

## LETTERS TO THE DIRECTOR

### PULMONARY ABSCESS WITH SPONTANEOUS DRAINAGE THROUGH THE CHEST WALL WITHOUT EMPYEMA

#### Mr. Director;

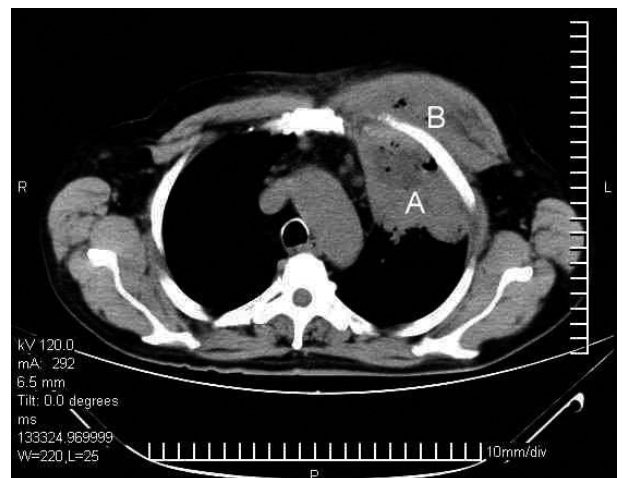
One of the possible complications of pneumonia is the formation of abscesses in the infected parenchyma which, among the possible complications described, may evolve to fistula formation in the pleural space and constitute empyema. The extension of empyema into soft tissue of the chest wall (empyema necessitatis) is infrequent in the antibiotic era and its appearance usually occurs in relation to "cold" abscesses (mycobacteria and fungi). Few studies have been published on spontaneous fistula formation of a lung abscess through the chest wall without the presence of pleural involvement (empyema) because of the rarity of this situation.

A 61-year-old male with no history of interest attended our emergency department because of the appearance of a large painful tumour in the anterior region of the left hemithorax 48 hours after the onset. The patient reported having been diagnosed with pneumonia of the upper left lobe (ULL) around one month previously by his primary care physician and had completed one cycle of antibiotics with moxifloxacin during 2 weeks, with subjective improvement but described a slight chest discomfort and persistence of febrile peaks. Due to the scarce clinical and radiological improvement, the outpatient clinic requested computerised tomography (CT) of the chest in which a solid mass of 7 cm x 5 cm was observed with hypodense areas with scarce gas content within located in the anterior ULL segment, perilesional pneumonitis and prevascular adenopathies. An appointment in the pneumology outpatient department was requested. Following the brusque appearance of the painful tumour mass, the patient decided to come to the emergency department.

On examination, the patient was normotensive, eupneic with normal oxygen saturation and a temperature of 38.8°C. Pulmonary auscultation showed hypoventilation in the upper half of the left pulmonary field. On palpation of the chest wall a large, slightly painful, tumour which seemed to be located under the pectoral major with no inflammatory signs, fluctuation or crackling was found. Blood analyses detected anaemia with Hb: 101 g/L with VCM: 84 g/L and leucocytosis  $22.5 \times 10^9/L$  (N:83%, L: 9%; M: 8%), and coagulation and biochemical parameters were normal. Chest x-ray showed an image of alveolar condensation in the ULL (Figure 1). Transthoracic echography demonstrated an increase in the soft tissue and fluid collection with gas within and chest CT showed opacification in the anterior segment of the ULL compatible with pneumonia with a lung abscess which extended through the inter-



**Figure 1.** Posteroanterior chest radiography with condensation of the upper left lobe.



**Figure 2.** Chest CT with a lung abscess and air (A) and an augmentation of the soft tissue due to involvement of the chest wall (B).

costal space to the anterior chest under the pectoral muscle forming a collection of 5 x 3 cm. There was neither pleural nor pericardial effusion nor adenopathies of a pathologic size (Figure 2). Two blood cultures were negative.

On diagnosis of a lung abscess treatment with imipenem was initiated and debridement and drainage of the chest wall abscess was performed. A culture of the material was positive for *Bacteroides uniformis* sensitive to amoxicillin clavulanic acid. Following hospital discharge treatment with analgesics and amoxicillin clavulanic acid was maintained during two months showing a good clinical and radiologic outcome. Control chest CT confirmed the disappearance of the abscess with the appearance of some fibrotic lesions in the ULL with areas of adjacent pleural thickening of residual nature.

