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Laryngotracheal Foreign Body Spontaneously Expelled in Children: An Unusual Observation

Tsierie-Tsoba A[1*], Ngouoni GC[1], Otouana Dzon HB[4], Ondzotto GW[1], Okemba Itoua Ibata W[1], Kambourou J[2], Niengo Outsouka G[3], Itiéré-Odzili FA[1], Ondzotto G[1]

[1]ENT-CCF Department, Brazzaville University Hospital, Republic of the Congo
[2]Paediatric Intensive Care Unit, Brazzaville University Hospital, Republic of the Congo
[3]Department of Multi-Purpose Intensive Care, Brazzaville University Hospital, Republic of the Congo
[4]ENT-CCF Department, Talangaï Referral Hospital, Republic of the Congo

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***Corresponding author:** Tsierie-Tsoba A
ENT-CCF Department, Brazzaville University Hospital, Republic of the Congo

Abstract **Case Report**

Laryngotracheal foreign bodies are a life-threatening emergency. The diagnosis is suspected by the onset of laryngeal dysphonia and confirmed by cervico-thoracic radiography. Suspension laryngoscopy under general anaesthetic enables the foreign body to be located and extracted. However, spontaneous expulsion of a laryngotracheal foreign body, considered an unusual situation, may be observed during coughing fits or vomiting. In this case report, we describe a laryngeal foreign body that was expelled spontaneously on the 11th day of hospitalisation at Brazzaville University Hospital.

Keywords: Foreign Body, Larynx, Dyspnoea, Brazzaville.

INTRODUCTION

Inhalation of foreign bodies (FBs) is a frequent accident in infants from the fifth month of life. There are around 700 cases a year in France [1]. This is a potentially serious accident that should not be underestimated, as 5 to 10 children die from it every year in France [2]. The clinical picture is of a penetration syndrome characterised by suffocation and coughing in a previously healthy child. However, this symptomatology may go unnoticed, giving way a few days later to recurrent bronchitis [3]. Extraction is performed during endoscopy under general anaesthetic, as any foreign body that has penetrated via the natural airways should be extracted via one of these routes [2, 3].

In Africa, although this type of accident is common in our daily practice, there are sometimes problems with management due to inadequate technical facilities [3,4]. However, over the last two decades, the incidence of airway CE in children has fallen considerably in developed countries as a result of prevention and awareness campaigns [5].

We report a case of a spontaneously expelled laryngeal foreign body on the 11th day of hospitalisation in the paediatric intensive care unit of the Brazzaville University Hospital.

CLINICAL OBSERVATION

Male child N.C, aged seven (07) months, living in Brazzaville, was admitted to the paediatric emergency department of the Centre Hospitalier Universitaire (CHU) de Brazzaville for dyspnoea of the respiratory type.

The symptoms began 24 hours before his admission, when the child, sitting on a mat next to his mother, suddenly began to present a coughing fit with respiratory difficulty and dysphonia, with a voice that was muffled when he cried.

He was immediately taken to an integrated health centre, where he stayed for 24 hours and received medical treatment that remains unclear.

The clinical course was marked by persistent dyspnoea, prompting his transfer to the paediatric emergency department of Brazzaville University Hospital, which referred him to the intensive care unit, where he stayed for four days, treated as an upper respiratory infection.

During his hospitalisation in the paediatric intensive care unit, an opinion was sought from ENT specialists, during which the clinical examination revealed:

- An awake child with dysphonia and stage II laryngeal dyspnoea according to CHEVALIER JACKSON AND PINEAU.
- Normal coloration of the conjunctival mucosa.
- A fever of 38°C and an accelerated pulse of 100 beats per minute.
- The ENT examination was unremarkable.
- Decreased chest expansion with normal pulmonary auscultation.
- The rest of the tests were normal.

A frontal cervico-thoracic X-ray on day seven revealed a linear endo-laryngeal image measuring approximately 2cm at C3-C4, associated with a radio-opaque foreign body (Figure 1).

A laryngoscopy with suspension and extraction of the foreign body was recommended.

Admitted to the operating theatre on the eighth floor. During induction, the child suffered cardiorespiratory arrest prior to endoscopic exploration. After resuscitation, he was transferred back to the paediatric intensive care unit, where he received oxygen therapy and a therapeutic dose of antibiotic and corticosteroid therapy.

Progression under this treatment was marked on the eleventh day (D11) by persistent coughing fits and the onset of bilious vomiting, during which the foreign body was expelled spontaneously.

It was a fragment of a piece of bone, measuring around 2 cm in length (Figure 2).

The clinical picture was subsequently improved by normal breathing and regression of the cough.

Discharge was authorised on the thirteenth day (D13) with a relay per os.

