# *Case study*

## TELESCOPIC REMOVAL OF A SUBGLOTTIC FOREIGN BODY IN A CHILD. A CASE REPORT


## Abstract

The foreign body ranges from metallic to non-metallic household materials of different shapes and sizes. Foreign body aspiration in the airway is not an uncommon problem and is one of the causes of morbidity and mortality affecting children which requires prompt diagnosis and management. A child presenting in severe respiratory distress with upper airway obstruction may require urgent relief of the upper airway obstruction. A 6 years old male child presented to the Children Emergency Ward (CHEW) on account of aspiration of trunking nail of one hour duration prior to presentation while playing with it in his mouth. There was associated noisy breathing, respiratory distress and cough. At presentation, he was restless and stridulous. The respiratory rate was 60 cycles per minute, Peripheral oxygen saturation ($SPO_2$ ) was 85% , reduced air entry in both lung fields and no crepitation on chest examination. A diagnosis of foreign body (trunking nail) in the larynx was made. Patient was worked up for emergency tracheostomy. Intraoperative finding showed a metallic trunking nail, with plastic component. The foreign body was grasped with the attached forceps of the telescope with the tip facing upwards and carefully extracted without injury to the surrounding structures .No intraoperative complication was noted, patient was admitted into the ward, given medications and observed for a few days. He was later weaned off the tracheostomy tube and discharged home in a stable clinical condition.



KEY WORD: Foreign body, bronchoscopy, telescope, trunking nail, tracheostomy




### Introduction

Foreign body aspiration in children is a common occurrence globally. It is a well-known life –threatening emergency seen among pediatric age group in our environment. The most affected age group is 3-5 years [1]. The prevalence of foreign body in the airway in young children could be due to their lack of molar teeth, poor swallowing of food, with a tendency to put objects in the mouth and weak protective laryngeal reflexes at that age [1;2].

The foreign body ranges from metallic to non-metallic household materials of different shapes and sizes [3]. It could also be organic or inorganic materials. The organic substances may be groundnuts, maize seeds, water melon seeds, beans etc, while inorganic materials include needles, nails, whistles, toy parts or beads [1]. The foreign body can lodge in any of the regions of the larynx or tracheobronchial tree.

Clinical prognosis of foreign body aspiration varies depending on the type, size, localization of the aspirated material, the degree of airway obstruction, the child's age and time of presentation to the healthcare facility [2;4]. A child presenting in severe respiratory distress with upper airway obstruction may require urgent relief of the upper airway obstruction or tracheobronchial tree toileting through tracheostomy before definitive

laryngoscopy or bronchoscopy and foreign body removal. The advent of telescopic bronchoscopy has improved the outcome of due to better visualization with the aid of the telescope [4;5].

We present a case of trunking cable nail in the subglottic region of a child seen in the University of Port-Harcourt Teaching Hospital, Port-Harcourt, Nigeria who had telescopic bronchoscopy and foreign body removal.

**Case presentation**

A 6 years male child presented to the Children Emergency Ward (CHEW) on account of aspiration of trunking nail of an hour duration prior to presentation while playing with it in his mouth. There was associated noisy breathing, respiratory distress and cough. At presentation, he was restless and stridulous. The respiratory rate was 60 cycles per minute, Peripheral oxygen saturation ($SPO_2$) was 85% reduced air entry in both lung fields and no crepitation on chest examination. Plain radiograph of the soft tissue neck done showed nail in the larynx with the tip facing upward as shown in Plate 3 and 4. A diagnosis of foreign body (trunking nail) in the larynx was made. Patient was worked up for emergency tracheostomy, telescopic bronchoscopy and foreign removal with a grasping forceps. Intraoperative finding showed a metallic trunking nail, with plastic component still attached as shown in plate 4. This foreign body was trapped in the subglottic region with the tip pf the nail facing upward. The foreign body was grasped with the attached forceps of the telescope with the tip facing upwards and carefully extracted without injury to the surrounding structures .No intraoperative complication was noted , patient was admitted into the ward, given medications and observed for a few days. He was later weaned off the tracheostomy tube and discharged home in a stable clinical condition.