The complications of lung abscesses vary and may cause haemoptysis, sepsis, shifting towards

the pleural cavity (empyema, bronchopleural fistula, leaking of pus to the other lung and malnutrition<sup>6</sup>. However, few cases have been described with direct fistula formation in the chest wall without first having produced empyema. It should be taken into account that on excluding fistula formation of the chest wall due to invasive procedures, those caused by the extension of pre-existing intrathoracic diseases are currently extraordinarily infrequent<sup>11-14</sup>. When these occur they are due to drainage through the soft tissue of the chest wall usually from the pleural space (empyema necessitates) or due to "cold abscesses" which, in the case of mycobacterias, have preference for a parasternal localisation<sup>3</sup>. An abscess of the wall usually requires surgical drainage (as performed in the present patient), as well as drainage of the primary foci which is usually empyema<sup>15</sup>. In the review carried out only two other cases with fistula formation of a lung abscess in the chest wall have been described<sup>16,17</sup>, although this should be included in the differential diagnosis of a thoracic fistula, despite its infrequency.

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## DIAGNOSIS OF AN OVARIAN TUMOUR AFTER SIMPLE RADIOGRAPHY IN THE EMERGENCY DEPARTMENT

### Mr. Director;

Mucinous cystadenoma of the ovary is an ovarian tumour which may achieve a large size with scarce accompanying symptomatology until a large volume has been obtained.

A 40-year-old woman arrived at the emergency department for abdominal pain irradiating to the right renal and hypogastric fossa of 2 days of evolution with no improvement on administration of analgesia. There was no abdominal distension, but the patient reported difficulty in expulsing gases since 2 months previously. Neither were menstrual disorders described. On examination, a globe-like, tense, non painful on palpation was observed with a large round shaped mass in the right hemiabdomen. Right renal fist percussion was positive and the temperature was 37.2 °C. Laboratory tests were normal except for the presence of microhaematuria with leucocyturia. Abdominal x-ray (Figure 1) showed a diffuse increase in density, which was uniform in the central region and pelvis, with displacement of the hepatic margin without erasing the line of the psoas. Simple chest x-ray did not show signs of

pleural effusion or any other disease. Abdominal echography was requested and demonstrated a large cystic mass of 21x19x12 cm of probable right ovarian origin, with some thin septa and a rounded pole, the lower portion of which was also multiseptate, not vascularised and suggestive of mucinous cystadenoma and another small cyst in the left ovary. The patient was admitted and the CA-125 tumour marker was raised. The CT image confirmed the existence of an enormous, perfectly delimited, ovarian cystic mass with a homogenous density, without focal contrast enhancement, and with no evident signs of invasion. Laparotomy was performed with extirpation of the right ovarian tumour plus left cystectomy. Pathologic anatomy confirmed the diagnosis of mucinous ovarian cystadenoma.

Among the benign ovarian tumours approximately 20% correspond to mucinous cystadenomas. As a general rule these cysts achieve a large size when not diagnosed early being uni- or multilocular cysts with thin walls and of watery content, a smooth surface and, on rare occasions, with papillary excrescences. In general, these tumours do not degenerate to malignant forms<sup>1,2</sup>. Epidemiologically, most appear in young women (between 20 and 48 years of age)<sup>3</sup>. These tumours are usually asymptomatic and the clinical manifestations are determined by a disproportionate growth which leads to a palpable abdominal mass, abdominal pain or symptoms derived from the obstruction of irritation of the urinary tract or rectum<sup>4</sup>. The clinical course is usually benign but the most important complications include displacement, peritoneal pseudomyxoma<sup>5</sup>, intestinal obstruction, sepsis, and pulmonary thromboembolism. The CA-125 is usually elevated in both benign and malignant ovarian and peritoneal tumours. This marker has been used in the monitoring of patients with ovarian tumour after surgery<sup>6</sup>. The diagnosis of suspicion is undertaken by echography, CT, and definitive diagnosis is obtained by histological study of the surgical samples. Treatment consists in hysterectomy and bilateral anexectomy since associated lesions are usually present<sup>1,2</sup>. Laparoscopy is currently considered the therapeutic technique of choice<sup>6</sup>. Simple radiography of the urinary tract is the initial test allowing the observation of stones, calcifications, abnormal gas collection or, as reported here, abdominal masses. While it is true that this type of images is not frequent and that they do not, on most occasions, provide a great deal of information, this case demonstrates that simple physical examination and abdominal radiography can indicate infrequent diseases in daily emergency care and a simple x-ray of the abdo-



