

Asphyxia by Burial[☆]**Asfixia por enterramiento**

Dear Editor,

Accidental aspiration of sand is an unusual and potentially fatal condition that often occurs in cases of near drowning and accidental burial in sand.

We report the case of a 58-year-old man who accidentally fell into a tank of sand and was buried for more than 5 min. On arrival at the emergency room, the patient's Glasgow Coma scale was 7, he appeared cyanotic, and he was gasping. After removing the sand that obstructed the airway, orotracheal intubation was performed which proved difficult due to glottic visualization being impaired by the particulate material.

Once hospitalized, he underwent computed tomography which revealed foreign material in the auditory canals and both outer ears. Radiopaque material was identified in the pharynx, trachea, and right bronchi. The patient was admitted to the intensive care unit with severe hypoxemic respiratory failure that required the delivery of high FiO₂ rates (SpO₂ 95%; FiO₂ 80%). The respiratory medicine department was urgently consulted and fiberoptic bronchoscopy (FB) was performed, revealing sand in the subsegmental bronchi of the lower right lobe, particularly segment IV, which was entirely occluded. A large amount of sandy material was removed, resulting in patent bronchi, and remarkable clinical improvement was observed, with lower airway pressures and reduced FiO₂ requirements that were adapted according to arterial blood gas results. FB was repeated at 48 h, revealing signs of diffuse acute bronchitis due to local irritation by sand.

Daily chest X-rays were requested that showed the appearance of perihilar and right basal infiltrate, and later an image of disseminated air bronchogram in the right hemifield not impinging on the peripheral area (Fig. 1). Prophylactic antibiotic therapy with amoxicillin-clavulanic acid was administered for 10 days from the first day of admission, and no pathogenic bacteria were found in the bronchoalveolar lavage. The patient was successfully extubated on day 4 of admission, and was discharged 10 days after the event, without sequelae.

Changes in oxygenation and ventilation after bronchoaspiration of sand occur as a result of laryngospasm, mechanical obstruction, and inflammation caused by chemical irritation.¹ After resuscita-

tion and initial stabilization, therapeutic management was initially focused on reducing the burden of sand as far as possible. FB for removal of sand from the tracheobronchial tree was a priority intervention. This prompt action minimized the secondary inflammatory response, and progress was very favorable. Therapeutic bronchoscopic lavage has been previously described in cases of aspiration of sand, with good results.^{2,3} Removal of material should only be performed when the clinical situation of the patient is compromised by the aspiration. In other situations, efforts to remove aspirated sand in an asymptomatic patient are probably not indicated.³

Airway lesions are a result of a combination of the inevitably traumatic effect of repeated FB manipulation and the local effects of direct epithelial damage from the aspirated sand. The use of systemic corticosteroids as anti-inflammatory agents must be assessed in each individual case, depending on the extent of the local lesions.

Radiographic characteristics after the aspiration of sand are highly variable; the most common abnormality is a confluent spongy nodular image with perihilar distribution, consistent with pulmonary edema. The apex, bases, and lateral lung fields tend to be unaffected, and air bronchograms may be very marked.⁴

Pneumonia or sinusitis are likely to develop due to the inoculum of infectious pathogens. The benefits of prophylactic antibiotic therapy in this context are not clear.^{5,6}

We believe that, circumstancing permitting, early extubation of these patients could be beneficial to optimize the management of secretions and spontaneous expectoration of secretions mixed with residual sand from the distal bronchial tree. Respiratory physiotherapy was not used as a therapeutic strategy in this patient because it was not considered necessary. Some physical therapy techniques may have theoretical benefits (for example, chest percussion and postural drainage) and should be considered on an individual basis.

In conclusion, massive aspiration of sand and secondary asphyxiation cause a wide variety of clinical, radiological, and bronchoscopic manifestations. Acute respiratory failure may develop as a result of inadequate ventilation if material is occluding the upper airway. Lesions in the bronchioles and alveoli with significant inflammation, acute lung injury or even acute respiratory distress syndrome may later develop. Early aspiration and clearing of the bronchial tree by FB is important to reduce initial ventilatory needs and to avoid injury from local inflammation caused by sand particles.

