

Oral manifestations and management of toxic epidermal necrolysis in an intensive care unit: case report

Manifestações orais e manejo odontológico da necrólise epidérmica tóxica em unidade de terapia intensiva: relato de caso

Manifestaciones orales y manejo dental de la necrólisis epidérmica tóxica en una unidad de cuidados intensivos: reporte de caso

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Abstract

Toxic epidermal necrolysis (TEN) is a mucocutaneous disorder characterized by the detachment of epidermal and mucous tissues and areas of necrosis, resulting from hypersensitivity reactions to different drugs. We report a clinical case of a 19-year-old male patient diagnosed with TEN, with 90% involvement of the body surface and severe oral involvement. The patient was monitored by dentists from the multidisciplinary team of an intensive care unit, where adjuvant treatment was performed through photobiomodulation to control pain and regenerate the oral mucosa. The case represents the importance of early performance in oral TEN injuries and the role of the multidisciplinary team for comprehensive treatment.

Keywords: Toxic epidermal necrolysis; Drug hypersensitivity; Intensive care unit; Oral manifestations; Photobiomodulation; Wound healing.

Resumo

A Necrólise epidérmica tóxica (NET) é uma desordem muco-cutânea caracterizada pelo descolamento de tecidos epidérmicos e mucosos e áreas de necrose, decorrentes de reações de hipersensibilidade a distintos fármacos. A incidência é de 1 a 2 casos por milhão, possui alta taxa de mortalidade e requer cuidados multidisciplinares. As manifestações bucais são erosões, bolhas e ulcerações extremamente dolorosas, com grande potencial de infecção. Relatamos um caso clínico de paciente do sexo masculino, 19 anos, diagnosticado com NET, com acometimento de 90% da superfície corpórea e envolvimento oral grave. O paciente recebeu acompanhamento pela equipe de odontologia inserida na equipe multidisciplinar de uma unidade de terapia intensiva, onde foi realizado tratamento adjuvante através da fotobiomodulação para controle de dor e regeneração da mucosa oral, além de protocolos de higiene oral e hidratação constante. O caso representa a importância da avaliação e atuação precoce nas lesões orais de NET e o papel fundamental da equipe multidisciplinar para um tratamento integral.

Palavras-chave: Necrólise epidérmica tóxica; Hipersensibilidade a medicamentos; Unidade de terapia intensiva; Manifestações orais; Fotobiomodulação; Cicatrização de feridas.

Resumen

La necrólisis epidérmica tóxica (NET) es un trastorno mucocutáneo caracterizado por desprendimiento de tejidos epidérmicos y mucosos y áreas de necrosis, como resultado de reacciones de hipersensibilidad a diferentes fármacos. La incidencia es de 1 a 2 casos por millón, tiene una alta tasa de mortalidad y requiere atención multidisciplinaria. Las manifestaciones bucales son erosiones, ampollas y ulceraciones extremadamente dolorosas, con gran potencial infeccioso. Presentamos el caso clínico de un paciente masculino de 19 años diagnosticado de NET, con afectación del 90% de la superficie corporal y afectación oral grave. El paciente fue monitoreado por el equipo odontológico incluido en el equipo multidisciplinario de una unidad de cuidados intensivos, donde se realizó tratamiento adyuvante mediante fotobiomodulación para el control del dolor y la regeneración de la mucosa bucal, además de protocolos de higiene bucal e hidratación constante. El caso representa la importancia de la evaluación y actuación precoces en las lesiones bucales de la NET y el papel fundamental del equipo multidisciplinario para el tratamiento integral.

Palabras clave: Necrólisis epidérmica tóxica; Hipersensibilidad a fármacos; Unidad de cuidados intensivos; Manifestaciones orales; Fotobiomodulación; Cicatrización de heridas.

1. Introduction

Toxic epidermal necrolysis (TEN) is a rare and serious condition, characterized by an exacerbated mucocutaneous reaction to certain medications or due to its metabolites, causing the detachment of epidermal and mucous tissues and extensive areas of necrosis (Chang et al., 2020). In general, the drugs most commonly reported in hypersensitivity reactions are aromatic anticonvulsants, sulfonamides, allopurinol, non-steroidal anti-inflammatory drugs and antiretrovirals. (Lin et al., 2020).

With an incidence of one to two cases per million patients, it is considered uncommon and has a high rate of morbidity and mortality (Papp et al., 2018), in addition, its treatment is considered complex and requires a multidisciplinary approach to provide a comprehensive approach to the patient (Cabañas Weisz et al., 2020).