**Figure 1.** Simple abdominal radiography with a diffuse augmentation of density which was uniform in the central region and pelvis, with displacement of the hepatic margin.

men may be of interest in the increasingly more technical emergency care.

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## SPONTANEOUS HAEMOPNEUMOTHORAX

Mr. Director;

Spontaneous haemopneumothorax (SHT) is a rare clinical entity with a prevalence of 2% to 5% of spontaneous pneumothorax<sup>1</sup>. The clinical manifestations are more often signs of pneumothorax than acute haemorrhage and only one third usually present with hypovolemic shock<sup>2</sup>. Thus, in the absence of traumatism, this clinical picture is difficult to suspect and diagnosis as only pneumothorax could carry the risk of patient death.

A 31-year-old male presented for chest pain of increasing intensity since 06:00 hours and with slight respiratory difficulty. At 19:00 hours the patient lost consciousness and was brought to the emergency department. His personal history included smoking of 20 cigarettes/day and arterial hypertension without treatment, with asthma being included among the family history.

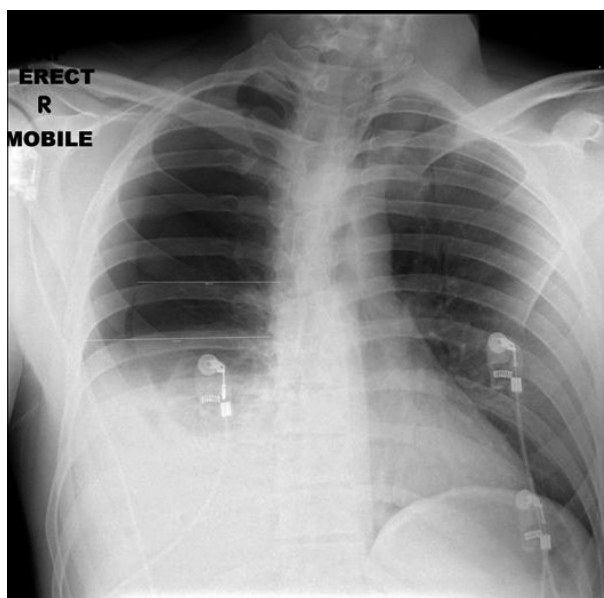
The patient was conscious and oriented and did not tolerate the decubitus position. Cardiac frequency was 150 bpm, blood pressure 110/70 mmHg, respiratory frequency was 22 rpm, baseline arterial oxygen saturation by pulseoxymetry was 100% in air and the temperature was 37.1°C. Glycaemia was 140 mg/dL.

Cardiac auscultation presented a gallop rhythm while pulmonary auscultation demonstrated a generalised hyporesonance with an absence of vesicular murmur at the base of the right hemithorax. Jugular dilatation was not observed. The ECG revealed sinus tachycardia.

Stabilisation was initiated with the administration of high flow oxygen, canalisation of the two peripheral vias, perfusion of 1,000 ml of colloids and the same quantity of saline solution, analgesia with 5 mg of morphine and 10 mg of metoclopramide with an antiemetic.

Blood analysis and cross-over tests were performed, only showing a marked leucocytosis with neutrophilia and monocytosis. Coagulation tests demonstrated a slight reduction in activated partial thromboplastin time (PT 12.6; APTT 20.0). Analysis of the fluid obtained on pleural drainage showed blood with no evidence of microorganisms.

