



Case report

"Chronic bronchial foreign body managed by lobectomy and latissimus dorsi flap: case report"

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ARTICLE INFO

Keywords:

Bronchial foreign body
Chronic impaction
Lobectomy
Latissimus dorsi flap

ABSTRACT

Introduction and importance: Foreign body aspiration is a common occurrence, with severe outcomes seen in all age groups. It can present like any chronic respiratory disease with a wide spectrum of misleading symptoms, resulting in misdiagnosis and delays in appropriate treatment.

Case presentation: Here we present a case of a 11 year boy diagnosed with occult foreign body aspiration, chronically impacted in the left secondary bronchus, presented with bronchiectasis and multiple failed attempts at bronchoscopic retrieval.

Clinical discussion: Surgically managed by a left lower lobe lobectomy via a mini thoracotomy, reinforced with a pedicled latissimus dorsi flap. Upfront surgery will reduce the bronchoscopic morbidity incurred in repeated attempts needing post-op ventilatory support due to edema and repeated general anaesthesia risks.

Conclusion: A high degree of suspicion is a key to diagnosis. There should be a low threshold for surgical management in chronic impactions.

1. Background

Foreign body aspiration can occur in all age groups but is commonly seen in preschool children. It can occur if normal deglutition is suddenly disturbed by deep inspiration during various routine activities like eating, playing, or under anaesthesia, [1]

The reaction of the respiratory system depends on the foreign body composition (organic or inorganic), size, shape, its initial and final site of impaction, duration, and the age of the patient. [1] Children commonly present with irritability, persistent coughing, stridor, wheezing, fever, dyspnoea, which alerts the parents. Some may have mild symptoms leading to misdiagnosis and thus causing chronicity and impaction of the foreign body. Here we present one such case of misdiagnosis presenting with inevitable sequelae, managed by surgical repair.

2. Case presentation

We report a 11 year boy who presented with productive cough on and off since 18 months. Also, he had fever associated with breathing

difficulty on and off in the past 1 year. The child was hospitalized for similar complaints five times in the past 18 months, and diagnostic bronchoscopy with lavage was performed at an outside hospital 2 times one month apart after which he was referred to our hospital for further management.

On examination, vitals were stable and oxygen saturation was 98 % on 4 l of O₂ by prongs. Since three months, incentive spirometry, chest physiotherapy, and positional drainage was given at the peripheral hospital. Routine blood investigations showed leucocytosis; the rest was within normal limits.

X-ray chest PA view denoted left lower homogenous opacification likely of consolidation with hilar prominences.

HRCT thorax reported collapsed consolidation of the left lower lobe lung, air, and fluid bronchogram with moderate volume loss, resulting in upward pulling of the left dome of the diaphragm.

Multiple ground glass- density nodules and diffuse honeycombing suggestive of bronchiectasis. The left main bronchus shows circumferential irregular wall thickness of length 3.4 cm and 3.5 mm in thickness, causing near-complete occlusion due to retained secretions (Figs. 1–3).

Virtual bronchoscopy was found to be inconclusive.

Abbreviations: HRCT, High resolution computed tomography.

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<https://doi.org/10.1016/j.ijscr.2024.110061>

Received 17 November 2023; Received in revised form 14 July 2024; Accepted 19 July 2024

Available online 22 July 2024

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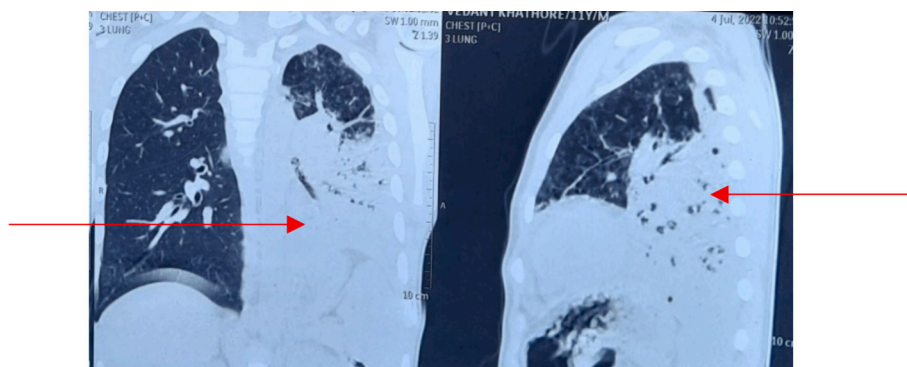


Fig. 1. High resolution computed tomography (HRCT) chest showing changes of bronchiectasis.