In the oral mucosa, painful ulcerations and erosions are observed in 70 to 100% of cases and tend to take longer to heal compared to skin changes (Schwartz et al., 2013). Thus, there is a need for therapies to support conventional medical treatment, such as photobiomodulation of oral mucous membranes, which has analgesic and healing effects (Simões et al., 2011).

In this context, we report a case of TEN with severe oral involvement that received dental care in the intensive care unit (ICU) of the Hospital das Clínicas, Medical School, University of SP (HCFMUSP)

2. Methodology

Through the study of this case report, a literature review was carried out using descriptive and observational methods, to better analyze what was presented and its correlations with more recent scientific data. For the documentation of the case and collection of information, a free and informed consent form was signed after explaining the rules applicable to the patient involved. The case study respected the ethical principles according to the Declaration of Helsinki, as well as followed the methods of qualitative discussion with regard to the research of the scientific community (Pereira et al., 2018).

3. Case Report

Male patient, 19 years old, with systemic lupus erythematosus, epilepsy and ganglionar tuberculosis. He was admitted to the ICU with a rash, blisters and epidermal detachment in the thoracoabdominal, cervical, face, lower and upper limbs regions, with more than 90% of the affected body surface, which was diagnosed as TEN. According to the medical history, the patient used phenobarbital, which was associated with the induction of the condition (Figure 1A).

During hospitalization, an integrated approach was carried out among several professionals, including intensive care doctors and dermatologists, nurses, physiotherapists, nutritionists, speech therapists, psychologists and dentists. The patient

was treated with systemic corticosteroids and received management in relation to analgesia, dermatological care and comprehensive rehabilitation.

In the dental evaluation, it was possible to observe ulcerated, erosive and bleeding lesions affecting the entire oral mucosa (lips, bilateral buccal mucosa, tongue and hard palate) and the presence of a fixed upper and lower orthodontic appliance (Figure 1B). Initially, the first attempt was made to remove the orthodontic appliance to protect the mucous membranes, but at that moment, the patient was under orotracheal intubation, with bandages covering the face, with extensive lesions by the mucosa and lips, painful symptoms accentuated by manipulation and limitation of mouth opening, thus making access to the posterior part of the cavity difficult. We opted to use a photobiomodulation protocol to accelerate the healing process of the lesions and after a week the orthodontic appliance was removed without causing additional trauma. In this way, it was possible to prevent the appearance of new injuries caused by trauma and friction of the device, provide greater comfort to the patient and facilitate oral hygiene.

According to the protocol established by the institution, oral hygiene must be performed twice a day with a swab soaked in 0.12% chlorhexidine (Franco et al., 2014) and in this case, application of topical anesthetic (2% lidocaine gel) was indicated before hygienization for local analgesia.

The photobiomodulation protocol was performed with a portable 100mW (InGaAIP - duo laser / MMOpstics, São Carlos, SP, Brazil) semiconductor device with red light (660 nm) and infrared (808 nm), using 2J for 4 seconds per point, with a distance of 1 cm between points, being applied over the entire length of oral lesions (Rocha et al., 2019). The total application per session was 5-8 minutes. During the most severe period of the disease, photobiomodulation was performed daily by a dentist and according to the gradual improvement of the condition, the sessions started to be interspersed until the gradual regression of the patient's injuries and complaints (Figure 1C).

Lip hydration was also performed daily using a 50% petroleum jelly and 50% lanolin based product, in order to prevent the drying of hemorrhagic crusts, reduce friction between tissues and prevent the appearance of new lesions.

After being extubated, the patient reported relief from painful symptoms with the application of photobiomodulation, especially during feeding. After a month in the ICU, he was transferred to the infirmary with a significant improvement in his clinical condition. The follow-up of the case was maintained until the effective healing of the lesions and complete remission of the symptoms (Figure 1D).

Figure 1. (A) Initial clinical appearance, patient with orotracheal intubation, nasoenteral tube, face dressings and non-adherent tubular mesh. Presence of bleeding and difficult access to the mouth. (B) One week after the photobiomodulation protocol. Start of crusting, bleeding and better visualization of the oral cavity and orthodontic appliance. (C) After two weeks of approaches, he presented hemorrhagic crusts on the upper and lower lips and partial regeneration of the oral mucosa. (D) After four weeks of follow-up, with significant improvement of the lesions. Presence of only lingual depapillation



Source: Author's personal file.

