Pneumothorax spontané bilatéral simultané aux urgences : à propos d'un cas.

Simultaneous bilateral spontaneous pneumothorax in emergency department : case report

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Résumé :

Le pneumothorax spontané bilatéral simultané est une entité rare avec seulement 1,3% des cas de pneumothorax spontané. Nous rapportons le cas d'un jeune de 15 ans ayant des antécédents de tabagisme, qui s'est présenté aux urgences pour une dyspnée brutale et une douleur thoracique modérée. Le patient était stable sur le plan hémodynamique et respiratoire. La radiographie pulmonaire a montré un pneumothorax bilatéral. Le diagnostic de pneumothorax spontané bilatéral simultané a été retenu. Un drainage thoracique droit a été mis avec retour à la paroi du poumon droit. Secondairement, le patient a subi une intervention chirurgicale sur le poumon gauche avec de bons résultats. Malgré la bilatéralité du décollement pleural chez notre patient, l'état hémodynamique et respiratoire étaient stables. Néanmoins une surveillance rigoureuse et rapprochée aux urgences est la règle

Abstract :

Simultaneous bilateral spontaneous pneumothorax is a rare disease entity as it accounts for only 1.3% of all cases of spontaneous pneumothorax. We report the case of a 15-year-old male patient who presented to the emergency department with dyspnea of sudden onset and mild chest pain. The patient, who was a smoker, was stable on hemodynamic and respiratory level. Chest x-ray showed a bilateral pneumothorax leading to the diagnosis of spontaneous bilateral simultaneous pneumothorax. Chest tube drainage was initially performed in the right lung which was the more affected one, resulting in its full reexpansion. Then, the patient underwent surgery on the left lung and had good recovery. Despite the bilaterality pleural detachment, the patient's hemodynamic and respiratory condition was stable. However, careful monitoring in the emergency department is mandatory.

Mots clés : Pneumothorax spontané bilatéral simultané, drainage thoracique, urgences
Keys word : spontaneous bilateral simultaneous pneumothorax, chest tube drainage, emergency department

Introduction :

Primary spontaneous pneumothorax is a rare disease entity as it occurs in 9 in 100 000 inhabitants (1) but its socio-economic impact is important. Simultaneous bilateral spontaneous pneumothorax (SBSP) is on the other hand poorly documented since only 1.3% of cases of spontaneous pneumothorax involve simultaneously both lungs (1).

Contrary to unilateral spontaneous pneumothorax, SBSP mainly occurs in patients with under lying pulmonary disease (2). Its management in emergency departments depends on the patient's tolerance on the hemodynamic and respiratory level.

Case report:

This report is about a 15-year-old male patient who presented to the emergency department with chest pain of sudden onset. The pain had started on the left side then rapidly spread to the right side within the 24 hours preceding the patient's admission. There was no history of recent trauma, of poisoning or of any relevant past medical fact. The patient was on another hand a smoker at 2 packs/year.

The patient was tall and thin. On presentation, he was afebrile, eupneic, stable on the hemodynamic and respiratory level and in good general condition. Pulmonary auscultation revealed decreased vesicular breath sounds and bilateral vocal fremitus. The diagnosis of SBSP was promptly suspected and the patient was taken to the intensive care unit to be conditioned. Chest x-ray disclosed a bilateral gaseous pleural detachment that was more prominent on the right side (fig 1,2,3).

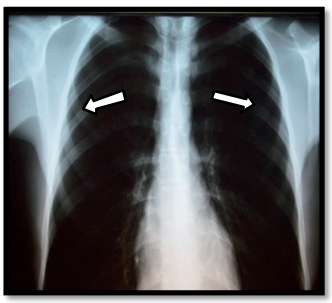

Figure 1 : Frontal chest radiography showing bilateral gaseous pleural effusion

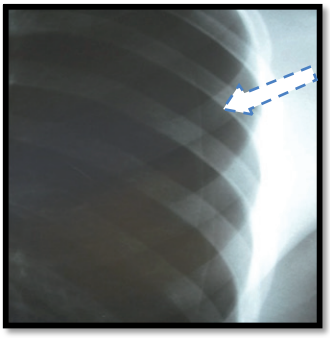

Figure 2 : Enlargement of frontal chest radiography showing left side

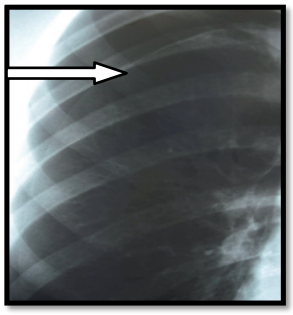

Figure 3 : Enlargement of frontal chest radiography showing right side gaseous

The diagnosis of total and incomplete SBSP that was well tolerated on the hemodynamic and respiratory level was made. A chest drain was then inserted in the right lung (the more affected side) resulting in full reexpansion of the lung along with pleural drainage and satisfactory clinical course (fig 4).