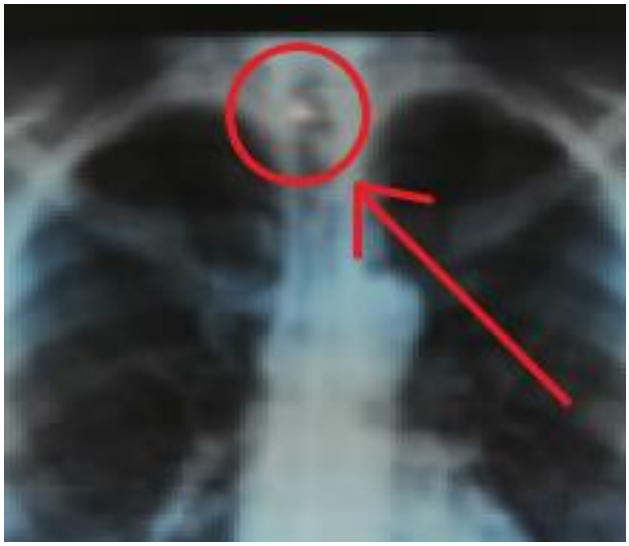

Figure 1: Image of a laryngeal foreign body

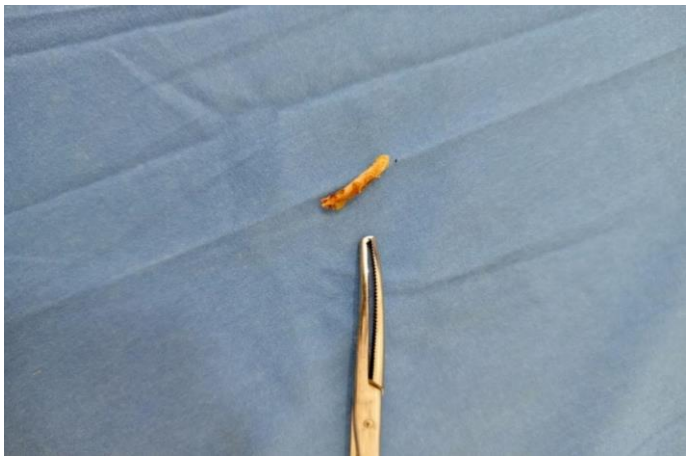

Figure 2: Extracted piece of bone

DISCUSSION

Inhalation of a foreign body is a relatively frequent accident in paediatrics, accounting for 6.4% [6].

According to DIOP and Coll [4], laryngeal dyspnoea is the most common site, accounting for 44.85% of cases, and the reason for admission is laryngeal dyspnoea in 83% of cases.

Our case involved a 7-month-old infant who suddenly presented with a penetration syndrome marked by coughing fits and episodes of suffocation.

The penetration syndrome may resolve within a few hours once the foreign body has migrated to the trachea and the stem branches. If it persists for more than a few hours, the patient is immediately referred to a laryngeal glottic or subglottotracheal location [1, 7, 8].

Some authors also confirm that the key element in the diagnosis is the onset of a penetration syndrome [9], characterised by the sudden onset in a previously healthy individual of inspiratory and expiratory bradypnoea, interspersed with fits of coqueluchoid coughing, sometimes with cyanosis, draught or wheezing. Others, on the other hand, consider that glottic entrapment is the major risk in the case of tracheal localisation, and may even be life-threatening in the short term [10].

In our case, although the child was seen by the ENT specialists 72^{H} after inhalation of the foreign body, given the notion of a penetration syndrome associated with dysphonia, the fear was that of a laryngeal foreign body.

Cervico-thoracic radiography (front and side) remains a key examination, as it can be used to confirm the diagnosis and assess the topography of the foreign body if it is radiopaque.

Most authors, such as PERIDA *et al.*, [8], recommend suspension laryngoscopy or bronchoscopy in a specialised hospital.

When the foreign body is embedded between the vocal folds, direct laryngoscopy will allow extraction using MAGILL forceps or JACKSON laryngeal forceps.

In our case, direct laryngoscopy could not be performed because of the cardiorespiratory arrest that occurred when the child was placed on the operating table.

As we understand it, this situation arose because during induction the child would have had a laryngeal spasm in the supine position, justifying the mobility of the foreign body with complete obstruction of the glottis, since the simple act of ventilating the child with a mask enabled cardiorespiratory function to be re-established and laryngoscopy to be postponed.

According to the literature, spontaneous expulsion of an inhaled foreign body is rare but not impossible. This is the case of H Benjelloun *et al.*, [11] who report three (03) cases of spontaneous expulsion of foreign bodies embedded in the right bronchial stump.

In our case, expulsion occurred spontaneously on 13th day after inhalation, preceded by coughing fits and vomiting.

CONCLUSION

Foreign bodies in the larynx are a relatively common occurrence in paediatrics. The diagnosis is based on the notion of a penetration syndrom, which requires an urgent cervico-thoracic radiograph of the front and side.

When the foreign body is radio-opaque, the diagnosis is made easily by the presence of an opacity in the laryngeal or laryngotracheal tract.

In-patient management involves direct laryngoscopy or bronchoscopy, during which the foreign body is removed using forceps. However, spontaneous expulsion is possible as long as ventilatory function remains normal.

In developed countries, advances in resuscitation and endoscopy have improved the management of patients who have inhaled foreign bodies, but in our working conditions, where the technical facilities are derisory, prevention remains the only effective means to promote.

Conflicts of Interest: The authors declare no conflicts of interest.

Contribution of the Authors

All the authors contributed to the conduct of this work and also declare that they have read and approved the final version.

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