PLEURESIE PURULENTE REVELANT UN CORPS ETRANGER ENDO BRONCHIQUE ANCIEN

PURULENT PLEURISY REVEALING A LONG-STANDING ENDOBRONCHIAL FOREIGN BODY

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Abstract

We report the case of a 26-year-old patient, alcoholic, with no medical history, who presented with left lower thoracic pain with fever for three days. The chest X-ray was in favor of pleurisy. The pleural puncture confirmed the purulent pleural effusion. A chest drain was placed. A chest CT scan clearly showed the empyema with suspicion of a left lower lobar foreign body. A flexible bronchial fibroscopy made it possible to visualize a "chicken bone" that was friable and surrounded by a granuloma. Surgery was performed consisting of a left lower lobectomy given the parenchymal state, and pleural decortication. The outcome was favorable.
Inhalation of a foreign body can go unnoticed even in adults, particularly in cases of reduced alertness. The etiological assessment of the empyema was essential, where the CT scan raised suspicion of CE. Its extraction was risky by flexible fibroscopy. Surgery treated the cause and the consequence

Key - Words: Extraction ; Inhalation ; Lobectomy ; Pleural effusion.

Résumé

Nous rapportons le cas d’un malade âgé de 26 ans, alcoolique, sans antécédents pathologiques, qui présentait une douleur basithoracique gauche avec fièvre depuis trois jours. La radiographie thoracique était en faveur d’une pleurésie. La ponction pleurale a confirmé le diagnostic de pleurésie purulente Un drain thoracique a été mis en place. Un scanner thoracique montrait bien l’empyème avec suspicion de corps étranger lobaire inférieur gauche. Une fibroscopie bronchique souple a permis de visualiser « un os de poulet » qui était friable et entouré d’un granulome. Une chirurgie a été faite consistant à une lobectomie inférieure gauche vu l’état parenchymateux, et une décortication pleurale. L’évolution était favorable.
L’inhalation de corps étranger peut passer inaperçue même chez les adultes, notamment en cas de diminution de la vigilance. Le bilan étiologique de l’empyème était primordial, où le scanner a fait suspecter le CE. Son extraction était risquée par fibroscopie souple. La chirurgie a traité la cause et la conséquence.

Mots-clés : Extraction ; Inhalation **;**Lobectomie ; Pleurésie.

ملخص

نذكر حالة مريض كحولي يبلغ من العمر 26 عامًا، بدون تاريخ طبي سابق، وقد حضر وهو يعاني من ألم بالجهة السفلية اليسرى للصدر وحمى امتددت لمدة ثلاثة أيام. أشارت الأشعة السينية للصدر إلى التهاب الجنبة. أكد بزل الجنبة تشخيص التهاب الجنبة القيحي. تم إدخال أنبوب تصريف صدري. أظهر التصوير المقطعي المحوسب للصدر بوضوح وجود دبيلة، مع الاشتباه بوجود جسم اجنبي في الفص السفلي الأيسر. كشف تنظير القصبات المرن عن وجود "عظم دجاجة" هش محاط بورم حميمي. أجريت عملية جراحية، شملت استئصال الفص السفلي الأيسر بسبب حالة النسيج الحشوي، وتقشير الجنبة. كانت النتيجة إيجابية.
قد يمر استنشاق الجسم الغريب دون أن يُلاحظ حتى لدى البالغين، وخاصة في حالات نقص اليقظة. كان التقييم السببي للدبيلة ضروريًا، حيث أشار التصوير المقطعي المحوسب إلى وجود جسم اجنبي. كانت إزالته بالتنظير المرن محفوفة بالمخاطر. عالجت الجراحة السبب والنتيجة معًا.

الكلمات المفاتيح : الاستخراج ; الاستنشاق ; استئصال الفص ; التهاب الجنبة

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INTRODUCTION

Although endobronchial foreign bodies (EFBs) are more frequently reported in pediatric populations, numerous cases of foreign body (FB) aspiration have also been documented in adults(4). Typically,the clinical history includes specific circumstances such as dental procedures, eating, or maxillofacial trauma(4). In contrast, diagnosis in children can be more challenging due to limited or unreliable anamnesis and the possible absence of a penetration syndrome(2).
If not promptly managed, aspirated foreign bodies can lead to acute or subacute asphyxia, posing an immediate threat to life(1). Over the medium to long term, the risk of airway obstruction is further complicated by secondary infections and associated pulmonary damage.
We present a rare case of an unsuspected foreign body aspiration in a young adult with chronic alcohol use, incidentally discovered during the management of a purulent pleurisy associated with extensive destruction of the underlying pulmonary parenchyma.