The drainage of 1,270 ml of air from the pneumothorax was performed by a simple aspiration technique inserting a catheter of 16G between the 6th and 7th intercostal spaces in the middle axillary line. Forty millilitres of blood were also obtained confirming the diagnosis of non traumatic SHT. Consequently, a thoracic tube (TT) was inserted obtaining approximately 1,100 ml of dark blood in approximately 10 minutes. In the following 2 hours 350 ml of blood were drained through the TT with the transfusion of 4 units of blood also being required. The patient was haemodynamically stable except for an episode of arterial hypotension (80/35 mmHg) after drainage of the pneumothorax, responding to the administration of fluids. Antibiotics were administered and the patient was discharged 6 days later after receiving conservative treatment.



**Figure 1.** Simple chest radiography on patient admission showing right haemopneumothorax. The pneumothorax measured 2.5 cm in width.

Spontaneous haemopneumothorax has been defined as a clinically rare disease which is a complication in 1% to 12% of spontaneous pneumothorax<sup>4</sup>, although more extensive studies report an incidence of 2% to 5%<sup>4,5</sup> and even up to 7%<sup>2</sup> with potential risk of death<sup>6</sup>. The clinical importance of SHT lays in the need to obtain an early diagnosis to implement adequate treatment of both clinical entities.

The difficulty in achieving an early diagnosis of SHT is based on the fact that the initial clinical picture presented by most patients is mainly derived from pneumothorax rather than haemorrhage. Thus, the most characteristic picture presented is a variable degree of dyspnoea and sudden chest pain<sup>2,5,6</sup> as occurred in the present case. The presence of dyspnoea together with the chest x-ray produces the most characteristic clinical data of the diagnosis of haemopneumothorax<sup>7</sup>, independently of the aetiology.

The present case is within the clinical characteristics of the present definition of haemopneumothorax<sup>8</sup>. The quantity of blood collected corresponds to type II of the classification of the American College of Surgeons (ACS)<sup>9</sup>, the manifestation of which includes cardiovascular signs due to the release of catecholamines. Nonetheless, the greater than expected tachycardia presented in this case may have been due to the sum of factors such as the haemodynamic response to the pain and the loss of volume, pneumothorax, etc.

On the other hand, the cases described in the literature which present hypovolemia bled a mean of 1,012 ml<sup>2</sup> and corresponded to type II of the ACS classification with little general repercussion<sup>9</sup>, justifying the fact that two thirds of the patients do not present a picture of shock on arrival to the emergency department<sup>2,6</sup>.

From a therapeutic point of view, thoracic decompression in SHT is controversial since it has been observed that it may favour both haemostasis of the parietal pleura<sup>1</sup> and bleeding<sup>10</sup>. In addition, simple aspiration is also under debate<sup>11</sup> because of its doubtful utility and the possible bleeding complications<sup>12</sup> which may lead to errors in the aetiologic diagnosis of SHT. The current patient did not present the characteristics for emergency surgical resolution<sup>9</sup>.

Finally, once SHT has been diagnosed, the correct management of this type of patient consists in the administration of oxygen therapy, canalisation of at least two venous vias, thoracic drainage of SHT, the control of the speed of bleeding by the thoracic drainage tube and evaluation of the need for surgical treatment.

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## MEASLES OUTBREAK 2006-2007: IMPACT ON AN EMERGENCY DEPARTMENT

Mr. Director;

The potential problems for healthcare in a highly contagious measles outbreak in a hospital emergency department (HED) are an increase in the already high healthcare burden, the challenge of rapidly identifying the patients affected to avoid contagion to other HED users, the adaptation of space and circuits to allow those affected to be attended efficiently and finally, the protection of healthcare personnel susceptible to developing the disease. This letter is to report the experience of our HED in an outbreak of measles which affected Barcelona and its metropolitan area at the end of 2005<sup>1,2</sup>. The measures to confront the greater healthcare burden included the fitting out of a new triage point and two isolation boxes. With regard to the other problems mentioned, the following measures were taken. Firstly, with the aim of rapidly identifying possibly infected patients, training sessions were given to both administrative personnel in charge of the reception of the patients and the triage nurses. This action enabled all patients consulting for fever and exanthema remitted from primary care for suspicion of measles to be evaluated as soon as possible in triage where they were systematically allocated an emergency level of 2 or 3 by the nurses (paediatric version of the Andorran Triage Model, based on 5 levels<sup>3</sup>). The next step was to fit out a specific circuit by which these children were placed in the boxes with isolation measures following the studies indicated by the Healthcare Department of the Generalitat of Catalonia (determination of the measles virus by PCR in a urine sample for diagnostic confirmation)<sup>4,5</sup>. On the other hand, in coordination with the Labour Health Service the mechanisms for the detection of healthcare personnel susceptible to vaccination were implemented in personnel who had not had the disease and who were not vaccinated at the onset of the outbreak<sup>6</sup>.