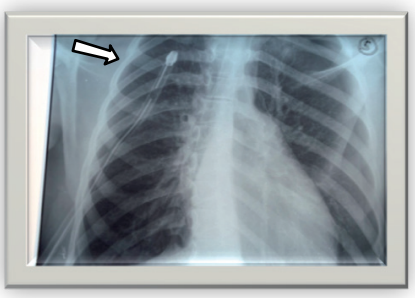

Figure 4 : Chest radiography showing the thoracic drain inserted in a reexpanded right lung.

Chest CT scan revealed the etiology, that is, ruptured blebs (fig 5).

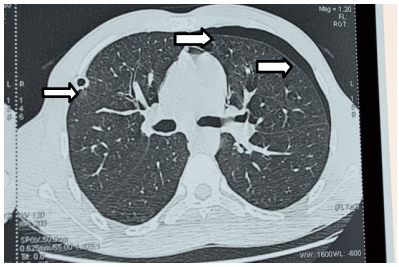

Figure 5 : Chest CT scan showing a thoracic drain inserted in the right lung with a full reexpanded right lung, the pneumothorax on the left side and the pressure of blebs.

Left side "bullectomy" was performed along with mechanical and chemical pleurodesis 10 days after the right chest drainage. Clinical course was good (fig 6).

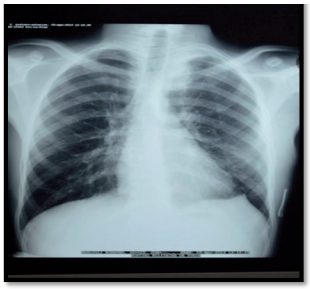

Figure 6 : Post operation frontal chest radiography

Discussion :

Simultaneous bilateral spontaneous pneumothorax is noteworthy and clinically important for two reasons. First, SBSP is rare, it accounts for only 1.3% of all cases of spontaneous pneumothorax (1- 3). According to Wilkie et al, its incidence can by no means exceed 1.9% of cases of spontaneous pneumothorax (4). It occurs mostly in males, smokers, tall and thin people and in patients with under lying lung disease (4).

Second, bilateral spontaneous pneumothorax most often occurs in healthy lungs and only 30% of patients have underlying pulmonary disease (5). According to Al Sayar et al, SBSP most often occurs as a result of underlying lung disease (3). The most frequent cause of spontaneous pneumothorax is the rupture of apical sub pleural blebs, whereas the etiology of such blebs is still unknown (3). Due to the underlying lung disease, the resulting pneumothorax is more often encountered in patients with SBSP rather than with unilateral pneumothorax (1). In the literature, 77 cases of SBSP have been reported in 33 publications (3-6). However, of the 77 patients reported, 50 (64.9%) had underlying lung disease. Infectious diseases such as tuberculosis and staphylococcal pneumonia were found in 13 patients, congenital diseases such as cystic fibrosis, congenital pulmonary cysts, Marfan's syndrome and Alport's syndrome were found in 8 cases, a proliferation of mesenchymal cells (mesothelioma, metastatic carcinoma, hystiocytosis X ...etc) was encountered in 22 cases. Other much less frequent etiologies such as anorexia nervosa or chronic obstructive pulmonary disease were also noted.
In the present case, SBSP was due to ruptured blebs. There is still no explanation for the development of blebs outside the evident pulmonary disorder. Nevertheless, Juvonen et al, (7) reported a case of SBSP that occurred on a mediastinal congenital defect that was the cause of air leak from a fissured apical bleb with right lung to the left hemithorax. Minami et al. (8) reported a case of simultaneous pneumothorax occurring as a complication of bilateral broncho-alveolar carcinoma. In this case, the check-value mechanism was put forward as being the cause of the bilateral pneumothorax.
SBSP is characterized by its wide range of clinical presentations. Symptoms and signs vary from mild decreased breath sounds and moderate chest pain to serious dyspnea and acute respiratory insufficiency. Outcome largely depends on the severity of hemodynamic disturbances. As another of fact, SBSP is associated with circulatory collapse in 60% of cases approximately (2, 3). In the present case, however, SBSP was hemodynamically well tolerated.

Diagnosis of SBSP in emergency departments is based on chest x-ray findings. Initial treatment consists of chest tube drainage (9). Some teams recommend bilateral chest tube drainage straightaway (3). According to other teams unilateral chest tube drainage in initially sufficient and the patient may simply be kept under observation, provided the abnormal collection of air in the intrapleural space is not too important (11). As for our patient, he had had a right side chest drainage only for the pneumothorax was more extensive on that side.
To prevent recurrence, secondary surgery is recommended. Adherent pleura can be proposed straightaway since the first episode according to some authors (13). In the case of our patient, a surgical intervention was carried out on the left side to prevent a possible bilateral recurrence.
Bullectomy is the most efficient method to prevent recurrences. Moreover, apical pleurodesis further decreases the risk of recurrence (12).

Conclusion

Simultaneous bilateral spontaneous pneumothorax is uncommon in emergency departments. Chest x-ray is the first choice investigation procedure in the presence of acute chest pain in a young patient. In spite of the bilateral pleural detachment, the hemodynamic and respiratory states of our patient remained stable. Nevertheless, close observation in the emergency department is mandatory. Thoracic drainage should be started on the more affected side.

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