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Clinical Notes

Pleuropulmonary fistula due to *Hordeum murinum* aspiration

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A 5-year-old boy presented with complaints of painful, reddened swelling in the left lumbar region. According to his medical history he had throat pain, hoarseness and coughing 20 days previously. As a result, he had received treatment for tonsillitis and pneumonia. On physical examination on the painful side there was inflamed swelling and the pain increased with palpation. On auscultation of the chest, crepitations were heard in the left lower hemithorax. He was referred to the present hospital with a preliminary diagnosis of lung abscess on the appearance of fever and increased complaints. On laboratory analysis, white blood count was 9,300/mm^3; hemoglobin, 11.7 g/dL; platelets, 459 000/mm^3; and C-reactive protein, 3.28 mg/dL. Chest X-ray indicated radio-opacity in the left lower zone (Fig 1a). Axial and coronal T2 weighted contrast enhanced magnetic resonance imaging (MRI) showed left postero-basal consolidation and minimal pleural effusion; lower slices showed the fistula tract (Fig. 1b,c). Thorax ultrasonography showed a 5–6 mm atelectatic area that was triangular in shape, and a 6 mm cystic area in the vicinity of the left lung posterior basal segment. Empirically, treatment with ceftriaxone and clindamycin was started because we considered the diagnosis of lung abscess resulting from pneumonia. On the day after hospital admission, a grass inflorescence was observed to be emerging from the fistula tract (Fig. 1d). Two pieces of grass were removed from the patient (Fig. 1e). The natural appearance of *Hordeum murinum* is shown in Figure 1f. When the patient's history was once more investigated, it was learned that 1 month previously, while he was playing in the garden, he had experienced a feeling of stabbing and hoarseness due to a foreign body in the throat and difficulty in swallowing. The patient underwent bronchoscopy for further foreign body aspiration, but no additional foreign body was seen. The patient had no additional complaints during the 6 month follow-up period. Written informed consent was received from the parents for the publication of this report.

Foreign body aspiration in children with respiratory complaints is a common problem and is usually observed under 2 years of age. *H. murinum* is a member of the grass family and has a spiked head like wheat and oats. In the literature, it is called "grass inflorescence", "spike of wild barley", "*Hordeum pusillum*", "grain spike", and "cheat grass".[1] Due to its morphological and botanical characteristics, which lead to continuous progression along the tracheobronchial pathway, it can cause different clinical scenarios. When the proximal end of *H. murinum* enters the bronchus, it moves continuously forward in the distal direction, leading to bronchospasm.[2] If its spikes are close to each other and are soft, it is not able to move to the periphery due to the fact that it becomes softer by mucus, resulting in clogging and infection. If the spikes are firm, however, each cough and chest wall movement will move it forward and it will be pushed out of the skin. Cases of airway obstruction, massive hemoptysis, bronchiectasis, abscess, and tension pneumothorax have been reported after aspiration of grass inflorescence.[3] In a few cases, as in the present case, *H. murinum* passed through the pleural cavity and out of the chest wall.[2]

Early diagnosis and treatment of foreign body aspiration is important to prevent complications. A total of 15–20% of cases, however, are diagnosed ≥1 week after aspiration.[3] Computed tomography is the gold standard for diagnostic evaluation of lung pathology. Recently, there has been growing interest in chest MRI instead of CT in order to protect patients from radiation, and due to the diagnostic utility of lung MRI in pediatric thoracic disorders.[4] Herein we present, to the best of our knowledge, the first case of foreign body aspiration with diagnostic evaluation on MRI.

In conclusion, *H. murinum* aspiration is rare and it can travel to all areas of the body. Diagnosis may be difficult on radiology or bronchoscopy in cases of aspiration of grass inflorescence. The present case illustrates the usefulness of thoracic MRI for diagnosis of foreign body aspiration.

Disclosure

The authors declare no conflict of interest.