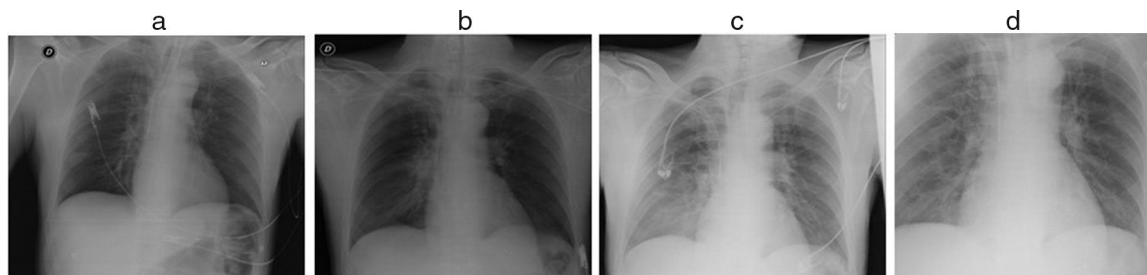


Fig. 1. Progression on chest X-ray. (a) Day 1, after first extraction of sandy material with FB; (b) Day 3, perihilar and right basal infiltrate; (c) Day 5, right basal alveolar-interstitial infiltrate; (d) Day 6, bilateral alveolar-interstitial infiltrate not impinging on peripheral areas.

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The Usefulness of Practical Training in Awareness and Preference for the Respiratory Medicine Speciality Among Undergraduate Students[☆]



Utilidad de la formación práctica en el conocimiento y preferencia por la especialidad de Neumología de los estudiantes de grado

Dear Editor,

Medical graduates' choice of specialty on leaving the faculty is determined by the results they obtain in their medical internship examinations, and this choice has become an index of both the quality of the university education received and the prestige of the different specialties. Although many factors, exam results in particular, dictate the choice of specialty, one of the most important is degree-level training. However, this is very difficult to assess due to the widely diverging educational programs offered in Spanish universities,¹ making it impossible to determine the specific significance of previous training in students' choice of specialty.

Despite the prevalence of respiratory diseases and the progress made in respiratory medicine, this specialty receives far less attention than it deserves.² The aim of our study was to assess the impact of practical training in respiratory medicine on the awareness of students and their preferences for the specialty, after they had completed the course entitled "The Respiratory System and the Chest".

The study involved an anonymous survey conducted before and after a 3-week rotation in the respiratory medicine department, containing 2 items aimed at rating awareness and overall preference for the specialty before and after the rotation on a numerical scale of 1–10 points. Data were uploaded to an Excel spreadsheet and exported to SPSS 22.0, and the relevant tests depending on the variables were applied. The survey was returned by 232 of the 240 students who completed the rotation in the respiratory medicine department between 2015 and 2017. These included 139 women and 93 men with a mean age of 21±1.6 years.

Table 1 lists awareness and preferences before and after the pulmonology rotation. Awareness scored 6.61 before and 8.27 after the

rotation. The mean increase in awareness was, at 1.66 points, statistically significant ($P<.01$). The difference was positive in all courses, with no differences depending on the course in which the rotation was performed (fourth, fifth or sixth-year studies). With regard to preference, the initial score was 5.18 (95% CI 4.8–5.5). Significant differences were observed between courses; these were greater in fourth-year students and lower in sixth-year students. At the end of the rotation, preference scored 5.86, with an increase of 0.68 points ($P<.01$). The change in preference was positive in all courses, but there were no significant differences between before and after.

Two cut-off points of 6 and 8 points in initial awareness were established to assess the influence of prior awareness on preference for the specialty. In both cases, there was a greater increase in preference ($P<.01$) among students with a lower initial awareness of the specialty.

Theoretical teaching is essential for students to learn about the specialty, but practical clinical training is the cornerstone of medical education.³ This, however, is affected by the characteristics of the departments in which the students do their rotation,^{4,5} which are organized on the basis of care needs rather than teaching needs, causing significant distortions. While neither theoretical training nor practical experience are absolutely decisive in choosing a specialty,⁶ they do influence students' choices, so teaching is an opportunity to improve the position of pulmonology.

It is clear from our study that, despite having completed "The Respiratory System and the Chest" course, students' awareness of the specialty is limited (6.6 points) and their preference even more so (5.18 points). However, the pulmonology rotation can be used to improve their awareness of the specialty and increase their preference, both in students who have not yet performed rotations in other departments/specialties (fourth-year students) and in those who have already had this experience (fifth and sixth-year students).

As mentioned above when describing the results, variations in awareness of and preference for the specialty are greater in students with less prior awareness of the field, that is to say, students who initially gave a lower score for their preference for pulmonology showed a greater increase in preference for this specialty after increasing their awareness, and the inverse also applies: those with a lower initial preference significantly increased their awareness and preference scores.

Even assuming that many personal, academic, professional, and geographical factors, aside from degree-level training, determine the choice of specialty, it is clear that undergraduate education is one, if not the only, factor we can influence. This is why we

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