple

bronchial fistulae. Consequently, the patient is sent to our service for re-intervention nine months after the first surgery. At admission, he presented moderately impaired general condition, with right hemithorax pain, irritating dry cough, dyspnea on effort, and a prolonged febrile syndrome.

CT scan reveals the right pleural collection, size 15 / 6.5 / 15 cm, calcified circumferential coarse wall, especially diaphragmatic latch portion and a thickening of the extrapleural tissue. CT scan presents an image with horizontal hydroaeric level, tangential to the chest wall, the diaphragm, where the fluid density is <20 UH, without effusion or contrast setting in the content (present) the lung parenchyma distortion and the bronchiectasis of the bronchovascular lobe, segment 6, as well as the average lobe.

Given the age of the tuberculous abscesses and of the necroses which got infected, according to the CT scan, the presence of tuberculous lesions and the failure of the first intervention ("classic" limited thoracoplasty"), it was decided to carry out a complex comblage.(3) A posterolateral thoracotomy incision was performed, which included the first partial incision. The cavity could be penetrated only after the general mobilisation of the serratus anterior and latissimus dorsal. Boțianu performed an iterative thoracopleuroplasty procedure on 6 ribs in a single-operator surgical time (strictly

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CLINICAL ASPECTS

topographical, including the complete resection of four ribs excised from the first intervention), with a closed-circuit suction-irrigation system, associated with the plompage of the latissimus dorsi muscle, and gear previously deployed on the common thoracodorsal vascular pedicle with an intercostal flap back irrigation that was performed.(4)

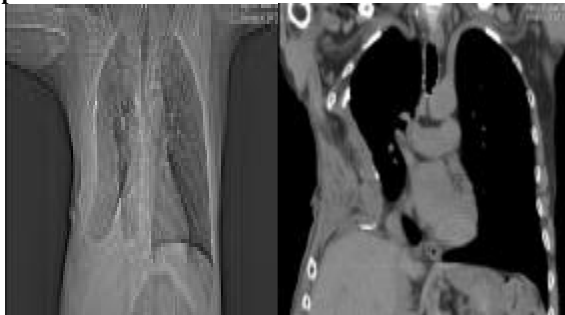
Figure no. 1. Right pleural effusion (pleural bag), hidroaeric image



After the subcutaneous placement of drainage, the skin and the subcutaneous tissue were sutured in a single plane over which system has been applied external contention. In spite of its complexity, the intervention was well-tolerated: the patient remained hemodynamically and perioperatively respiratory stable. He was assisted for 2 hours postoperatively and then transferred from the intensive care unit to the surgical ward the day after the surgery.

The postoperative course was favourable, culminating in the elimination of the cavity and wound healing per primam operators. The postoperative control cavity looks broken with intrathoracic flap viable.

Figure no. 2. Intrathoracic cavity eliminated with viable flaps



The patient was discharged 34 days after the surgery, being taken over by the TB service to continue to recover with his treatment for tuberculosis.

DISCUSSIONS

The surgery of the postoperative empyema is considered to be a difficult one, without a universally accepted solution to all these categories of patients. If a major re-intervention is required, the possibilities include decortication, iterative thoracopleuroplasty, muscle transposition and pleural window.(5) Thoracopleuroplasty, in association with muscle transposition or thoracopleuromioplasty is a new type of procedure, with priority for the Surgery Clinic II Tîrgu-Mureş.

There are few studies regarding the residual cavity after thoracopleuroplasty, most authors in this situation performing a pleural window. This has the advantage of simplicity, but it leaves a very unsightly open wound which should be dressed daily and takes several months or even years to heal.

For intrathoracic abscesses and necrotizing cases that are not suitable for resection and pulmonary decortication, we collectively prefer to perform complex operations of comblage, using an original method which combines thoracopleuroplasty with intrathoracic muscle transposition. The use of muscle flaps does not only reduce the chest wall mutilation, but also speeds up the healing process.(6) The muscle tissue does not have only a mechanical role, but also a biological one, being able to fight infections and promote healing and neovascularisation input growth.(7)

The use of muscle flaps is limited in postoperative empyema by the first incision. Except for thoracoscopy, median sternotomy and the so-called "muscle-sparing" thoracotomy, the usual access method consist of sectioning important muscle masses, limiting their use in the event of postoperative complications.(8) The use of the omentum flap or of the abdominal flat implies additional abdominal morbidity. Microsurgical free transfer, although successfully used in small series, is a less attractive option because of technical difficulties and risk of complications in the surgery of vascular anastomoses.(9)

The case presents an interesting feature of the surgical technique: the first procedure was performed through a limited horizontal axillary thoracotomy. A careful intraoperative dissection showed that this vascular incision did not intercept the main pedicle of serratus anterior, which allowed full mobilisation of the muscles, after a repeated examination of intraoperative flap viability, it was decided to put it all intrathoracically, the correctness of this decision being confirmed by the postoperative positive course. The presented case is also illustrative for the use of serratus anterior flap in re-interventions. Although there are published studies with good results, many thoracic surgeons are reluctant to use it.(10)

CONCLUSIONS

The case is interesting by its rarity – re-intervention for residual cavity after classical thoracoplasty for tuberculous empyema, as well as for the selected technical solutions - a combination of muscle transposition thoracopleuroplasty, whose aim is the final obliteration of the cavity with a minimum price of a mutilated chest and maintaining the normal position of the shoulder. However, the positive functional consequences of this intervention are obvious. Adapting tactics and surgical techniques on local anatomic situations is essential for maintaining the tuberculous pleural cavity surgery.

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