CASE REPORT: ANESTHESIA FOR DENTAL PROCEDURE IN A PATIENT WITH SCLERODERMA AND DIFFICULT AIRWAY

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ABSTRACT

Scleroderma is a chronic autoimmune rheumatic disease that causes progressive sclerosis of the connective tissue and microcirculation, evolving variable levels of tissue fibrosis, which may represent a challenge in procedures that require an advanced airway due to fibrosis of the perioral tissues with limited mouth opening and cervical extension. This article presents the case of a male patient with predictors of difficult intubation due to the physical alterations of systemic scleroderma who underwent multiple tooth extractions under general anesthesia with nasotracheal intubation with fiberscope after intratracheal anesthesia in the awake patient. The intraoperative period was uneventful, and the patient was extubated after effective awakening. The anesthesiologist uses assessments of several clinical variables to predict an airway that is difficult to manage, and the success of the procedure is linked to a thorough evaluation of the patient and the planning of adequate strategies.

KEYWORDS: SYSTEMIC SCLERODERMA; AIRWAY MANAGEMENT; INTUBATION; ORAL SURGICAL PROCEDURES; ENDOTRACHEAL ANESTHESIA

INTRODUCTION

Difficult airway (DA) is defined as a clinical situation in which an experienced anesthetist has difficulty with upper airway ventilation with a face mask, difficulty with endotracheal intubation, or both. The diagnosis is multifactorial, as it depends on the complex interaction between factors intrinsic to the patient, their clinical situation and the level of professional skills.[1]

The DA is responsible for a large part of the complications that interfere with morbidity and mortality linked to anesthesia. The patient's prior assessment, clinical history, semiological data and physical examination provide essential information to predict difficulties and choose the appropriate approach to ensure orotracheal intubation.[2]

One of the main causes for difficult intubation is difficult laryngoscopy, that is, the inability to fully visualize the glottis during direct laryngoscopy, after multiple attempts. The success of the standard intubation technique depends on the ability to manipulate different structures (cervical spine, temporomandibular joint, tissues surrounding the airway). Any condition that alters the constitution or mobility of these structures may represent a level of difficulty in handling.[3]

The risk factors that are proven to be related to the DA and that require early attention are male sex, age over 40-59 years, obesity, diabetes, acromegaly, Obstructive Sleep Apnea Syndrome (OSAS) or rheumatological disease. [4]

Scleroderma is a chronic autoimmune rheumatological disease that causes progressive sclerosis of the connective tissue and microcirculation. It has inflammatory and immunological action, marked by the presence of autoantibodies, and is characterized by variable degrees of tissue fibrosis and small vessel vasculopathy.[5]

Several organs can be affected with an increase in collagen and extracellular matrix proteins, especially the skin, lungs, heart, kidneys and gastrointestinal tract.6 This disease can affect oral and perioral tissues with limited chewing function, skin fibrosis, reduced mouth opening, among other factors that, when combined, can make access to the airway difficult.[5]

Below is a case report of a patient with scleroderma and predictors of difficult intubation, who underwent general anesthesia for dental treatment (multiple tooth extractions). The following report aims to explore possible challenges in the anesthetic procedure, focusing on the possibility of difficult access to the airway in patients with scleroderma.

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CASE REPORT

Male patient, 54 years old, 72 kg, physical status ASA II due to scleroderma, gastroesophageal reflux disease (GERD) and dyslipidemia, controlled with the use of azathioprine, vitamin E, simvastatin, sertraline, formoterol, budesonide, omeprazole and domperidone. In the pre-anesthetic evaluation, the patient presented limited mouth opening of 3 cm (figure 01), reduced cervical mobility (figure 02), Malampatti grade III (figure 03), cervical circumference of 40 cm and positive prayer sign (figure 04), pachydermic skin, normal laboratory tests and low cardiovascular risk. Below are images of the patient's airway assessment.

