

Difficult Intubation Due to Vocal Cord Granuloma: A Case Report

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Abstract

Introduction: Vocal cord granuloma (VCG)s are the benign laryngeal lesions. Common causes in adult are prolonged intubation or irritation as well as injury to vocal cord. In term of airway management, VCGs may lead to difficult intubation. We report a case scenario of vocal cord granuloma during rapid sequence induction.

Case report: We present a case of difficult airway intubation in a 4-month-old baby girl, with a diagnosis of recurrent diaphragmatic hernia. She was intubated for impending respiratory collapse prior to operation. Successful intubation with

Introduction

Vocal cordgranuloma (VCG)s are benign laryngeal lesions. Common causes in adults are prolonged intubation or irritation as well as injury to vocal cord.VCGs are rarely reported in children as few require prolonged intubation and increased awareness to use smaller endotracheal tubes and conservative endotracheal cuff pressures compared

smaller ETT size 3Fr with stylet at 3rd attempts by pediatric intensivist. Direct laryngoscope was done post operation. Finding was granuloma noted over the both posterior commissures.

Conclusion: In our case, excision of the granuloma was done. Child was extubated 2 days after operation and discharge well later on. Difficult airway should be anticipated in this patient in view of the history of intubation and laryngoesophageal reflux.

Keywords: Vocal cord granuloma; Difficult airway

to adults. However, in this Covid 19 era, there will be increasing case of VCG in children as there are more children with prolonged intubation due to severe Covid infection. In terms of airway management, VCGs may lead to difficult intubation. We report a case scenario of vocal cord granuloma during rapid sequence induction.

Case Presentation

A 4-month-old baby girl, with a background history of repaired congenital right diaphragmatic hernia, was brought to the district hospital by her parent with the main concern of rapid breathing. She had a cough and fever before the symptom. She was diagnosed with acute bronchiolitis and admitted to the ward with an oxygen supplement. In the ward, upon lung auscultation noted reduced air entry and bowel sound over the right lung. Chest X-ray showed right thorax occupied by bowel loops. She had recurrent right diaphragmatic hernia. Subsequently, the child was transferred to a tertiary hospital for surgical intervention. Upon arrival at the tertiary hospital, the child had worsening respiratory distress. She was cyanosed with deep chest recession. She required a high flow nasal cannula with flow of 2 L/kg/min for respiratory support. Further examination and bedside ultrasound suggest worsening of the diaphragmatic hernia. Surgery was planned for the next day.

However, the child's condition deteriorated before surgery. She was intubated for impending respiratory collapse. Difficulty was encountered during intubation with ETT size 4Fr by a senior medical officer as the vocal cord was "tight". Successful intubation with smaller ETT size 3Fr with stylet at 3rd attempts by the pediatric intensivist. Subsequently, child developed hypotensive episodes and required single inotrope support. The child was sent to the operation theatre for diaphragmatic hernia repair. Because of the difficult intubation, the child was referred to ENT team for airway assessment. A direct laryngoscope was done. The finding was granuloma noted over both posterior commissures (left > right), only involving posterior 1/3rd of vocal cord. Granuloma appears broad-based. Excision of the granuloma was done. The child was extubated 2 days after the operation and discharged well later on.

Discussion

Vocal cord granulomas, also known as vocal fold granulomas, are non-cancerous mass grow on the vocal fold. The most common causes include endotracheal intubation, laryngopharyngeal reflux and idiopathic. VCGs are more common in adults than in pediatric age group [1]. In our case, the 4-month-old baby had no sign and symptom of vocal cord granuloma. However, she was at risk of develop VCG in view of the history of intubation for first operation of diaphragmatic hernia and possibility of laryngoesophageal reflux due to the hernia. Intubation of the patient with VCGs can be difficult in view of the potential narrowing of the glottis and airway obstruction. A case regarding intubation of laryngeal granuloma was reported in 2014. The granuloma was lodging in the subglottic area during intubation. Manipulation of ETT tube to reposition the granuloma to supraglottic area and surgical excision of the granuloma was done [2]. In our case, this VCG causes difficult airway in patient and lead to hypoxia and hypotension. During intubation, vocal cord was narrow and unable to fix in ETT tube with size 4Fr. Smaller ETT tube was used for intubation. There is no best treatment for VCGs. Pharmacological treatment includes corticosteroids, proton pump inhibitors, nonhormonal anti-inflammatory drugs, and botulinum toxin. This treatment is usually slow and requires changing habits and dietary discipline. Surgical treatment is fast, but need general anaesthesia which had higher complication rate [3].

Conclusion

We report a case of difficult airway intubation for a 4-month-old patient who has been diagnosed with vocal cord granuloma. The difficult airway should be anticipated in this patient in view of the history of intubation and laryngoesophageal reflux.

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