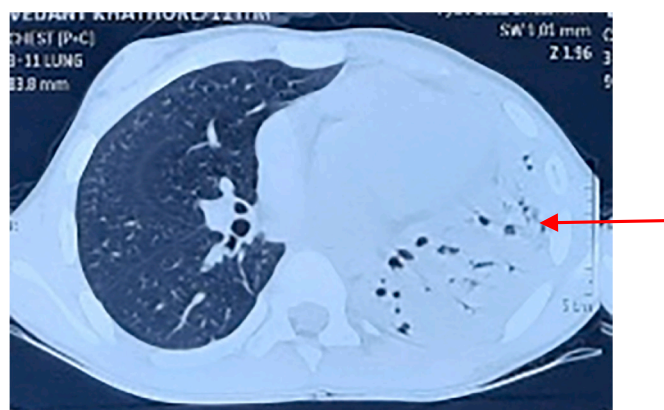


Fig. 2. Left lobe collapse with consolidation.



Fig. 3. Hrct chest axial cuts.

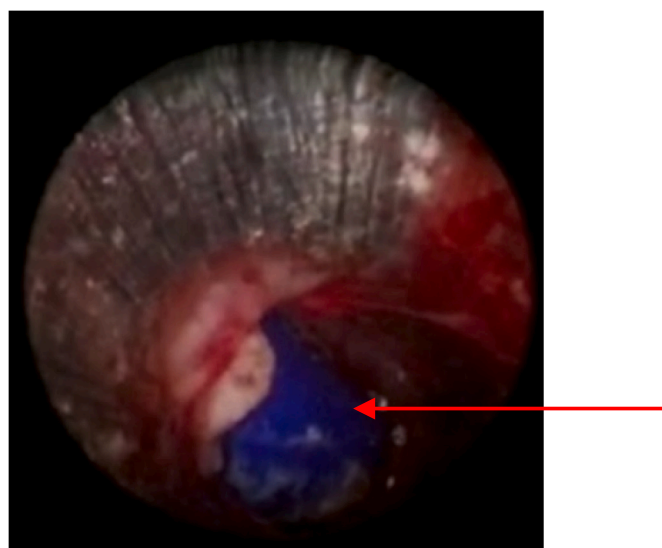


Fig. 4. Bronchoscopic view of foreign body.

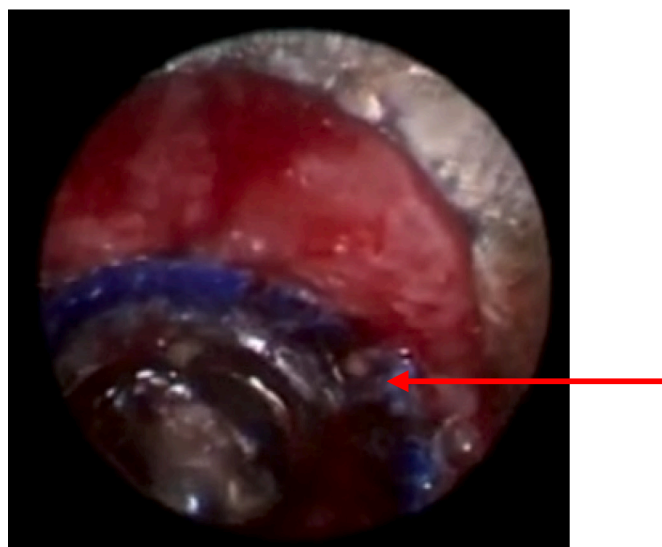


Fig. 5. Hypergranulation and encasement noted.

