Unresolved wheeze in a child: A rare case of misdiagnosed chronic airway obstruction

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ABSTRACT

Foreign body aspiration (FBA) in children can often present with subtle symptoms that closely resemble common respiratory conditions such as asthma or pneumonia, leading to potential misdiagnosis. This case report is about a four-year-old boy who had ongoing breathing problems and was treated for almost a year before the real cause was diagnosed: a yak bone stuck in his airway. The diagnosis was ultimately made at Grande International Hospital, a year after the initial aspiration. This case underscores the diagnostic challenges in resource-limited settings and highlights the importance of maintaining a high index of suspicion when standard treatments fail to resolve symptoms.

Keywords: aspiration; foreign body; chronic wheeze, misdiagnosis, pediatric airway obstruction

Introduction

Although an anchored foreign body in the larynx is always accidental and very rare, it causes significant morbidity and mortality in young children.[1,2] Impacted Foreign bodies in the airway cause cough, choking, difficulty breathing, aphonia, wheezing and unresolved pulmonary infection.[1,2,3,4] If failure to catch sight of the above signs, it may lead to misdiagnosis and be treated for other diseases such as bronchitis, bronchial asthma, tuberculosis (TB) and pneumonia.[5] Furthermore, delay in arrival of a child with a suspected foreign body aspiration (FBA) in the hospital and delay in bronchoscopy, and poor management relate to a higher rate of complications. We experienced an interesting case of impaction of bone of Yak (*Bosgrunniens*), long-haired, short-legged oxlike mammal that domesticated at elevations of 14,000–20,000 feet, mainly in China, Nepal and Central Asia, in the larynx of a four year old boy for one year and was managed by only medication, diagnosing as bronchial asthma or pneumonia. To the best knowledge, this is the first case reported of yak bone aspiration in the literature.

Case Report

A four-year-old boy from Mustang, a remote Himalayan region in Nepal, presented with shortness of breath and noisy breathing during physical activity. He had no other associated symptoms initially. Due to limited access to healthcare, the family first visited a nearby volunteer medical camp, where he was given symptomatic treatment and advised to get a chest X-ray and visit a higher-level center. Subsequently, they consulted a local sub-health post, where he was clinically diagnosed with pneumonia (though undocumented) and treated with oral antibiotics. Due to a lack of diagnostic facilities, no further investigations were performed.

Over the following months, the child was hospitalized multiple times and treated for pneumonia and bronchial asthma with antibiotics and bronchodilators. While he experienced temporary relief, his symptoms never fully resolved.

One year after symptom onset, the child presented to Grande International Hospital. A biphasic wheeze raised suspicion of a possible foreign body. Upon further questioning, the mother recalled an episode a year earlier during which the child lost his voice, had difficulty breathing while lying down, and drooled saliva after eating porridge containing rice and yak meat. A CT scan of the neck and chest was advised.

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Imaging revealed a foreign body measuring approximately 13.2 × 13.6 × 2.5 mm in the infra-hyoid region of the larynx, partially obstructing the airway (Figure 1). The foreign body was confirmed via flexible bronchoscopy. As the child was already on antibiotics and steroids, no additional medication was given, and he was scheduled for rigid bronchoscopy with possible tracheostomy.

Under general anesthesia, a whitish, triangular yak bone measuring approximately 16 mm was visualized just below the vocal cords and successfully removed using rigid bronchoscopy (Figure 2). The procedure was uneventful, and tracheostomy was not required. A follow-up flexible bronchoscopy confirmed complete removal of the foreign body.

Discussion

Managing pediatric airway emergencies can be challenging in any setting, be it a government hospital, a busy trauma center, or even a well-equipped international facility. These challenges are often heightened in developing countries like Nepal, where limited resources and lack of awareness can contribute to delayed or missed diagnoses [6,7,8]

Foreign body aspiration is mostly seen in children and usually comes with a narration of accidental aspiration. Although a definite history of choking with a foreign object is a crucial core, it may not always be evident. In a study, Shah et al[9] showed