To evaluate *a posteriori* the effectiveness of these measures, a sample including all the patients with clinical suspicion of measles declared from our Healthcare Department during two months (December 2006-Febrero 2007) were selected and the efficacy of the measures adopted was analysed to determine whether the measures had been applied as foreseen. A total of 110 children were included with a median age of 12.5 months. Ninety-two (88.2%) were attended in the triage timetable which included the hours of greatest healthcare burden (10:00-02:00h) and were evaluated after a median wait of 16 minutes (p 25-75; 6-30 min.), a time shorter than the global median of patients in the same period (21 min.; p 25-75, 10-38 min.). The level of triage assigned was adequate in 93 (95.9%) patients. The median stay in the emergency department was 2.6 hours (p 25-75; 1.2-3.6 h) mainly due to the difficulties in urine sample collection in incontinent patients. All the patients were maintained in isolation. On reviewing the clinical histories it was observed that 76 (69.1%) had been visited within 18 days prior to clinical suspicion in our HED, with most having been seen for other reasons of consultation.

With respect to the healthcare personnel, 10 professionals were vaccinated, with no contagion being reported.

In summary, in the opinion of the authors, the declaration of a highly contagious outbreak such as measles in an HED requires, the design and undertaking of an effective action plan adapted to the structure and logistics of each HED and should include early detection tools such as triage circuits and spaces to allow differentiated flow of these patients and the protection of healthcare personnel. The objective is clear: attempt to rapidly and effectively control the transmission of the disease in a high risk area.

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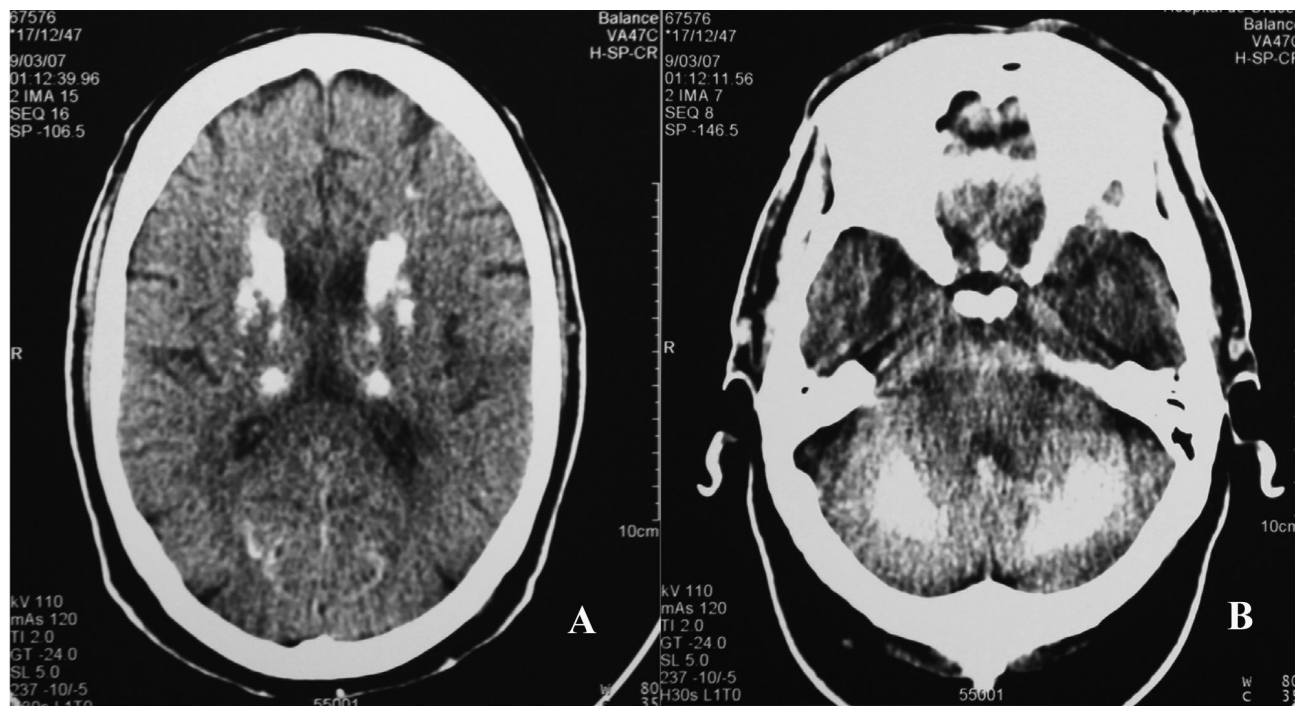
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## FAHR'S DISEASE

