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# The turban pin aspiration syndrome: Awareness for a subtype of foreign body aspiration



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## ABSTRACT

The turban pin inhalation syndrome is known as a subtype of foreign body aspiration, mainly occurring in girls and young women wearing turbans. With the number of turban wearing girls and women increasing all over the world, attention must be brought to the risk associated with the use of hairpins. We present a case of metallic hairpin inhalation. In our case, the turban pin was successfully removed via rigid bronchoscopy.

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Foreign body aspiration is a common problem faced by infants and young children. A new risk group for this type of accident includes girls and adolescents, who wear the traditional hairscarf or hijab. While fixing the scarf with both hands, the turban pins used for fixation are typically held between the lips in the mouth and can be aspirated easily by accident.

## 1. Case report

A 10-year-old girl came with her parents to our emergency department with chest pain. Briefly ago she tried to fix her headscarf in front of a mirror. She held the needles between her lips to have both hands free. Suddenly she had to cough and felt like having the pin sucked in. Afterward she described a poststernal pain while talking, swallowing or breathing deeply. We saw a girl with normal vital signs and no significant pathological signs in physical examination. Diagnosis was confirmed by posterior-anterior and lateral X-ray, which showed the radio-opaque foreign body in projection to the mediastinum (Fig. 1a and b). No pneumothorax was detected.

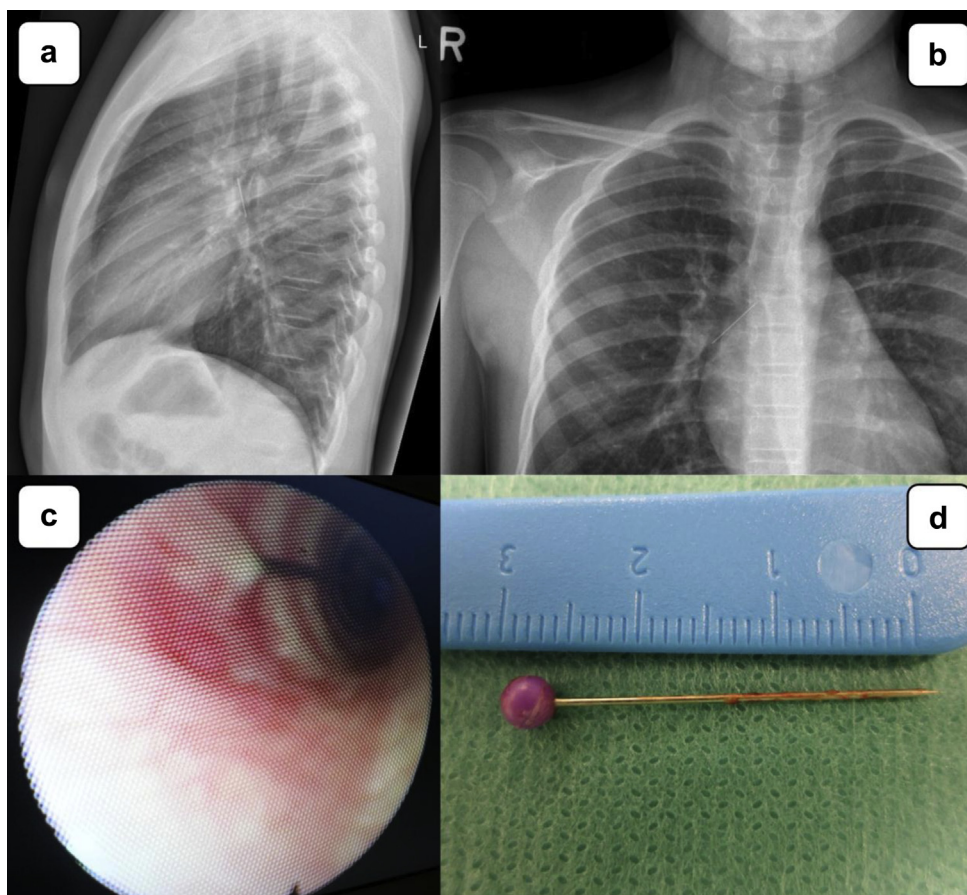
The girl was admitted immediately to endoscopy. In the absence of respiratory symptoms, we considered also an esophageal localization, but esophagoscopy was negative. By flexible bronchoscopy we detected the needle in the right main bronchus, with the beaded end pointing downwards and the tip stuck in the bronchial epithelium (Fig. 1c). The attempt to remove the needle by a flexible bronchoscope resulted in further displacement of the needle toward the lobar bronchus. We proceeded with rigid bronchoscopy and the pin was successfully removed by the grasping forceps without complications (Fig. 1d). A single shot of cefuroxim was applied during endoscopy. We started immediately with inhalation-therapy with salbutamol and there were no postoperative complications. Postoperative chest X-ray was normal. The patient was discharged after 24 h of observation. No complaints or complications were reported during follow-up.

