



Paediatric Airway Foreign Bodies Masquerading COVID-19 Pneumonia- A Diagnostic Challenge in COVID-19 Pandemic: Case Report

Lokesh Kumar P.^{1*}, Benazir Begum¹, Nipun R.¹ and Sunil Kumar Saxena¹

¹*Departments of Otolaryngology, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, 605010, India.*

Authors' contributions

This work was carried out in collaboration among all authors. Author LKP designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors BB and NR managed the analyses of the study. Author SKS managed the literature searches and finalized the draft. All authors read and approved the final manuscript.

Article Information

Editor(s):

- (1) Dr. Asmaa Fathi Moustafa Hamouda, Jazan University, Saudi Arabia.
- (2) Dr. Georgios Tsoulfas, Aristoteleion University of Thessaloniki, Greece.
- (3) Dr. Ashish Anand, GV Montgomery Veteran Affairs Medical Center, USA.

Reviewers:

- (1) Alex Tham, National University of Singapore, Singapore.
- (2) Yoshinori Kadowaki, Oita University, Japan.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/65724>

Case Study

Received 14 January 2021
Accepted 22 February 2021
Published 15 March 2021

ABSTRACT

Foreign body aspiration (FBA) is not very uncommon in the paediatric population. Its presentation can vary from a simple cough to dangerous pneumonia. This study presents cases with a negative history of FB where the presentation is delayed, findings are masked, and a rigid diagnostic bronchoscopy is done as a supplementary procedure that helped rescue the children from adverse outcomes. The child's grandmother revealed a history of the child playing with ripe tamarind fruit a day before the arrival. We consider the differential diagnosis of croup, Foreign body aspiration and COVID-19 pneumonia. RT-PCR for COVID-19 antigen was negative. The child was treated like a case of viral/bacterial pneumonia. We consider Rigid diagnostic bronchoscopy as the CT findings were suggestive of aspiration pneumonitis. We suggest repeated probing about FBA, a high index of suspicion, earlier radiological investigations like high-resolution CT scans or virtual bronchoscopies, and a quick referral to ENT to help rescue these children faster.

*Corresponding author: E-mail: lokesh86p@gmail.com;

Keywords: Foreign body aspiration; COVID 19; radiological mimic; bronchoscopy.

1. INTRODUCTION

Foreign body aspiration (FBA) is not very uncommon in the paediatric population. Its presentation can vary from a simple cough to dangerous pneumonia. A positive history and immediate onset of respiratory symptoms and physical findings are essential for diagnosis. However, history is inconclusive in many instances, or the child may present late after weeks of aspiration. The clinical and radiological mimic of this condition to COVID-19 has increased the diagnostic and treatment challenges manifold recently. Here we present such cases with a negative history of FB where the presentation is delayed, findings are masked, and a rigid diagnostic bronchoscopy is done as a supplementary procedure helped rescue the children from adverse outcomes.

2. CASE PRESENTATION

2.1 Case 1

A 9-month-old child presented to paediatric casualty with persistent cough, fever and breathing difficulty for five days, which was treated as croup. The child's parents denied a history of foreign body aspiration. Her father is a chronic smoker with a recent history of COVID-19 infection. The initial chest X-ray on the day of admission was normal. We have put the child under close observation. There was worsening in the child's general condition with a temperature of 99.8 F, with tachypnoea, B/L subcoastal

retraction and oxygen saturation of 98% on room air. Repeat x-ray is not much informative. On probing further, a history of the child playing with ripe tamarind fruit a day before the arrival was revealed by the child's grandmother. We consider the differential diagnosis of croup, Foreign body aspiration and COVID-19 pneumonia.

We investigated the child with HRCT – thorax 1 mm cuts Fig.1a, which showed many doubtful areas of narrowing and motion artefacts due to increased breathing difficulty, which cannot exclude the presence of FB. RT- PCR for COVID -19 done, and it was negative. There was gradual worsening of symptoms with increased respiratory efforts, moderate to severe intercostals and suprasternal retraction with positive tracheal tug sign. Because of the worsening of the child's general condition, we planned to perform Rigid diagnostic bronchoscopy under GA on an emergency basis. We couldn't pass a 3.5 mm rigid bronchoscope beyond subglottis during the procedure, and as the child's oxygen saturation was deteriorating, we performed the tracheotomy. We found the foreign body Fig. 1b (tamarind seed with outer shell) at subglottic level with mucosa congestion. After removing the foreign body, we put the child on positive pressure ventilation for the next 12 hours and gradually weaned off to room air. The child was decannulated one week after the procedure and discharged from the hospital in a stable condition after ten days.

