Spontaneous pneumothorax. When and how to treat


Departments of (*)Thoracic Surgery and (**) Familial Medicine, General State Hospital "Agios Panteleimon" of Nikaia, Piraeus, Greece

Introduction

When air is present in the pleural cavity, pneumothorax occurs. Spontaneous pneumothorax may be primary or secondary 1 (Tab. I).

The aim of this study is to present our experience from treating patients suffering from spontaneous pneumothorax from 1992 to 2002.

In case of a primary pneumothorax, the damage that mostly occurs is bubbles around the top of one or more lobes.

Air may leak automatically or after physical exercise (scuba diving, underwater fishing).

It occurs more often in young men and may afflict both sides. It may also be hereditary.

Any pneumonic cyst combined with a pleuric tear may cause secondary spontaneous pneumothorax. Chronic obstructive pneumopathy – emphysematic illness – is the most common cause 2.

Material and methods

The studied population consists of 275 patients, 230 male and 45 female, mean aged 37 years old (Fig. 1).

36 patients out of 275 (13.04%) received conservative treatment (oxygen administration, analgesic monitoring), while 239 (86.96%) were treated with closed thoracic drainage (Büllau) (Fig. 2).

27 patients out of 275 hospitalised were operated on (9.82%), i.e. 1 out of 10.

The pneumothorax was located on the right in 165 patients (60 %), on the left in 107 (38.91%), and on both sides in 3 (1.09%) (Fig. 3).
Results

Our average patient was 37.06 years old (max 86, min 15), while the average hospitalisation period spanned 7.8 days (max 37, min 1). Older patients had to be hospitalised longer. There is an important positive ratio between the patient’s age and the duration of hospitalisation ($r = 0.209$, $n = 275$, $p < 0.001$).

28 of our patients relapsed two, three, or even four times. They were readmitted 69 times in total, 1 out of 4 having relapsed (25.09%). The total hospitalisation duration was 598 days, with an average of 21.35 days of hospitalisation.

Nineteen out of 28 patients were admitted twice (16 male and 3 female). Upon admission, closed thoracic drainage was performed on all of them. When they relapsed and had to be readmitted to the clinic, 1 patient was treated conservatively, while we used a pipe to drain the ailing hemithorax on the remaining 18.8 patients had to be operated on. There were no relapses. An elderly, 86-year old, man who could not be treated surgically due to old age, received a blood patch.

In Tab. II, it is shown that 6 male patients were admitted thrice each. 2 of them were operated on.

In Tab. III, it is shown that 3 male patients were admit-
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Discussion

Spontaneous primary pneumothorax occurs mostly in young people. It rarely occurs before puberty. It is more common in men than women in a 6:1 ratio, as is the case with smokers. The average patient is tall, thin, with narrow shoulders, having experienced a belated puberty or early maturity. The patient reports tightness and coughing, as well as tachycardia, sweating, low blood pressure and paleness. The clinical examination varies according to the severity of the pneumothorax. In case of a minor pneumothorax, the clinical findings may be misleading and a radiography of the thorax is necessary. Flatulence during percussion and reduction of respiratory whisper are typical of a major pneumothorax. In case of a pneumothorax under tension, the above-mentioned findings are still valid and elated, in addition to the displacement of the windpipe towards the healthy hemithorax, which becomes apparent in radiography, as well as with clinical examination during palpation of the shaft above the sternum.

The British Thoracic Society suggests needle aspiration to get rid of the existing air. The British have been following this protocol since 1993, using a catheter even in relapsed pneumothorax cases. Mendis and his associates argue that the hospitalisation period of patients suffering from spontaneous pneumothorax and treated with needle aspiration is smaller than that of patients treated with closed thorax drainage. Noppen and his associates advocate that the relapse percentage of patients treated with needle aspiration (26%) is smaller than that of patients treated with closed thorax drainage (27.3%). Harvey shares this same view (17% and 29% respectively).

We treated 239 patients (86.96%) using closed thorax drainage. We reinstalled a pipe in relapsed patients. 2 patients out of 28 that relapsed 69 times in all were treated conservatively while the rest were treated surgically or using a pipe. Only relapsed patients provided enough cause for surgery. In Tab. V we present the indications for surgery. All our patients underwent a dorsolateral thoracotomy, including the removal of inflated cysts and bubbles, and pleurodesis. A 17-year old male patient suffered from right pneumothorax (in the hemithorax that had been treated) three months after the surgery (removal of inflated cysts and pleurodesis); he was successfully treated using closed thorax drainage. A 35-year old female patient suffering from right spontaneous pneumothorax during her menses was initially treated using a pipe, and was urgently operated on (dorsolateral thoracotomy) the following day due to haemopneumothorax. The hemorrhage was brought under control (adhesion cauterisation). The large inflated cyst was

TABLE III – Treatment of the Spontaneous Pneumothorax in Male patients who had 4 clinical admissions each

<table>
<thead>
<tr>
<th>Age</th>
<th>1st Admission</th>
<th>2nd Admission</th>
<th>3rd Admission</th>
<th>4th Admission</th>
</tr>
</thead>
</table>

Legend: see Table II.
removed from the right upper lobe and pleurodesis was effectuated. She was released in full health 11 days later. Spontaneous pneumothorax is rare, especially in women. Spontaneous hemothorax is even rarer. A 63-year old female patient suffering from a diagnosed endometrium cancer with metastases in the bones presented a left secondary pneumothorax, which was treated using a pipe. She died three days later. Hers was the only recorded death in our 10-year retrospective study. Spontaneous pneumothorax is an ailment usually treated with a closed thorax drainage pipe. The prognosis is very good.

References