

Therapy of the empyema thoracis. Why not thoracostoma?



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Therapy of the empyema thoracis. Why not thoracostoma?

Empyema thoracis can be defined as a purulent pleural effusion. From 1998 to 2003 we treated 106 patients (87 men and 19 women), aged between 23 and 82 years, affected by localized empyema thoracis.

All of them received initially a chest tube and 73 of them (60 men and 13 women), in combination with selected antibiotics, had an uneventful recovery.

Twenty three patients (17 men and 5 women) underwent thoracotomy and pleural decortication, and 7 patients (6 men and 1 woman) underwent open drainage, that means a thoracostoma.

All these 7 patients were affected by chronic empyema: 3 of them with residual post-pneumectomy empyema (1 for lung cancer and 2 for tubercular lung disease); 3 had destroyed lung and 1 was suffering for multiorgan deficiency (respiratory, cardiac and chronic renal insufficiency). The thoracostoma procedure was under general tube anaesthesia with tracheal intubation.

The mean surgical time was 26 minutes. The mean postoperative hospital stay was 10 days. In this period of time no death has been recorded or any kind of complication.

Before the dismissal all of them were taught with their familiars how to take care of the remaining thoracostoma. After the dismissal all the patients were followed as outpatients for a variable period, for 14 and 36 months. During this period there were neither complications nor recidives, and all the patients have accepted the "thoracostoma" as a new way of life.

Therefore thoracostoma appears as an acceptable, useful and no dangerous solution for the treatment of the chronic thoracic empyema.

KEY WORDS: Chronic empyema thoracis, thoracostoma.

Introduction

Empyema thoracis can be defined as a purulent pleural effusion ¹. Chest tube is the initial therapy ¹ (diagnosis + treatment = evacuation of the pleural cavity + antibiotics + fibrinolytic agents).

Video assisted thoracoscopy (VATS), thoracotomy (minithoracotomy) and pleural decortication ± empyemectomy offer excellent results.

Thoracostoma (open drainage) ^{1,2} is a therapeutic procedure when the patient's general situation is very poor

(cardiac, lung insufficiency, etc.) and they can't afford the gravity of any major surgical operation.

Material and method

During the years 1998-2003 we treated 106 patients with empyema (87 men and 19 women), aged between 23 and 82 years.

All of them received initially chest tube and 73 of them (68.8%) in combination with antibiotics had an uneventful recovery.

Twentythree patients (17 men and 5 women) underwent thoracotomy and decortication and 7 patients (6 men and 1 woman) underwent open drainage – Thoracostoma.

All these 7 patients with chronic empyema: 3 with postpneumectomy empyema (1 lung cancer, 2 tuberculosis), 3 with destroyed lung and 1 affected by respiratory, car-

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diac and chronic renal insufficiency, were in so a very poor clinical condition that thoracotomy was contraindicated and thoracostoma took place.

All of them went under general tube anaesthesia. The mean surgical time was 26 minutes.

Results

No death has been recorded and they had an uneventful postoperative recovery. The mean postoperative stay in hospital was 10 days. In this period of time, no clinical, biochemical or any other kind of complication has been recorded, and all patients were taught with their familiars to take care of the thoracostoma before the dismissal.

Patients were followed as out patients for 14-36 months without complications and they have accepted "thoracostoma" as a new way of life.

Discussion

Empyema thoracis as a purulent pleural effusion is known from Hippocrates's epoch ³.

Empyema thoracis could be appear as a result of pneumonic infection, trauma and surgical procedures (after thoracotomy, esophageal perforation, thoracic operations, etc.). Drainage's principle is known from the antiquity (Hippocrates) ³.

Johannes Scultetus, a 17th century surgeon, reported on his articles "syringes and tubes" that he used for drainage - channelling posttraumatic empyemas.

On his date exist "professionals" with tubes who "sucked" with their mouths pleural effusions!!! Later Boerhaave adopted syringes and described a new technique for pleural cavities drainage. Dupuytren seems that he also worked on empyema thoracis. When he was himself affected by empyema thoracis he preferred to die by the God's hand, that his assistant's medic hand !!!

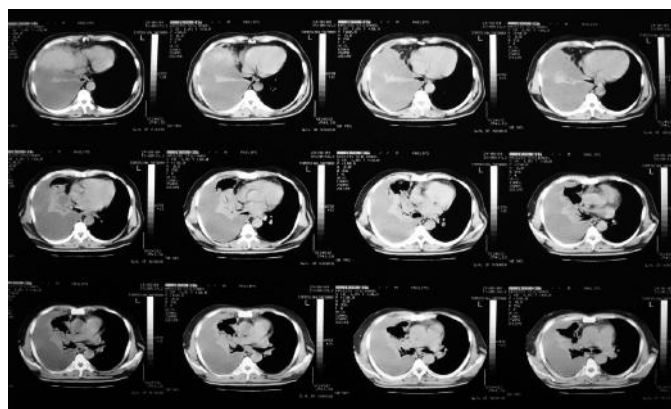


Fig. 1: A CT view of empyema.

A remarkable reduction of incidence has been observed with the antibiotic's appearance, but empyema still exists associated to morbidity and mortality ⁴.

Effective management of empyema requires ¹: 1) control of infection and sepsis by appropriate antibiotic therapy (culture-antibiogramma), 2) evacuation of pus from the pleural space and 3) obliteration of the empyema cavity.

Initial procedure is the use of chest tube drainage. Chest tube is diagnostic (culture of pus) and also therapeutic (evacuation of pus, introducing fibrinolytic agents^{5,6} like streptokinase, urokinase).