Suspicion of bronchiectasis secondary to retained foreign body aspiration could not be ruled out, hence a bronchoscopy was performed at our center, which revealed a 'blind cap' of a regular ballpoint pen impacted in the secondary bronchus embedded within the hypergranulation tissue and thick secretions (Figs. 4–5).

On probing, parents did reveal the patient has a habit of chewing on a pen while studying. Multiple attempts were made for the retrieval of foreign body using optical bronchoscopy forceps, but they failed. So, the decision to perform a left thoracotomy was taken after 48 h.

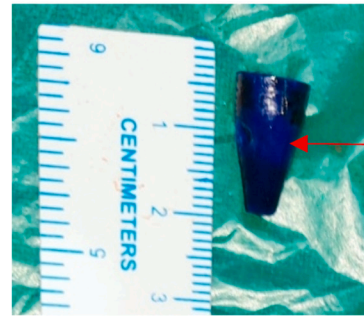
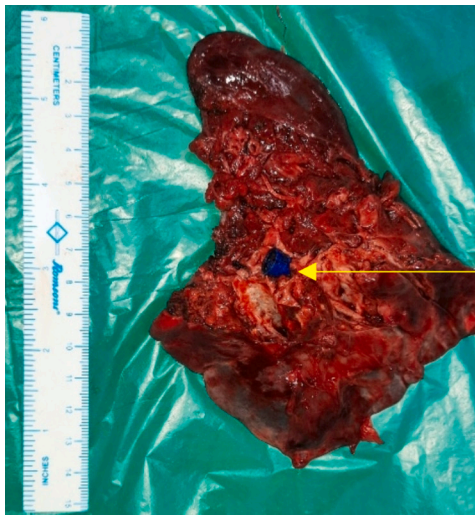


Fig. 6. Left lower lung lobectomy specimen with FB in situ.

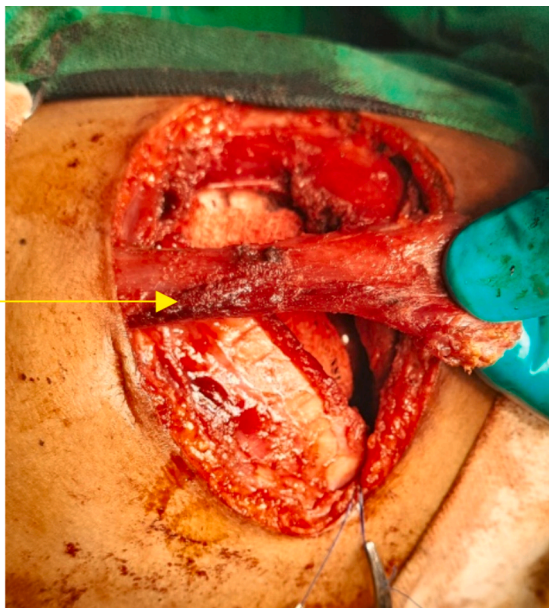
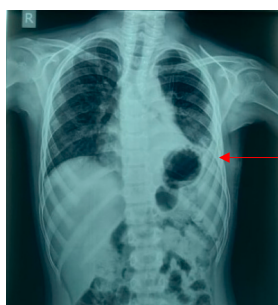


Fig. 7. Pedicled Latissimus dorsi flap.



Well-expanded left lung with mild blunting of the left CP angle.

Fig. 8. Post op X ray Chest PA view.

3. Surgical management

A left lateral thoracotomy was performed, wherein the left lower lobe was found to be consolidated and bronchiectatic, friable, sloughed

out with purulent secretions and negligible compliance. Thus, the decision to carry out a left lower lobe lobectomy was made.

The foreign body could be palpated in the lower lobe, bronchial vessels at the hilum clipped and ligated. Bronchotomy was done, and the foreign body was visualised (blue blind cap of pen). Secretions drained, with debridement of hypergranulation and slough. The bronchus was sutured with a non-absorbable monofilament polypropylene suture, and left lower lung lobectomy was done (Fig. 6). No evidence of any air leaks were confirmed. Intercostal Drain (ICD) was placed and a pedicled latissimus dorsi flap (Fig. 7) buttressed over the sutured bronchus, wound closed in layers.