OBSERVATION

We hereby report the case of a 26-year–old unemployed Tunisian adult, presenting with a three-day history of left-basi thoracic pain with rest dyspnea and fever, with no traumatic context**.** (Table I) The patient is an alcoholic, non-smoker with no notable medical or surgical history.
Upon admission, the patient presented in a clinically compromised state. He was febrile at 38.7°C, with a pale, greyish complexion. He was obese, with a body mass index (BMI) of 33.52.
Vital signs showed a blood pressure of 130/70 mmHg, a heart rate of 95 beats per minute, and a respiratory rate of 25 breaths per minute.
Oxygen saturation was 97% on room air. Clinical examination revealed signs consistent with a left-sided pleural effusion, including decreased tactile fremitus, dullness to percussion, and reduced breath sounds on auscultation.
A chest radiograph performed on the day of admission—three days after symptom onset—demonstrated a large pleural effusion. Diagnostic thoracentesis yielded turbid, straw-colored fluid rich in degenerated neutrophils, supporting the diagnosis of purulent pleurisy. This prompted immediate insertion of a chest tube and initiation of dual antibiotic therapy with cefotaxime and metronidazole.
Subsequent chest computed tomography (CT) revealed a loculated empyema along with a radiopaque FB obstructing the left lower lobar bronchus, leading to distal pulmonary collapse (Figure 1).

The drain remained in place for 15 days. As soon as the drain was removed, a flexible bronchial fibroscopy was performed to visualize the "chicken bone" FB embedded in the left lower lobar bronchus, with a reduction in caliber downstream due to an inflammatory reaction and a reactive granuloma (Figure 2).

The foreign body, identified as a friable bone fragment, posed a significant risk of migration during manipulation. Given this concern, the patient was promptly referred to the thoracic surgery department the same day. Surgical intervention involved a left lower lobectomy to extract the foreign body. Due to the extent of parenchymal destruction, the procedure also included pleural decortication and thorough lavage, followed by placement of a Redon drain for postoperative management (Figure 3).

Table I. Symptoms timeline of the patient.

Timeline	**Signs**
1-02-2024	Fever-left basi-thoracic pain
3-03-2024	Rest dyspnea
4-03-2024	Hospitalization

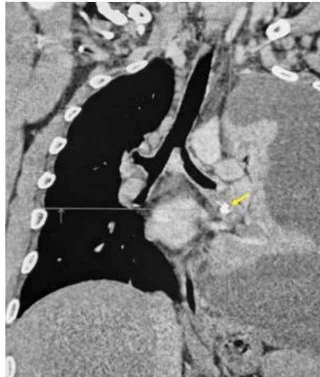

Figure 1 : Foreign body obstructing the left lower lobar bronchus

Description : Coronal section through the mediastinal window: dense foreign body (yellow arrow) obstructing the left lower lobar bronchus, causing upstream lung collapse.

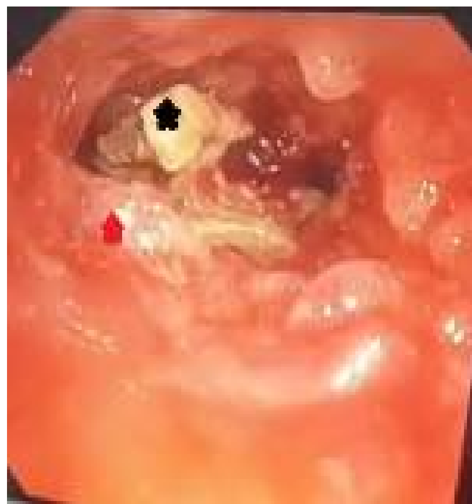

Figure 2 : Bronchoscopic view of a chicken bone foreign body

Description : Fibroscopic view, showing the foreign body 'chicken bone' (black star), embedded in the left lower lobar bronchus, with the reactive granuloma (red star)

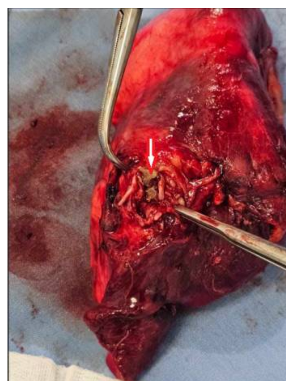

Figure 3: Resected left lower lobe with the foreign body.