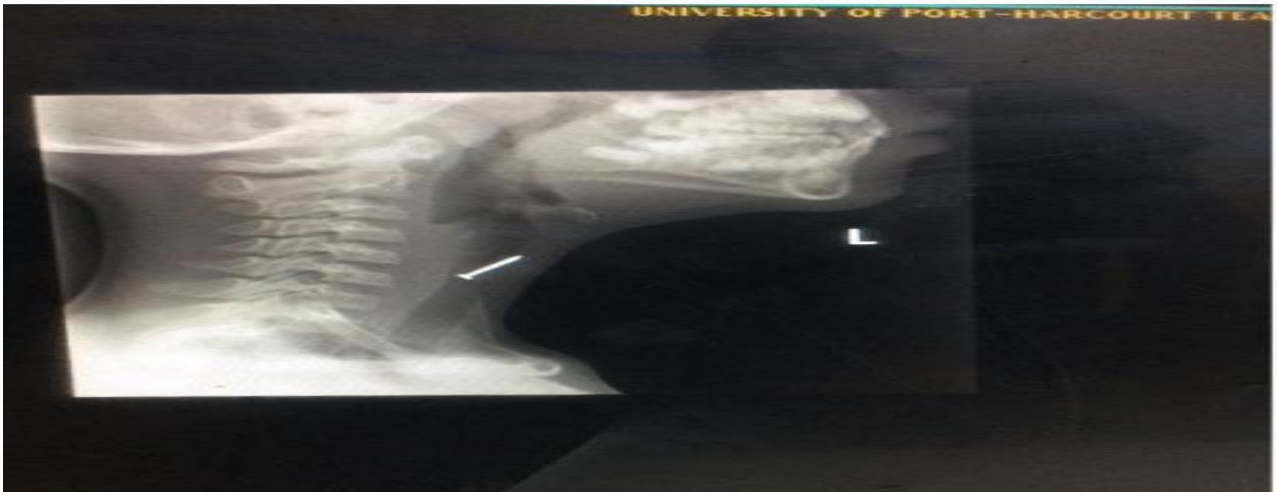


**Plate . 1 Showing Lateral Soft Tissue Neck Xray With A Radiopaque Foreign Body in the Larynx**


**Plate 2: X-ray soft tissue neck anterior posterior view showing a foreign body in the Plate: 3 Showing Tracheostomy Done Prior To Extraction**

**Plate 3. Showing Tracheostomy Done Prior To Extraction**

**Plate 4 : Showing The Foreign Body ( Trunking Nail After Extraction )**

**Discussion**

Foreign body aspiration in the airway is not an uncommon problem and is one of the causes of morbidity and mortality affecting children which requires prompt diagnosis and management [6;7;8]. The severity depends on the type of foreign body and its location. Organic foreign bodies such as nuts cause chemical reactions and irritation of the airway mucosa resulting in inflammation [7]. This in turn results in respiratory distress when located any where in the tracheobronchial tree especially an upper airway obstruction if located in the upper airway.

This case involves a trunking nail foreign body which comprises of a nail and a plastic component. The location of the foreign body can present with symptoms of stridor which can be inspiratory, expiratory or mixed depending on the location of the foreign body, other symptoms such as , respiratory distress or upper airway obstruction may occur in patients with foreign body aspiration. However, there are few cases where the patient may be asymptomatic, sometimes the diagnosis may be due to an incidental finding [8]. In this case, a radiologic investigation was done urgently to confirm the location of this foreign body which was a guide in management.

Foreign bodies may be radio opaque or radiolucent [9]. There however are instances where radiologic findings may not capture the foreign body and diagnostic bronchoscopy with or without foreign body removal is done based on history and clinical assessment [10]. This trunking nail had a radiopaque component that was easily visualized on Xrays as seen in plate 1 and 2. This gave a guide on management options to reduce morbidity and mortality for this child .

An emergency tracheostomy was done in this case to relieve the upper air way obstruction and aid as a route for anesthesia prior to retrieval of the foreign body. The cuffed endotracheal tube used protected the airway from any bleeding that may occur due to the retrieval and also to prevent migration of the foreign body if displaced during retrieval as noted in other studies [11].

The process of removal of foreign body in the larynx and bronchus can result in inflammation of the larynx causing upper airway obstruction post operatively, this can be addressed by either a tracheostomy tube in place or minimal attempts with adequate post operative care to reduce inflammation of the airway. In the index case, a tracheostomy tube was already in place prior to the extraction and maintained post operatively for a few days before commencement of the weaning process.

The use of a telescope with an attached grasping forceps made the extraction of the foreign body easier compared to the use of a rigid brincoscope [12;13;14]. The telescope provides a better illumination, magnification which aids in better visibility to grasp the foreign body and remove it with minimal injury to surrounding structures [15]. Minimal attempts at removal reduces the morbidity of the patient and thus fast recover and a shorter hospital stay [16;17,18]

**Conclusion**

Foreign body aspiration in a child is not an uncommon finding which can result in further morbidity and mortality. A high index of suspicion, urgent review and investigations can help to confirm the diagnosis.

The use of a telescope which provides a good illumination and magnification encourages a precise extraction of the foreign body with minimal injury to surrounding structures. This study therefore highlights the importance of the appropriate instruments and expertise in foreign body removal resulting in a better outcome with less complication.

**Ethical Approval:**

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

**Consent**

As per international standard or university standard, patients' written consent has

been collected and preserved by the author(s).

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