Chest PT and incentive spirometry started after 48 h post op. ICD was removed on post-op day five.

X-ray chest after a week showed good expansion of the left lung with mild blunting of the left costo-phrenic angle (Fig. 8). On six months post-op follow up, patient has no complaints and is thriving well.

This work has been reported in line with the SCARE criteria'.

4. Discussion

Foreign body aspiration can cause severe morbidity and sometimes mortality if there is a delay in getting medical help. 350–2000 deaths annually in the United States are estimated to be caused by it. [2] According to a study by Kripa et al., the prevalence of foreign body aspiration was seen to be 0.37 % [3] If normal deglutition is interrupted suddenly by a strong inspiration, it can lead to aspiration. Can occur spontaneously during daily activities like eating, playing, or iatrogenic during dental or anaesthesia procedures. [1] The most commonly aspirated foreign bodies include organic things like peanuts, seeds, bones, and inorganic things include coins, marbles, button batteries, pins, jewelry etc. The effect of a foreign body aspiration depends on the size, shape, composition, metallic or not, and initial and final site of impaction.

Chronically impacted foreign bodies account for 48 % of the total. [4] Misdiagnosed foreign body aspirations can mimic chronic respiratory diseases like lung abscess, bronchiectasis, and asthma, which are mistreated, thus greatly affecting the quality of life. [5] Impacted foreign bodies are difficult to approach due to the hypergranulation partially or completely occluding the bronchial lumen along with purulent discharge and bleeding; making it challenging for a bronchoscopic retrieval and thus warranting a surgical removal. Video Assisted Thoracoscopic (VATS) retrieval can also be considered provided the technical skills equipment is available and the child is vitally stable and fit for the procedure. A 27 % increase is noted in thoracotomy rates after previous

failed attempts at bronchoscopic removal. [6] Empyema, iatrogenic injury to great vessels, parenchyma, haemorrhage, pneumomediastinum and bronchopleural fistulas are rare morbid complications post-pulmonary resections, with an incidence of 1.5 % to 28 %. [7] This may prolong hospital stays secondary to pneumonia and sepsis. Due to the high chances of occurrence, prevention is paramount. Therefore, the use of a pedicled latissimus dorsi muscle flap helps in the prevention of such untoward complications as bronchopleural fistulas, as in our case. [8]

Thus, we conclude that a high grade of clinical suspicion is essential for the diagnosis of chronically impacted foreign bodies, irrespective of the imaging reports. Surgical management is warranted for such cases, and reinforcement with a pedicled latissimus dorsi muscle flap can avoid any untoward complications.

Consent

Written informed consent was obtained from the patient's parents for publication and accompanying images. A copy of the written consent is available for review by the Editor-in-chief of this journal on request.

Ethical approval

Since this is not a clinical trial, drug trial or any new intervention and as it is a case report about a common occurrence presented uncommonly with an uncommon surgical approach, the need for ethical approval did not seem absolute. Also, as per previous submissions, in our institution its not mandatory for ethical approval for a surgical case report.

Funding

We have no sources of funding. I am a resident doctor at a government run hospital in Mumbai India with no financial backing from the institute and a meagre stipend.

Kindly consider for waiver of APC.

Author contribution

AD-for writing the paper & data compilation, MS- data compilation, PK, operating. (Dr. Aditi Dalvi, Dr. Maitreyee Save, Dr. Paras Kothari, (All authors mentioned above as the case was managed in the dept. of paediatric surgery in LTMGH).

Guarantor

Aditi Dalvi.

Research registration number

Not applicable.

Conflict of interest statement

There are no conflicts of interest in the article.

Data availability

Not applicable.

Acknowledgements

Thank-you all my co-authors for their guidance.
This work has been reported in line with the SCARE criteria.

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