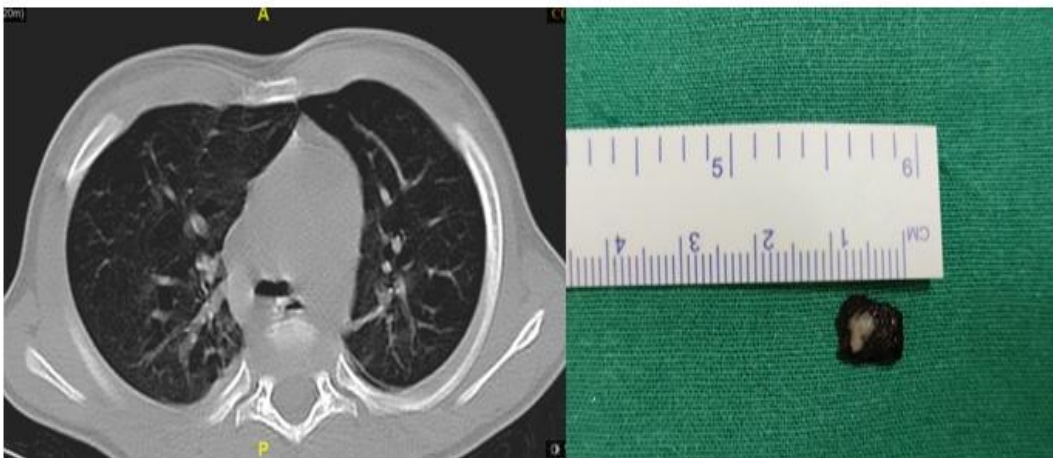


Fig. 1. a- high-resolution CT chest of the child showing the many doubtful narrowing areas and no foreign body evidence anywhere. b- a tamarind seed foreign body that has been removed from the subglottis of the same child

2.2 Case 2

A one-year-old developmentally normal female child was referred to the ENT department from the Paediatric inpatient ward for possible evaluation of airway foreign body. This child had a history of cough and breathing difficulty, which worsens in the night from the last 13 days. The child was taken to many paediatricians nearby and treated conservatively with not much benefit. The child parents denied a history of foreign body aspiration. On examination, there were signs of airway obstruction like tachypnea, intercostal and subcostal retractions. Bilateral air entry reduced on auscultation. Over the next few hours, the child was not improving with a shot of steroid and adrenaline nebulization, and because of impending respiratory failure child was intubated. High-resolution CT - chest does not show any foreign body evidence but noted to have Peribronchovascular central consolidation noted predominantly in right upper lobe apicoposterior segments, bilateral lower lobe superior segments. Patchy peripheral consolidation also noted in bilateral posterior basal segments and bilateral perihilar region. RT-PCR for COVID-19 antigen was negative. The child was treated like a case of viral/bacterial pneumonia. We consider Rigid diagnostic bronchoscopy as the CT findings were suggestive of aspiration pneumonitis. A 0.5 cm blackish foreign body with surrounding granulation tissue was found in the right bronchus removed. This child was treated with broad-spectrum antibiotics and chest physiotherapy for the next three days and discharged home in stable condition after a week of hospital stay.

3. DISCUSSION

Foreign body aspiration (FBA) in children is common. In children below three years, a foreign body in the respiratory tract accounts for 7% of sudden deaths [1]. Most children have a positive history of FBA with sudden onset of cough and breathing difficulty after the episode, which will point the clinicians to the next best step in the management. However, delayed presentation is not uncommon in very young children and infants with high in-hospital mortality [2].

Though the earlier outbreaks of COVID-19 pandemic were believed to have a mild infection in children, later publications have shown 5.7-67% of children being critically ill [3,4]. As the presentation of delayed FBA mimics respiratory

infections clinically and radiologically in infants and young children [5,6], there would be an expected delay in the definitive treatment. In developing countries like India, where health facilities are not adequately available COVID-19 pandemic has created chaos in treating children with respiratory symptoms. Moreover, the lockdown, due to the COVID-19 pandemic, has even worsened the scenario. The two cases reported here would have been treated earlier if the children have reached in time. The delay (delay) in the presentation to the tertiary care centre and lack of proper history and mimics of the presentation with COVID-19 infection has delayed the management decision.

4. CONCLUSION

Under the COVID-19 pandemic, the diagnosis or treatment for some previously common disease has become more complex. Paediatric airway foreign body aspiration is a common and essential condition to recognize. Early identification of the situation is key to having a better outcome. With the current COVID-19 pandemic, it has become more challenging in differentiating the various conditions that could all result in overlapping respiratory complaints. Obtaining an accurate history of the evolution and temporal sequence of symptoms, often having to corroborate this with the patient's family members, is of paramount importance. We suggest repeated probing about FBA, a high index of suspicion, earlier radiological investigations like high-resolution CT scans or virtual bronchoscopies, and a quick referral to ENT to help rescue these children faster.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Rizk H, Rassi S. Foreign body inhalation in the pediatric population: Lessons learned from 106 cases. *Eur Ann Otorhinolaryngol Head Neck Dis.* 2011;128:169-74.

2. Johnson K, Linnaus M, Notrica D. Airway foreign bodies in pediatric patients: Anatomic location of foreign body affects complications and outcomes. *Pediatr Surg Int.* 2017;33:59–64.
3. Zimmermann P, Curtis N. Corona virus Infections in children Including COVID-19: An overview of the epidemiology, clinical features, diagnosis, treatment and prevention options in children. *Pediatr Infect Dis J.* 2020;39:355–68.
4. May 11 MVB| NW| CN|, 2020. Study: 38% of kids in ICU with COVID-19 needed ventilation [Internet]. CIDRAP. [cited 2020 Dec 16]. Available: <https://www.cidrap.umn.edu/news-perspective/2020/05/study-38-kids-icu-covid-19-needed-ventilation>
5. Moslehi MA. A rare case of massive foreign body aspiration mimic asthma. *Respir Med Case Rep* [Internet]. 2019;28. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6839009/>
6. Yurdakul AS, Kanbay A, Kurul C, Yorgancilar D, Demircan S, Ekim N. An occult foreign body aspiration with bronchial anomaly mimicking asthma and pneumonia. *Dent Traumatol Off Publ Int Assoc Dent Traumatol.* 2007;23(6):368–70.

© 2021 Lokesh et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/65724>