Foreign Body Aspiration and Mediastinal Mass: A Case Report

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Abstract

Foreign body aspiration (FBA) is a life-threating event in pediatric especially under 3 years of age. Chest radiography and computed tomography are the most available imaging modalities and rigid bronchoscopy is the treatment of choice. Sometimes incidental findings may be detected in the course of FBA management. In this study we report a case of 4-year-old girl who was admitted due to sudden onset of cough and cyanosis. Based on history and examination, diagnosis of foreign body aspiration was made but chest radiograph showed a round mass in the right upper hemithorax. The Foreign body was removed with Rigid bronchoscopy then the mediastinal mass was surgically removed completely. Pathological study reported a neuroblastic tumor.

Keywords

- Foreign body aspiration
- Pediatric
- Mediastinal mass

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Introduction

The foreign body aspiration (FBA) is a common cause of mortality and morbidity in pediatric population especially younger than 3 years old. [1]

Mostly there is a history of choking episode accompanied by clinical symptom such as coughing, wheezing, and difficulty in breathing, which are present in less than 40% of cases.[2] A history of foreign body aspiration is important for diagnostic approaches, as in some cases there are no abnormality in chest examination and patients are asymptomatic .[3] Chest radiographic findings in FBA include atelectasis , pneumothorax and air trapping but could be normal in 35% of cases .The right bronchus is wider and shorter and more straight than the left bronchus. Therefore, the foreign body gets struck more commonly in the right bronchus .[4]The treatment of choice for FBA is removal by rigid bronchoscopy under general anesthesia .[5] In this case report, we discuss a patient who had an interesting finding accompanied by FBA. Her admission led to an incidental diagnosis and timely treatment.

Case Report:

A 4-year-old female without past medical history was admitted at Tabriz Children Hospital, Pediatric pulmonary disease ward. She was suddenly symptomatic after playing with the other children. She had intermittent cough and cyanosis. Her blood oxygen saturation was reduced to 90%. In physical examination she had mild tachypnea and focal wheezing in auscultation in right upper lobe. There were no asymmetric chest wall expansion and no decreased lung sounds. Oxygen supplementation by reservoir mask were used, pulse oximetry and cardiac monitoring were performed. All patient's lab tests were in the normal rang during hospitalization. In posterior-anterior (PA) view chest radiography there was no significant air trapping in right lung. Round well-defined opacity in upper zone of right lung was seen **(Figure 1).** This finding was not related to FBA and subsequent lung collapse. Then patient underwent rigid bronchoscopy with general anesthesia, so the rosary bead was removed from her right main bronchus. After the patient stabilized, spiral chest computed tomography (CT) scan was obtained **(Figure 2).**

According to the pediatric surgery consultation, the patient was prepared for Excisional biopsy. The surgery was performed and the mass was removed completely without any complication **(Figure 3).** She was observed for 48hrs in pediatric intensive care unit (PICU) and she was discharged from hospital on the 4th post–operative day in good general condition. After ten days, she was well without any signs and symptoms of respiratory system. Her pathology report confirmed the Ganglioneuroma (GN).

