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CLINICAL INFORMATION

Paratracheal cyst rupture: a differential diagnosis for tracheal rupture



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PALAVRAS-CHAVE

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Abstract Tracheobronchial rupture is a rare but potentially life-threatening complication commonly caused by neck and chest trauma. Iatrogenic tracheobronchial rupture can be caused by intubation, tracheostomy, bronchoscopy but also linked to pre-existing primary diseases. Paratracheal air cysts, infrequently described in literature, seem to be associated with obstructive lung disease and weaknesses in right posterior lateral wall of the trachea. We report a case of a paratracheal air cyst rupture in a previous healthy patient.

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Ruptura de cisto paratraqueal: um diagnóstico diferencial para ruptura traqueal

Resumo A ruptura traqueobrônquica (RTB) é uma complicação rara, mas potencialmente fatal comumente causada por trauma de pescoço e tórax. A RTB iatrogênica pode ser causada por intubação, traqueostomia, broncoscopia, mas também pode estar relacionada a doenças primárias pré-existentes. Os cistos aéreos paratraqueais, raramente descritos na literatura, parecem estar associados à doença pulmonar obstrutiva e fraqueza da parede posterolateral direita da traqueia. Relatamos o caso de uma ruptura de cisto aéreo paratraqueal em paciente previamente saudável.

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Introduction

Tracheobronchial rupture (TBR) is a rare but potentially life-threatening complication commonly found in neck and chest trauma, but also linked to pre-existing primary pulmonary

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Figure 1 Paratracheal cyst rupture.

diseases.¹ Orotracheal intubation, tracheostomy and bronchoscopy are also possible iatrogenic causes.²

Paratracheal air cysts are poorly described in literature and only found in small series with few patients or isolated cases in radiologic literature.

Patient gave consent to publication of the details.

Case description

We present a case report of a tracheal rupture in a patient with clinical signs and CT findings of a paratracheal air cyst (Figs. 1 and 2).

A 55-year-old man, ASA physical status II, underwent elective transoral laser microsurgery for Reincke's edema treatment. He had no diagnosis of pulmonary disease besides chronic tabagism. No signs of difficult intubation.

After intravenous anesthesia induction (remifentanyl perfusion, propofol and rocuronium), the patient was intubated with 5.0 mm Laser-Flex® tracheal tube and registered a Cormarck-Lehane laryngoscopy grade II. Immediately after intubation, ETCO₂ was not detected and a desaturation occurred, which justified replacement of the tube, although visually there was no doubt of tracheal intubation. Second attempt was tried and the same occurred. By the third attempt, performed with the same tube, intubation



Figure 2 Paratracheal cyst rupture 1.

was successfully confirmed by capnography and auscultation. About ten minutes later, peak inspiratory pressure increased to 39 cm H₂O and ETCO₂ to 53 mmHg, SpO₂ dropped to 89% and pulmonary auscultation revealed audible rhonchi bilaterally. Hydrocortisone (100 mg) and aminophyllin (240 mg) were administered and inspired fraction of O₂ was increased to 70%. Parameters returned to normal in 5 min.

After 60 min of surgery, extubation was performed without complications. On the second postoperative day, patient developed severe cervical and thoracic subcutaneous emphysema without respiratory insufficiency.

CT revealed a pneumomediastinum with a posterolateral tracheal focal discontinuity defect with 1 mm long, located 2.5 cm above carina which opened in inspiration with a high suspicion of being a tracheal cyst rupture, confirmed by cardiothoracic surgeon.

Discussion

Paratracheal air cysts can be present in approximately 3.7% of the population.³ Some reports suggest an association with obstructive lung disease and emphysema, due to weakness in the right lateral posterior wall of trachea, at the thoracic inlet level, because of increased expiratory pressures in these type of patients,³ but there are also studies that did not find any relationship between them.⁴

The term paratracheal cyst is very unspecific for an air collection. Apparently they are nothing more than tracheal diverticula, lined by ciliated columnar epithelia, some of them with one or multiple narrow connections to the trachea.³ Probably because of the increased resolution in CT scanning, the incidence of communications with trachea varies from 8% to 35%.^{3,4} Tracheal right-sided paratracheal air cysts may be unilocular or multilocular.

Diagnosis of paratracheal air cyst rupture is based on high clinical suspicion, thanks to the appearance of suggestive clinical signs and symptoms like subcutaneous emphysema, respiratory insufficiency, pneumothorax and hemoptysis.

Treatment of choice has been conservative or surgical repair, depending on the lesion size and location. Nonsurgical treatment is advisable in small (<2 cm) and uncomplicated cases.⁵

With this case report, we intend to refer paratracheal cysts as a possible cause for tracheal rupture, infrequently described in literature but not so uncommon in population.

Conflicts of interest

The authors declare no conflicts of interest.

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