Description: Lower left lobe is damaged and excised with the FB indicated with yellow arrow.

Postoperative recovery was uneventful, with resolution of fever, pain, and inflammatory markers under appropriate antibiotic and analgesic therapy. The patient was discharged home one week after surgery in stable condition, without the need for supplemental oxygen. At the three-month follow-up, the patient reported good adherence to pleural physiotherapy and had resumed normal daily activities as early as three weeks postoperatively. Follow-up chest radiography revealed only expected post-lobectomy sequelae.

DISCUSSION

This clinical case underscores the critical importance of a thorough patient history—akin to a forensic interview—particularly in individuals with known addictive behaviors, when investigating the etiology of pleural infections. Close collaboration with radiologists is essential, especially in regions where substance abuse is prevalent.
What makes this case particularly noteworthy is the accuracy and persistence of the radiologist and pulmonologist, whose efforts led to the identification and confirmation of the FB responsible for the purulent pleurisy. The absence of a small-caliber rigid bronchoscope, combined with the fragility of the chicken bone, rendered extraction via flexible bronchoscopy too hazardous.
Tracheobronchial foreign body aspiration constitutes both a diagnostic and therapeutic emergency. While more frequently observed in pediatric populations—due to immature dentition, underdeveloped airway anatomy, and behavioral tendencies to place objects in the mouth—it also occurs in adults, often during meals or when a foreign object is accidentally misdirected into the airway. A classic presentation includes the so-called penetration syndrome. However, in the absence of a national registry in Tunisia, the true prevalence of foreign body aspiration remains unknown.
Inhalation of a foreign body (FB) can be fatal, depending on the location and nature of the aspirated material, necessitating prompt removal (2). In elderly individuals, aspiration is often associated with poor dentition and diminished protective reflexes, including coughing and swallowing (3). Among younger adults, FB aspiration typically occurs in individuals with psychiatric disorders, intellectual disabilities, or those under the influence of alcohol (as in our patient's case), narcotics, or sedative agents (4). Other contributing factors may include facial trauma, intense emotional episodes during meals, or dental procedures (3).
The cornerstone of diagnosis is the recognition of penetration syndrome (2), characterized by the abrupt onset of choking, paroxysmal coughing, and occasionally cyanosis (5). In most cases, the clinical manifestations are determined by the location and mobility of the foreign body (9). The most severe and immediate threat arises from glottic impaction, particularly in tracheal localizations, which can rapidly become life-threatening (2). However, the initial episode may go unnoticed, with diagnosis established only upon the development of complications, as observed in our patient (10). This is especially true in adults, where foreign bodies often lodge in the distal bronchi (10). This observation is consistent with the findings of Bendaoued et al. (4), who reported a series of 124 cases of intrabronchial foreign bodies in adults, predominantly located in the lower lobes. In adults, diagnosis is typically made in the presence of a clear penetration syndrome (4); in its absence, diagnostic delays or misinterpretations are common (5).
According to the medical literature, the longest reported delay between foreign body (FB) aspiration and diagnosis is 55 years (6), with several cases exceeding 20 years (7). The risk of complications increases significantly with diagnostic delay. These complications may include recurrent pneumonia localized to the same pulmonary segment, abscess formation, obstructive empyema (as in our patient's case), localized bronchiectasis, pseudo-asthma, atelectasis, or pneumomediastinum (6).
While chest radiography can contribute to the diagnostic process, particularly when the clinical history is suggestive, its sensitivity is limited in cases involving radiolucent FBs (7). Therefore, indirect radiological signs such as segmental atelectasis and air trapping should be actively sought (7). In our case, the chest X-ray revealed an empyema secondary to FB aspiration, but failed to visualize the FB itself.
The literature supports the use of endoscopic evaluation in the presence of a suspected penetration syndrome, even when clinical and radiographic findings are unremarkable (3). Some authors have proposed virtual bronchoscopy as a diagnostic tool; however, this technique may lead to false positives and should be interpreted with caution (8).
Rigid bronchoscopy, equipped with a large-caliber