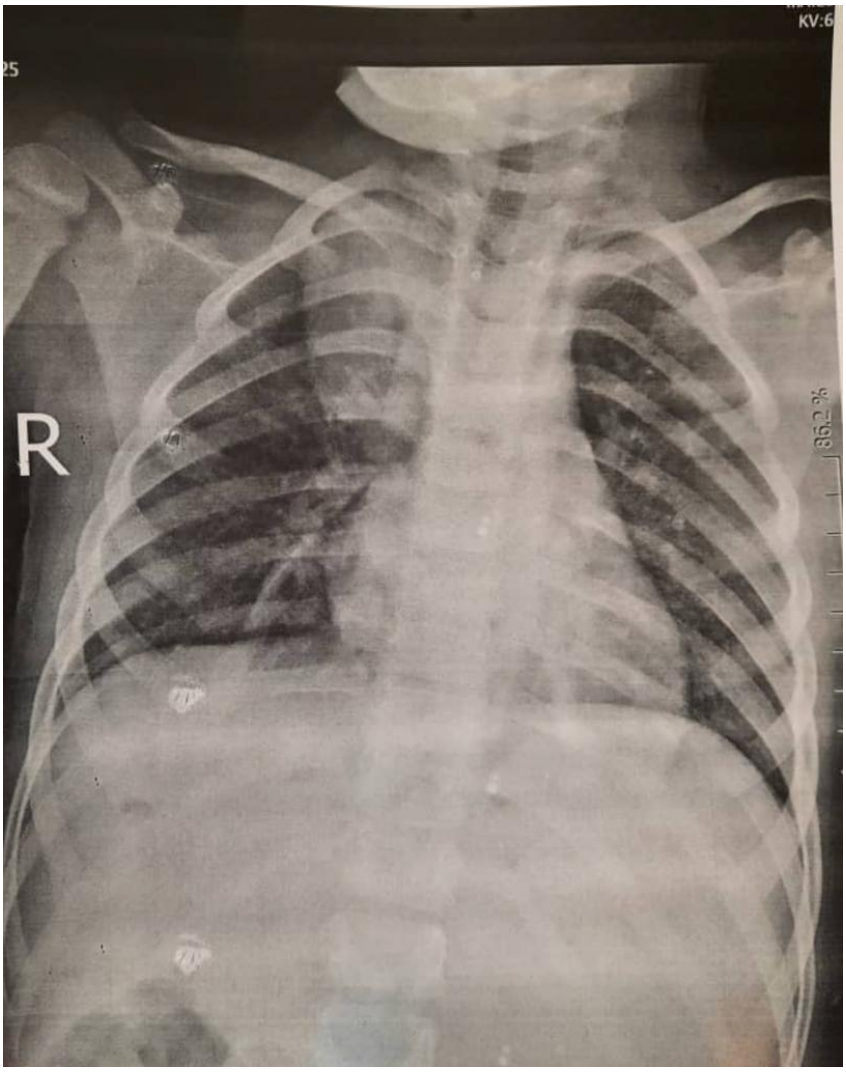

Figure 1

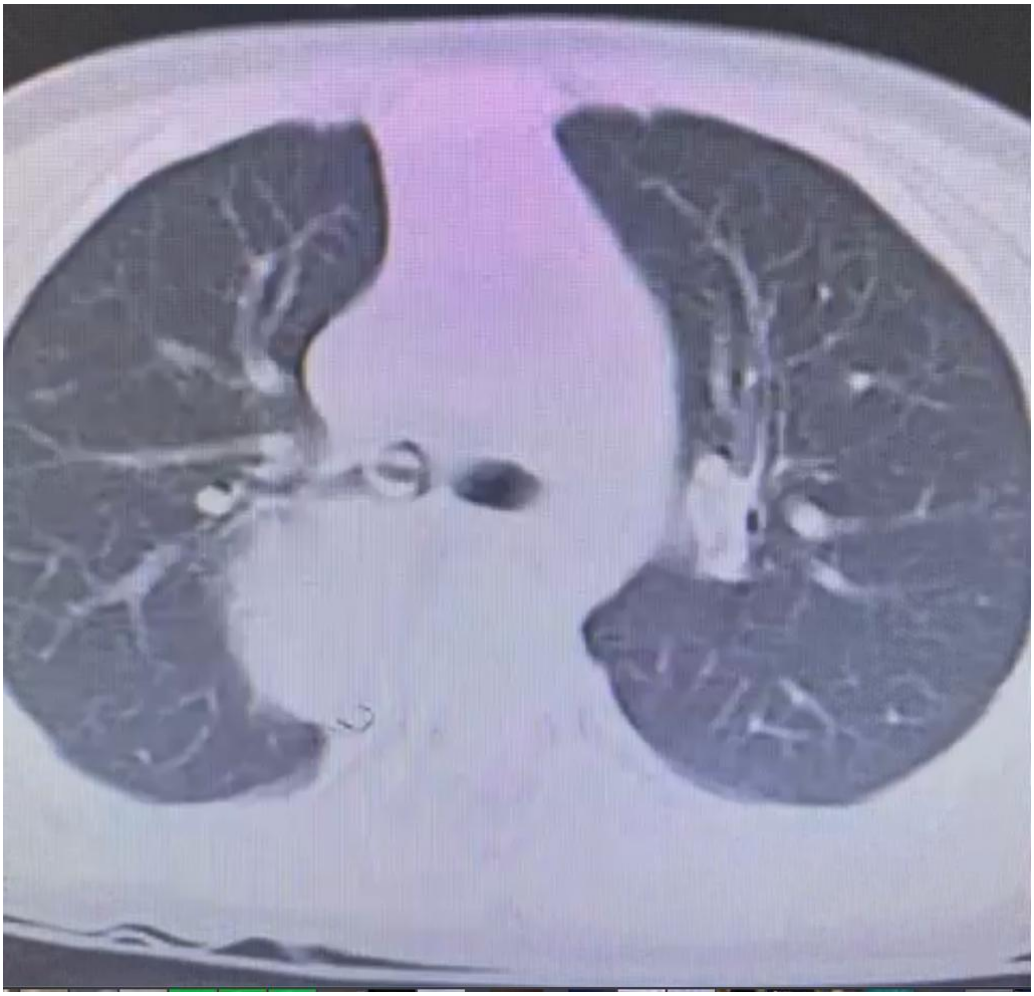

Figure 2

Figure 3

Discussion

Pediatrics foreign body aspiration is an emergency condition that contribute to anoxic brain injuries and death. FBA commonly occur between 1 and 3 years old .[6] Flexible bronchoscopy is the gold standard technique for FBA management, but recent studies suggest the computed tomography (CT) scan to avoid unnecessary bronchoscopy [7,8,9].

So, the chance of incidental findings increases in this way. Our case presented with chief complaint of choking, cyanosis after FBA and her chest radiography showed opacity in right upper hemithorax, so more advance imaging study and surgical management were done. Finally, pathological study reported Ganglioneuroma.

Posterior mediastinal masses in children usually are neurogenic tumors by varying degrees of differentiation such as neuroblastoma, ganglioneuroblastoma and less than 6% of these tumors are GN.[10,11,12] GN is a rare benign well-differentiated tumor arising from neural crest.[13, 14] Because of slow and steady growth of GN most of the patients are asymptomatic and median age of diagnosis of these patients is between 5.5 and 10 years old and female predominance is observed.[15,16] The majority of symptoms are related to compression of mediastinal structures and airways.[17] Our case symptoms were due to FBA because the symptoms are vanished after foreign body removal. CT scan and magnetic resonance imaging (MRI) are the best imaging modalities for the diagnosis but pathological study is the gold standard for final diagnosis. Histological characteristics are large ganglion cell proliferated with eosinophilic cytoplasm and large clear nucleolus without atypia in a loose fibrillar background.[18] Surgical resection is the best treatment of GN and after that the prognosis is good. Long term follow-up with imaging study recommends to control any relapse and to prevent any malignant differentiation.

Conclusion

In conclusion FBA management as a life-threatening medical emergency condition must be done with imaging modalities and interventional techniques. However, any incidental findings should be considered, even if not relevant to the patient symptoms. Some of these incidentalomas can be transformed to malignant or morbid entities during long life.

Ethical Consideration

This study was reviewed and approved by the ethics committee of Tabriz university of medical sciences (ethics approval refence number: IR.TBZMED.REC.1400.670)

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Conflict of interests

There is no conflict of interest

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