

Case Report

Migratory Foreign Body in the Airway Manifesting as Recurrent Cardio-respiratory Arrest: A rare case report

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Abstract

Foreign body aspiration in children commonly presents with coughing, dyspnea, wheezing, cyanosis and stridor. Our case presented with cardio-respiratory arrest (CRA), and was successfully revived, but suffered recurrent CRA, and finally betel nut was retrieved from the airway. Here clinical course of the patient favours migration of foreign body leading to recurrent cardio-respiratory arrest. Foreign body migration in airway is an unusual phenomenon, and its presentation as recurrent cardio-respiratory arrest is very rare.

Keywords: Migratory foreign body, recurrent cardio-respiratory arrest

Introduction

Foreign body in the airway is an important cause of morbidity and mortality in pediatric age group and poses diagnostic as well as therapeutic challenges¹. Coughing, dyspnea, wheezing, cyanosis and stridor are the classical manifestations of foreign body aspiration. In atypical cases, it may present with aphonia, massive subcutaneous emphysema, bronchial asthma, hemoptysis and bronchiectasis, but presentation in cardiac arrest is rare^{2,3,4}.

We report a one and half years female child, who presented to us in cardio-respiratory arrest and was successfully revived. During post-resuscitation period, she again developed cardio-respiratory arrests twice on ventilator support, and every time was revived with cardio-pulmonary resuscitation (CPR). She had none of the typical features of foreign body aspiration at admission but recurrent episodes of sudden cardiac arrests on ventilator support prompted us to conduct a bronchoscopy, which revealed betel nut in the right main bronchus. Recurrent cardiac arrests per se is rare in children, and mainly results from arrhythmias either primary (mostly channelopathies) or secondary to myocardial injury or electrolyte imbalance. Migration of foreign body in the airway manifesting recurrent cardiac arrest is very rare^{5,6}.

Case

A one and half year old female child was brought to emergency department in cardio-respiratory arrest. History obtained from the mother revealed that about 15 minutes back child was sleeping comfortably, and then she noticed abnormal movements followed by unresponsiveness. On arrival child was in cardio-respiratory arrest and immediate CPR was started beginning with chest compressions. ECG revealed asystole. Return of spontaneous circulation was achieved after 2 minutes of CPR. No foreign body was visualized during endotracheal intubation. Patient was placed on ventilator support. Patient was afebrile and was not tachycardic. SpO₂ was 98 percent on FiO₂ of 30 percent. Peripheral pulses were good and blood pressure was 98/68 mm Hg without any inotropic support. She was encephalopathic with Glasgow coma scale – E2, M4 and VET. Chest rise was adequate, and bilateral air entry was equal with no added sounds. Rest of the systemic examination was normal. Investigations including arterial blood gas, blood sugar, serum electrolytes, hemogram, liver function test, renal function test and ECG did not reveal anything specific for the underlying cause. Chest Radiograph was also normal with no evidence of regional atelectasis or hyperinflation.

At 6 hours and 16 hours of admission child had 2nd and 3rd episode of cardio-respiratory arrest respectively with successful revival. Both the episodes were preceded by bouts of cough. When 24 hour SpO₂ (pulse oximeter saturation) record was reviewed it was seen that there was a sudden steep fall in SpO₂ just

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prior to cardio-respiratory arrest. Bouts of cough and sudden fall in saturation leading to cardio-respiratory arrest prompted us to evaluate for the presence of endotracheal foreign body. Subsequently, the child underwent rigid bronchoscopy and a piece of betel nut was retrieved from the right main bronchus.

After that child was successfully extubated and had no further episodes of cardio-respiratory arrest, but had developed hypoxic encephalopathy. At day 7 she was discharged on symptomatic treatment.

Discussion

Foreign body aspiration is frequently encountered in pediatric age group particularly in children less than 3 years of age because of inadequate chewing resulting from absence of molar tooth⁷. Males remain more susceptible because of their overactive nature in comparison to females. In children organic foreign bodies like nuts and seeds are more commonly encountered^{7,8}.

Majority of foreign bodies pass through the larynx and trachea and lodge in the more peripheral airways, mostly right bronchus in 40-50 % cases. These lower aspirations are more likely to be missed because of partial obstruction and lesser significant symptomatology in children. Uncommonly the aspirated foreign body may lodge in the larynx and trachea also, leading to sudden and complete airway obstruction and cardiovascular collapse, but this phenomenon known as 'cafe coronary' is more common in elderly persons⁴.

Migration of aspirated body is a rare phenomenon. Inorganic smooth materials like electric bulb and nail in the airway may be displaced by high flow generated by coughing, but is not common. Organic foreign bodies because of their irregular shape, tendency to absorb water and swell up, and induction of more mucosal inflammation, immobilize early in the airway and do not migrate^{1,9}.

In the case of our child, the foreign body was probably initially located in the more peripheral airways, leading

to mild symptoms missed by the parents. Coughing episodes on awakening might have displaced it from the peripheral airways to trachea, resulting in complete airway obstruction and ultimately cardiovascular collapse. CPR might have resulted in re-migration of foreign body in to more peripheral airways leading to better air entry and successful revival.

In non-life threatening cases of suspected foreign body, a detailed radiological evaluation including CT scan chest is required, as chest X-ray may be normal if the aspirated material is radiolucent, like in our case. But in potentially fatal situations rigid bronchoscopy should be considered as the primary diagnostic and therapeutic choice^{1,2,4}.

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