operating channel that accommodates extraction instruments, remains the gold standard for the localization and removal of foreign bodies (FBs) (5). It offers superior visualization compared to flexible bronchoscopy, particularly in challenging scenarios involving abundant secretions, hemorrhage, or inflammatory granulomas (5). During endoscopic examination, signs of inflammation and granuloma formation—especially around organic FBs such as plant material—are frequently observed (5). In some cases, granulomas may completely obscure the FB. In our patient, however, the aspirated chicken bone was visible despite the surrounding granulomatous tissue. Early removal is critical, as the extent of airway damage increases with time (2).

Although rigid bronchoscopy is preferred in many situations, flexible bronchoscopy holds undeniable diagnostic and therapeutic value. It allows for detailed visualization of the bronchial tree, including infrasegmental bronchi, and supports the use of various retrieval tools—such as biopsy forceps, retrieval baskets, suction catheters, Fogarty-type balloons, and even cryoprobes—for both pre-interventional evaluation and, in select cases, successful extraction (2). However, rigid bronchoscopy becomes indispensable when flexible techniques fail, particularly in the presence of large FBs or when the available tools are inadequate for retrieval.

As demonstrated in our patient's case, a neglected foreign body (FB) leading to irreversible parenchymal destruction may necessitate surgical intervention, ranging from segmentectomy to pneumonectomy (7). In a Tunisian case series involving 45 patients, bronchoscopic extraction was successful in 19 cases, while surgery was required in 26 (9). Among these surgical cases, 16 patients underwent lobectomy due to secondary bronchiectasis, eight required bronchotomy for FB extraction, and two underwent atypical parenchymal resection (wedge resection) to remove embedded FBs (9).

This case highlights the potentially severe consequences of unrecognized FB aspiration in adults. The patient's history of chronic alcohol use and initial clinical presentation were consistent with purulent pleurisy. It was the thoracic CT scan performed to evaluate the need for decortication that raised suspicion of an obstructive etiology, eventually leading to the diagnosis of retained FB. This case underscores the importance of considering both general risk factors (e.g., alcohol and tobacco use, immunosuppression). and local causes (e.g., ENT infections, adjacent infectious foci, or obstructive lesions such as tumors or FBs) in cases of pleural infection.

Although the patient was an adult, the possibility of penetration syndrome was only considered retrospectively, once FB aspiration had become a diagnostic hypothesis. Notably, the aspiration event had occurred five years earlier during an episode of alcohol intoxication. Flexible bronchoscopy enabled full visualization of the chicken bone; however, extraction was deferred due to the FB's macerated and fragile condition, which posed a risk of fragmentation and migration to another bronchopulmonary segment during the retrieval attempt.

PATIENT PERSPECTIVE

Although lobectomy was necessary, the patient had no pronounced restrictive sequelae. According to him, this episode was an opportune moment for alcohol withdrawal.

LIMITATIONS

This case report focuses on a single patient, which may limit the generalizability of the findings. More cases would provide a broader understanding of similar presentations. Second, while the report mentions a three-month follow-up, more extensive long-term data on the patient's recovery and any potential complications would enhance the report's value. Third, the report could benefit from comparing this case with similar cases in the literature to highlight differences in presentation, management, and outcomes. Fourth, the report is authored by the treating physicians, which may introduce bias in the interpretation of the case and outcomes. An independent review could provide a more objective perspective.

CONCLUSION

Intra-bronchial inhalation of FB is a rare event in young adults, unless there are predisposing conditions. The rarity of the penetration syndrome in this category, and the distal nature of the FB enclave, make diagnosis difficult, delaying retrospective diagnosis at the stage of serious complications. Extraction surgery is a final alternative in the event of endoscopic extraction failure or irreversible parenchymal lesions.

CONFLICTS OF INTEREST: None

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