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CLINICAL INFORMATION

Airway management in Ludwig's angina – a challenge: case report

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KEYWORDS

Airways;
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Abstract

Background: Ludwig's angina (LA) is an infection of the submandibular space, first described by Wilhelm Frederick von Ludwig in 1836. It represents an entity difficult to manage due to the rapid progression and difficulty in maintaining airway patency, a major challenge in medical practice, resulting in asphyxia and death in 8–10% of patients.

Objective: Describe a case of a patient with Ludwig's angina undergoing surgery, with emphasis on airway management, in addition to reviewing the articles published in the literature on this topic.

Case report: Male patient, 21 years, drug addict, admitted by the emergency department and diagnosed with LA. Difficult airway was identified during the anesthetic examination. In additional tests, significant deviation from the tracheal axis was seen. Undergoing bilateral thoracoscopic pleural drainage, we opted for airway management through tracheal intubation using fiberoptic bronchoscopy, and balanced general anesthesia was proposed. There were no complications during the surgical-anesthetic act. After the procedure, the patient remained intubated and mechanically ventilated in the intensive care unit.

Conclusions: Airway management in patients with Ludwig's angina remains challenging. The choice of the safest technique should be based on clinical signs, technical conditions available, and the urgent need to preserve the patient's life.

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PALAVRAS-CHAVE

Vias aéreas;
Angina de Ludwig;
Mediastinite

Manejo da via aérea na angina de Ludwig – um desafio: relato de caso

Resumo

Justificativa: A angina de Ludwig (AL) constitui uma infecção do espaço submandibular, primeiramente descrita por Wilhelm Frederick von Ludwig em 1836. Representa uma entidade de difícil manejo devido à rápida progressão e dificuldade na manutenção da via aérea pérvia, um importante desafio na prática médica, que culmina em asfixia e morte em 8-10% dos pacientes.

Objetivo: Descrever o caso clínico de um paciente com angina de Ludwig submetido a procedimento cirúrgico, com ênfase no manejo da via aérea, além de revisar os artigos disponíveis na literatura médica a respeito desse tema.

Relato de caso: Paciente masculino, 21 anos, drogadito, admitido pelo pronto socorro e diagnosticado com AL. Na propedêutica anestésica constatou-se via aérea difícil. Nos exames complementares foi possível observar importante desvio do eixo traqueal. Submetido à toracoscopia bilateral com drenagem pleural, optou-se pelo manejo da via aérea através de intubação nasotraqueal por fibrobroncoscopia e foi proposta anestesia geral balanceada. Não houve intercorrência durante o ato cirúrgico-anestésico. Após procedimento paciente permaneceu intubado e em ventilação mecânica na Unidade de Terapia Intensiva.

Conclusões: O manejo da via aérea nos pacientes com angina de Ludwig permanece desafiador. A escolha da técnica mais segura deve ser embasada no quadro clínico, nas condições técnicas disponíveis e na necessidade premente de preservação da vida do paciente.

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Introduction

Ludwig's angina (LA) is an infection of the submandibular space, first described by Wilhelm Frederick von Ludwig in 1836.¹ The presence of dental caries, oral trauma, immunosuppression, and continuous use of psychoactive substances, such as alcohol and drug abuse, are predisposing factors for the onset of this infection.² The infection progression may cause the involvement of the retropharyngeal space delimited by the deep cervical fascia, which starts at the skull base and extends to the upper mediastinum.³

It is an entity difficult to manage due to the rapid progression and difficulty in maintaining airway patency, resulting in asphyxiation and death in 8–10% of patients.⁴

The challenge of establishing a patent airway in high-risk patients motivated this case report.

Case report

Male patient, white, 21 years old, cocaine and crack user, was admitted to the emergency room with dyspnea and severe neck and jaw pain on the right, which worsened while attempting to open the mouth. Physical examination showed septic teeth, swallowing pain, chest pain, edema, hyperemia and subcutaneous emphysema in the anterior cervical region and mandibular on the right, inspiratory stridor, and respiratory effort. With fever (axillary temperature 38°C), blood pressure 80 × 45 mmHg, HR 113 bpm, RR 25 breaths min⁻¹, and SpO₂ 88% in room air. Computed tomography of the neck and chest showed impairment of mediastinal region in which there was an important amount of gas dissecting the muscle and fat planes, especially on the right,

and determining a significant deviation from the tracheal axis to the contralateral side. It also showed gas dissecting the posterior space of the nasopharynx and extending to the upper mediastinum. The vascular structures were preserved. After the diagnosis of Ludwig's angina, antibiotic therapy was started with ampicillin and gentamicin at recommended doses and bilateral thoracoscopy with pleural drainage was proposed.

The patient was monitored with electrocardiogram (DII and V5), pulse oximetry, and noninvasive blood pressure. Venous puncture was performed with 18G venous catheter.

Airway evaluation showed the impossibility of orotracheal intubation due to the patient's mouth opening difficulty (<1 cm), Mallampati score 4, and immobility of the cervical region because of pain and swelling in right mandible. We opted for nasotracheal intubation using fiberoptic bronchoscopy.

Anesthetic sedation was performed with midazolam (2 mg) associated with fentanyl (100 mcg), both by intravenous route. During the procedure, the patient received O₂ via nasal catheter (3 L min⁻¹).

There were no complications during fiberoptic intubation. After cuff inflation and confirmation of intubation by capnography, propofol (150 mg), fentanyl (350 mcg), and rocuronium (35 mg) were infused. Controlled mechanical ventilation was started, with tidal volume of 600 mL, 12 ventilation cycles min⁻¹, with a inhalation/exhalation ratio of 1:2 and PEEP of 5 cm H₂O. Capnography curve was maintained ranging from 35–40 mmHg.

It was used a FiO₂ of 60%, which was sufficient to establish a hemoglobin saturation in 99–100%. We opted for using the inhaled anesthetic sevoflurane in 2% concentration established with calibrated vaporizer during the intraoperative

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