Author contributions

All authors performed critical revision of the manuscript for important intellectual content. M.K. and M.H. designed the study; G.Y. and S.S. carried out data analysis; and G.Y. and

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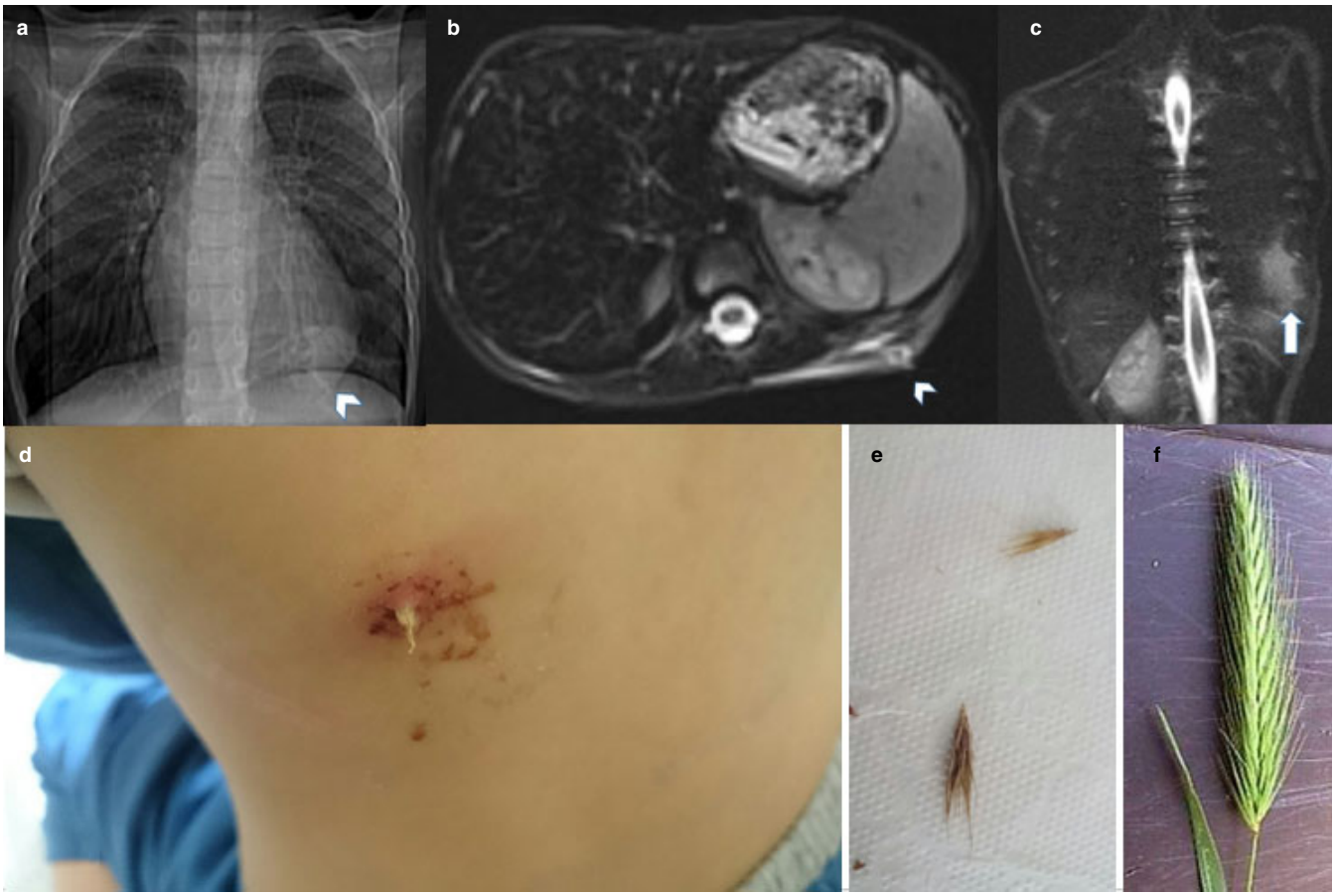


Fig. 1 (a) Postero-anterior chest radiograph taken at initial admission showing radio-opacity in the left lower zone (arrow). (b) The lower slices show the fistula tractus (arrow). (c) Axial and coronal T2-weighted contrast enhanced magnetic resonance imaging showing left postero-basal consolidation (arrow) and minimal pleural effusion. (d) Proximal end of *Hordeum murinum* emerging from the fistula tract in the patient's back. (e) Two aspirated pieces of *H. murinum* expelled by the patient. (f) Natural appearance of *H. murinum*.

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