## 2. Discussion

Seventy-five percent of all foreign body aspirations (FBA) happen to children with the peak incidence in the second year of life [1]. FBA in adults occurs mainly in the sixth or seventh decade of life. The risk for FBA in adults is increased in case of conditions with decreased level of consciousness, including drugs or trauma as well as primary neurologic disorders [2]. Associated symptoms are cough, fever, breathlessness or wheezing and the “penetration

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**Fig. 1.** (a, b) Posterioranterior and lateral X-ray showing the pin in the right bronchus. (c) Bronchoscopy: pin tip stuck in epithelium. (d) Needle after removal.

syndrome” defined as a sudden onset of choking and intractable cough with or without vomiting or no symptoms [1]. In the past, the most commonly seen types of tracheobronchial foreign bodies were organic items like nuts, carrot or apple and food in general. In a Belgian study from 1999, out of 113 items found only two were pins [1].

The metallic scarf pin inhalation is a subtype of foreign body aspiration and until now mainly reported from countries in the Middle East, which is related to an increased veiling population [3].

Signs and symptoms of this subtype of foreign body aspiration are choking, cough or airway obstruction while preparing or adapting the hijab [4]. The patients’ age and their ability to communicate as well as the chronological context simplifies diagnosis. In the X-ray image of the thorax the pin is typically visible in form of a linear opacity. Location varies between the two lungs, there is no predisposition toward the right side. Equal distribution appears to be normal in sharp and thin items [5]. It is essential to detect a pneumothorax. Immediate bronchoscopic removal of the needle is indicated for patients presenting symptoms associated with aspirated foreign bodies. Patients without symptoms need to be monitored carefully.

While flexible bronchoscopy is technically easier, flexible instruments are less manageable and the choice of instruments is limited. In smaller children and infants, ventilation is significantly impaired and the endoscopy must at times be interrupted. Rigid bronchoscopy by contrast is more demanding, but provides excellent visualization and allows for continuous ventilation of the patient. The grasp of the instruments as well as their haptic feedback and excellent ergonomics are of great advantage in difficult situations [5–7].

This may lead to the presumption, morbidity and mortality should be low. Actually, since the second clinical phase is a quiescent stage, it might get challenging for health professionals if the accident is neglected by the patient. The average delay between inhalation and surgery is 10 days [8]. Due to the delay between inhalation and removal, complication rate is increased [8]. Complications include obstructive emphysema, bronchiectasis, pulmonary abscess, pleural effusion or pneumomediastinum [8].

Thoracotomy is indicated in case of unsuccessful endoscopy. Especially the removal of a foreign body at sub-segmental bronchus level is demanding and the FB is at permanent risk for further distal migration during the procedure.

Surgery rate in the literature varies between 1.6 and 27%.

The main reasons for high thoracotomy rates mentioned in the literature are far distances in rural areas and therefore delayed admission to hospitals [3,6].

### 3. Conclusion

European health care professionals need to be aware of this new type of foreign body aspiration. The current flow of refugees toward the European Union leads to more ethnic and religious variety and a growing veiling population.

There might be a lack of understanding in that religious community why the turban pin is a dangerous device for girls to fix the hairscarf. Unfortunately, due to the latest fashion trend, it is the preferred method [5]. Although safer clips or strips should be preferred, women need to be advised not to hold the needles in the mouth while adjusting the hairscarf. Public education, e.g. in Islamic communities, schools, media would be useful to inform the

growing Islamic community [3]. In our case, the family shared their experience with their environment in a Quran course to protect other girls.

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