Most of our patients 73 (68,8%) from 106 who received chest tube in combination with antibiotics had an uneventful recovery.

Evacuation of the pleural cavity in stage I has better prognosis and shorter stay in the hospital than stage II and stage III (American Thoracic Classification of empyema) ⁷.

23 patients with empyema localized (8 of them with bronchopleural fistula) underwent thoracotomy and decortication. Unfortunately we lost 6 of them.

When the patient's general clinical condition is very poor (cardiac, respiratory or/and renal insufficiency, senility, cachexia, etc.) they can't afford the burden of any surgical operation. So an alternative management has been developed: a hole-stoma to the lowest point of the thoracic wall (which could be permanent or temporary) for pus drainage named as Thoracostoma ^{2,1}.



Fig. 2: A patient with thoracostoma.

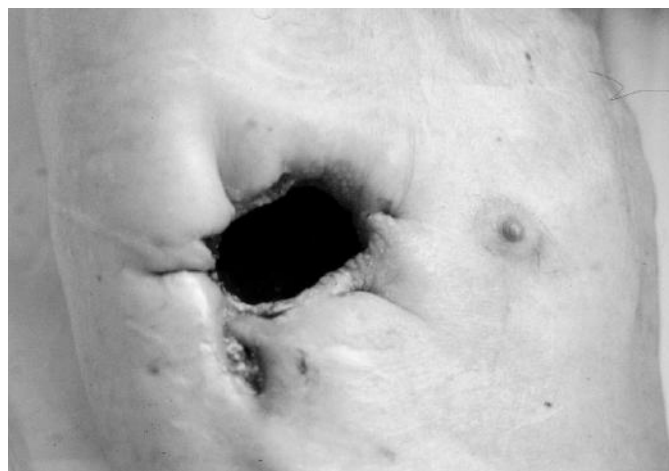


Fig. 3: View of a thoracostoma.

Open drainage may be achieved through rib resection and use of a modified Eloesser's flap (1935) ⁹. In this modification the original U shaped flap is converted to an inverted U shaped flap to maintain the patency of the tract. In this useful procedure a large space makes sure the drainage ¹.

Thoracostoma can be realized by local or general anesthesia with tracheal intubation. It is however a simple surgical procedure completed in a short period of time (20-30 minutes).

Seven patients underwent thoracostoma by general tube anaesthesia. No death has been recorded. All of them had an uneventful postoperative recover. The mean postoperative stay in hospital was 10 days.

Empyema thoracis had an increased incidence for the last 10 years in our country so in our Thoracic Surgery Department. Immigrants from other countries (post communist countries, Asian countries) represent the major number of empyema.

We believe that thoracostoma is an accepted, useful and no danger solution for the treatment of chronic empyema.

Conclusions

Thoracostoma has adverse meaning because it is a permanent fistula of the thoracic wall. It is a palliative procedure that needs daily care and nursing. Special attention should be given to empyema from broncopulmonary fistula.

Thoracostoma has benefits, because it is a small intervention under local or general anaesthesia with tracheal intubation in a short period of time (20-30 minutes), and offers excellent permanent drainage.

Also possibilities for surgical operation in a second time do exist. Finally thoracostoma is an accepted, useful and no danger solution for the treatment of chronic empyema.

Riassunto

L'empyema toracico si può definire come una raccolta purulenta in cavità pleurica. Nel periodo compreso tra il 1998 ed il 2003 abbiamo trattato 106 pazienti (87 di sesso maschile e 19 di sesso femminile) di età compresa tra 23 e 82 anni, affetti da empyema toracico localizzato.

A tutti i pazienti abbiamo inizialmente introdotto un tubo di drenaggio toracico e 73 di essi (di cui 60 uomini e 13 donne) sottoposti alla sola terapia antibiotica mirata, hanno avuto un eccellente decorso, con guarigione priva di complicanze.

23 pazienti (17 uomini e 5 donne) sono stati sottoposti a toracotomia e decorticazione pleurica, ed infine 7 pazienti (6 maschi e 1 donna) sono stati sottoposti a drenaggio toracico aperto, cioè una toracostomia.

Tutti i 7 pazienti di quest'ultimo gruppo erano affetti da empyema cronico: 3 per empyema residuo ad un intervento di pneumonectomia (in 1 paziente per cancro polmonare ed in 2 per lesioni tubercolari); 3 avevano dei polmoni danneggiati da cause organiche ed 1 era affetto da insufficienza multiorgano (insufficienza respiratoria, cardiaca e renale cronica).

Per confezionare la toracotomia si è fatto ricorso all'anestesia generale con intubazione.

La durata media dell'intervento è stata di 26 minuti. Il periodo medio di ricovero ospedaliero dopo l'intervento è stato della durata di 10 giorni. In questo periodo di tempo non si sono state verificate complicanze oppure decessi. Prima della dimissione tutti i pazienti, insieme ai loro familiari, sono stati istruiti nel modo di prendere cura della toracotomia ancora presente.

Dopo la dimissione tutti i pazienti sono stati sottoposti ad un follow-up per un periodo variabile tra i 14 ed i 36 mesi. Anche durante questo follow-up non si sono verificate complicanze né recidive, mentre la totalità dei pazienti ha accettato la presenza della toracotomia come un nuovo modo di vivere.

Concludendo la toracotomia risulta una soluzione accettabile, utile e scevra di pericoli per il trattamento dell'empyema toracico cronico.

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