Figure 01 – Maximum mouth opening

Figura 02 - Paciente em extensão cervical máxima em decúbito dorsal horizontal

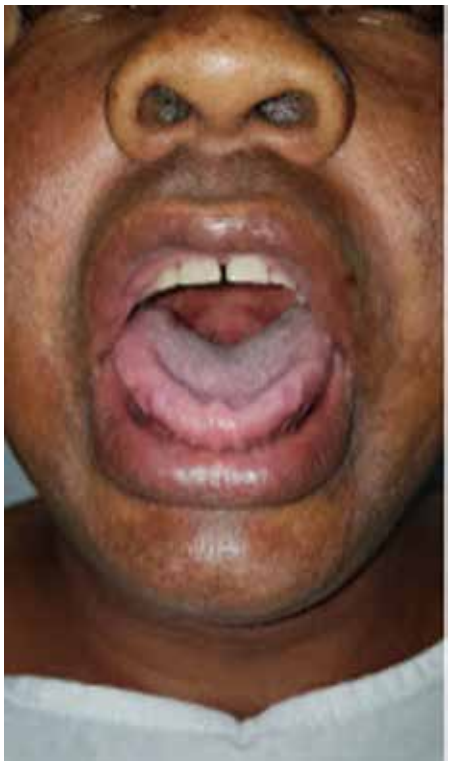

Figure 03 – Malampatti III

Figure 04 - Positive prayer sign

DISCUSSION

Anesthesiologists use assessments of several clinical variables to predict the difficulty of orotracheal intubation in a patient. However, no isolated clinical measure or test performed at the bedside is capable of fully excluding the possibility of a difficult airway and the assessment of a set of criteria presents greater sensitivity than the evaluation of a single isolated criterion. According to the systematic review by Detsky et al, a previous history of difficult intubation was the biggest risk factor for predicting future difficult intubation and the best bedside test that can be performed alone to identify a difficult airway is the upperlip bite test (class greater than or equal to 3 with specificity of 0.96 for difficult intubations). Other tests such as reduced mobility, Malampatti greater than or equal to 3, mouth opening less than 2.5 cm and positive prayer sign were moderately accurate in predicting a difficult intubation. [7]

Scleroderma may be related to worse scores in clinical assessments of difficult airway predictors because it is an autoimmune disease that affects several organs, including the skin and subcutaneous tissue. There are two courses of the disease: diffuse cutaneous scleroderma, which is characterized by the rapid development of symmetrical skin thickening of the proximal and distal parts of the limbs, face and trunk; and limited cutaneous scleroderma, defined by symmetric thickening of the skin limited to the distal parts of the limbs and face. According to the literature, small airway dysfunction is more common in patients with limited cutaneous sclerosis compared to the more severe diffuse cutaneous sclerosis.[8,9]

Airway management can be a problem in patients with scleroderma. Facial involvement includes a smooth, wrinkle-free forehead, tight skin over the nose, shrinkage of the tissue around the mouth and perioral radial grooves, thinning of the lips and microstomia, the nose takes on a pinched appearance, the affected skin becomes hardened, smooth and adhered to the underlying structures, often with hyper- and hypopigmentation, hairless, dry and thick. The limitation of mouth opening is probably related to fibrosis of the temporomandibular joint, consequently leading to a worse Malampatt score. Fibrotic changes in the neck can cause limited cervical extension, which is an indicator of difficulty in mask ventilation and the need for fiberoptic bronchoscopy-assisted intubation. Therefore, patients with scleroderma, especially in advanced stages, have a high probability of having a difficult airway. [8.9]

In the literature, few studies address specific guidelines regarding the perioperative care of patients with scleroderma, but attention must be paid to its peculiarities, which extend beyond the predictors of a difficult airway. Care must be taken when approaching the airway of patients with scleroderma, as the risk of aspiration is higher than that of the general population. This is due to the fact that 90% of patients with scleroderma have GERD and other gastrointestinal dysmotility disorders. Gastric involvement and hypotonic tone of the lower esophageal sphincter result in impaired emptying and food stasis. There is a high prevalence of esophageal dilation and may be related to an increased risk of centrilobular fibrosis of the lung. Therefore, pre-operative preventive measures must be adopted, such as the administration of antihistamines (H2) and, when appropriate, pre-operative nasogastric aspiration. This recommendation is particularly strong, as aspiration events have an independent association with risk of death in hospitalized patients with sclerosis. The use of a nasogastric tube must be indicated with caution, as it further increases the risk of esophageal perforation, due to the high incidence of esophageal stenosis. [9.10]

Recognizing the risk of difficult mask ventilation and endotracheal intubation, rapid sequence intubation may not be advisable, and the risk of aspiration should be considered before induction of anesthesia. Furthermore, correct positioning and padding of bone ends must be carried out due to the potential risk for peripheral neuropathies.9

There are reports of incidental findings of difficult intravenous access due to skin thickening. Intravenous access can pose another challenge to the anesthetist, and a low threshold is prudent to guide the insertion of the vascular catheter using ultrasound.[9]

Reconhecidas as particularidades do paciente, deve ser realizado o planejamento do ato anestésico, desde a monitorização, punção do acesso venoso, cuidados com a via aérea, o intra e pós operatórios. Deve-se ter uma estratégia pré-formulada para o manejo da via aérea difícil prevista, para garantir um desfecho favorável e a segurança do ato anestésico. No caso clínico em questão, foi optado por intubação com o paciente acordado devido a suspeita de intubação difícil, ventilação difícil (máscara facial/via aérea supraglótica), e aumento do risco de aspiração, seguindo as diretrizes de prática da Sociedade Americana de Anestesiologistas para o manejo da via aérea difícil.[11]

Once the patient's particularities are recognized, planning of the anesthetic procedure must be carried out, from monitoring, venous access puncture, airway care, intra and post-operative care. There must be a pre-formulated strategy for managing the predicted difficult airway, to ensure a favorable outcome and the safety of the anesthetic procedure. In the clinical case in question, intubation was chosen with the patient awake due to suspicion of difficult intubation, difficult ventilation (face mask/supraglottic airway), and increased risk of aspiration, following the practice guidelines of the American Society of Anesthesiologists for difficult airway management.[11]

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