### Mr. Director;

Numerous cases of bilateral and almost symmetrical calcifications of underlying lymph nodes including a striated nucleus, a globus pallidus with or without deposits in the dentate nucleus, the thalamus and white matter in asymptomatic individuals have been described as have a large variety of neurological manifestations. Among the latter, dominant autosomic inheritance to pseudohypoparathyroidism are of note. Bilateral, striated-globus pallidus-dentate idiopathic calcification is known as Fahr's disease<sup>1</sup>.

A 59-year-old male whose only history of interest was a severe ethylic habit with no neurological history of note was brought to the emergency department after losing consciousness in the street. On arrival a reduction in the level of consciousness (Glasgow scale: 8) was observed without a neurological foci, hypotension (70/40 mmHg) and fever) 38.2°C). The initial blood analysis presented severe renal failure (creatinine: 13.4 mg/dL), hyperpotassaemia (8.0 mEq/L), rhabdomyolysis (CK: 1,289 U/L), liver involvement (GPT: 69 U/L and total bilirubin: 2 mg/dL), leucocytosis (29,700/μl) with left deviation, normocytic/normochromic anaemia (haemoglobin: 9.9 g/dL and haematocrit: 28.9%) and coagulopathy (prothrombin index: 47.5%). Computerised tomography (CT) was performed demonstrating thick symmetric bilateral calcifications in the underlying lymph nodes, thalamic nuclei and cerebellous hemispheres (Figure 1) and, to a lesser extent, in the white brain matter. The patient remained in the intensive medical department for 13 days to later be admitted to the ward. Exhaustive study of the infectious process did not determine its origin. All the analytical tests later performed were normal and the patient was discharged with the initial diagnosis of sepsis of unknown origin with the diagnosis of Fahr's disease being confirmed as a casual finding.



**Figure 1.** Cranial computerised tomography showing symmetric bilateral calcifications in: A. Base lymph nodes and thalamic nodules. B. Cerebellous hemispheres.

Fahr's disease is characterised by the calcification of the lymph nodes, dentate cerebellous nuclei and a semioval centre<sup>2</sup>. It is generally of familial origin and presents a hereditary pattern suggesting a dominant autosomic inheritance, being clinically manifested at 30 to 60 years of age<sup>3</sup>. These intracranial calcifications are easily detectable with CT<sup>4</sup>. The aetiology is usually idiopathic and, on occasions, it has been associated with both hypoparathyroidism and pseudohypoparathyroidism. The development of the disease varies even within the same family, although extrapyramidal, cerebellous and neuropsychiatric manifestations predominate. Particularly, a progressive cognitive deterioration with a subcortical pattern is of note<sup>3</sup>. The features of Fahr's disease may vary and the diagnosis should be established using cerebral imaging techniques (CT or MR) and after ruling out unknown anomalies of calcium metabolism and developmental defects<sup>1,5</sup>. The case presented here demonstrates an asymptomatic case of Fahr's disease only detectable by accident, which should be followed because of

the characteristics of the disease and the important neurological consequences which may develop.

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