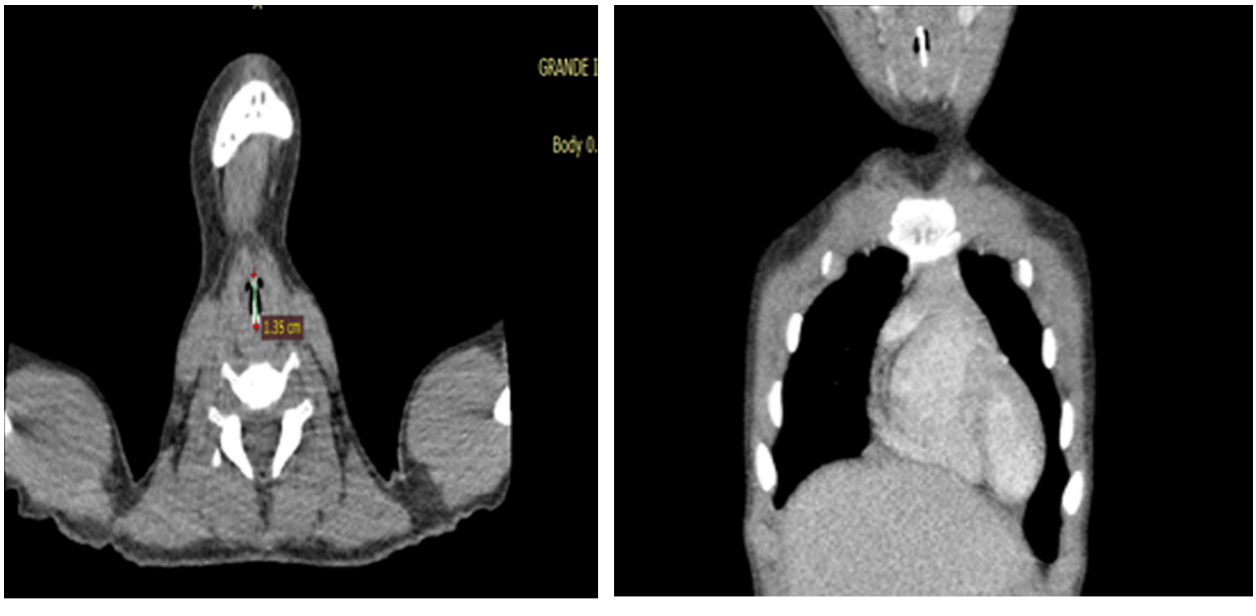

Figure 1: Foreign body measuring approximately 13.2 x 13.6 x 2.5 mm, extending from the infra-hyoid region of the vocal cord noted which is partially obstructing the lumen of the larynx

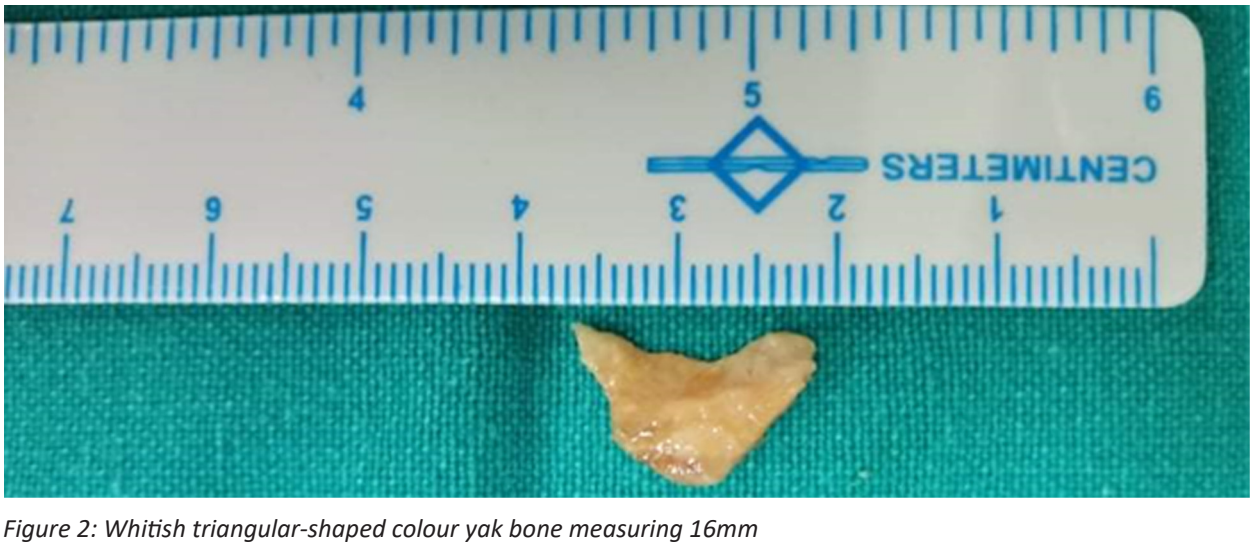

Figure 2: Whitish triangular-shaped colour yak bone measuring 16mm

that 50% of patients with an FB aspiration lacked a causal history, which may be because they are left unsupervised. Likewise, Chen et al[10] found that 20% of the misdiagnosed group had a contributing history available, and Tan et al[11] evaluated the possible reasons for delayed diagnosis that included those caused by the primary physician in 17.7%, by parents in 15.5%, and by negative history in 12.5%. Parent-related negative history plays a pivotal role in leading to misdiagnosis, which happened in this case.

Aspirated foreign bodies can give rise to acute or chronic symptoms depending on size, shape, nature and degree of obstruction. Escalamado and Richardson reported that a history of choking and coughing was found in 90% of cases of laryngotracheal foreign body, and this was followed by stridor, sternal recession, and hoarseness.[13] Moskowitz et al emphasised that a laryngotracheal FB should always be considered as a differential diagnosis of upper airway obstruction.[12] Intractable cough and choking spells may be signs, but chronic recurrent bronchial asthma like symptoms caused by a foreign body can lead to the incorrect diagnosis of bronchial asthma, pneumonia or tuberculosis.[6,7,8] Cohen and Lewis demonstrated that 20% of all children were treated for other diseases like pneumonia, asthma for over a month before a foreign body was diagnosed.[14] In a study done by Karakoc et al, [15], 50% of the patients were diagnosed at least 3 months after the FBA, and the longest period was 11 years. In our case also there were several admissions and medical treatment for asthma and pneumonia was done before the correct diagnosis was made after 1 year. For this reason, the aphorism that "all that wheezes is not asthma" must always be kept in mind in clinical practice.

Conclusion

Any combination of prolonged wheezing, cough hoarseness, stridor and dyspnea should always raise an index of suspicion for foreign body aspiration, particularly in children. Recurrent episodes of asthma and pneumonia should be suspected of foreign body aspiration and investigated with a bronchoscopy. Regardless of clinical history, physical examination or imaging results, clinicians must take extra care to exclude foreign body aspiration to prevent delayed diagnosis and complications.

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