4. Discussion

This case highlights the need for patients with TEN to receive early and specialized oral management, in addition to the use of adjuvant therapies to systemic treatment for the treatment of oral lesions and the integration of dentistry in the multidisciplinary strategy. In this case, photobiomodulation proved to be effective, reducing pain and stimulating local healing.

Photobiomodulation uses a low-level laser, which, through biostimulatory effects, promotes the release of growth factors, cell proliferation, cell motility, angiogenesis, collagen synthesis and is able to modulate the immune system. Resulting in analgesic, anti-inflammatory effects and accelerating the wound healing process (Sonis et al., 2016).

Some studies have already described positive results from the use of photobiomodulation in oral lesions of TEN and Steven Johnson Syndrome and demonstrated that there were analgesic effects and tissue regeneration (Simões et al., 2011; Rocha et al., 2019). It is also used in other ulcerative disorders such as mucositis and pemphigus vulgaris (Sonis et al., 2016; Dal Prá et al., 2020), photobiomodulation reduces the painful sensation, ensures comfort to the patient and reduces the prescription of analgesics (Soares et al., 2018). In addition to being easy to apply, non-invasive, painless, and because it has no adverse effects, it is an adjuvant therapy widely recommended for oral TEN lesions (Simões et al., 2011; Rocha et al., 2019).

Some guidelines recommend the use of topical corticosteroids to assist in the treatment of oral lesions (Seminario-Vidal et al., 2020), but we do not use topical therapies due to the severity of the lesions that do not allow access to the entire oral cavity to apply the medication. Therefore, the local treatment for healing was done exclusively through the use of photobiomodulation and was positive mainly in relation to the patient's pain complaints.

A common characteristic in TEN is the Nikolsky sign, when something rubs the mucosa there is formation of new bubbles and lesions (Woolum et al., 2019). Thus, the individualized approach to the case and consequent removal of the orthodontic appliance was extremely important, which would cause greater damage and trauma during the patient's acute condition. Constant lip hydration was also relevant to avoid friction between the lips, avoid new fissures and provide comfort.

Another fundamental factor is the maintenance of oral hygiene, as many times during the ICU stay there is the impossibility of self-care, impairment of the immune system, dehydration and hyposalivation. There is an imbalance of the microbiota and a consequent increase in the colonization of the biofilm and respiratory pathogens in the oral cavity. Therefore, oral hygiene care should reduce oropharyngeal colonization and dental biofilm, which may be responsible for the occurrence of other infections (Rabello et al., 2018). The use of 0.12% chlorhexidine is recommended for oral hygiene of patients admitted to the ICU and its antiseptic potential reduces bacteria and prevents local and systemic infections (Woolum et al., 2019). In the case presented, in addition to regular oral hygiene, topical anesthetic was applied before the procedure to increase analgesia and provide immediate relief.

Among the main oral alterations characteristic of TEN, are lip and oropharyngeal ulcerations, erosions, severe pain, dysphagia, odynophagia, bleeding, reduced salivary flow and lingual depapillation. Among the most serious consequences are caries associated with hyposalivation, periodontal disease, synechia and oral fibrosis with impaired speech and diet (Lee et al., 2017; Cabañas Weisz et al., 2020). There are cases in which the patient needs to undergo corrective oral surgeries due to tissue adhesion after a long period of hospitalization (Sedghizadeh et al., 2008). For this reason, early and regular oral examination is recommended to maintain oral health and reduce the potential sequels of the disease (Cabañas Weisz et al., 2020; Seminario-Vidal et al., 2020). In this case, although the patient had a severe oral condition, no chronic sequels were identified, due to early oral care. From the first day of hospitalization, we opted for comfort measures, analgesia, healing and hydration, and we believe that these interventions enabled an adequate recovery and with minimal sequels. We observed only late regeneration of the lingual papillae, which is found in 25% of patients who survive TEN (Lee et al., 2017).

All critically ill patients should receive multidisciplinary care, as it is related to lower mortality, better treatment results and greater comfort (Kim et al., 2010). In patients with TEN, the multidisciplinary approach has been shown to be even more relevant, as they are complex cases, with still controversial guidelines on the best form of treatment (Papp et al., 2018). They are often hospitalized in units for burned patients due to the delicate dermatological condition and the multidisciplinary care model, resulting in limitation of chronic sequels, higher quality of life and less psychological damage (Charlton et al., 2020; Cabañas Weisz et al., 2020). In addition, some studies demonstrate the importance of inserting dentistry in the multidisciplinary context in the ICU (Bellissimo-Rodrigues et al., 2018; Blum et al., 2018). We demonstrate with the case the importance of a global and individualized management, with the performance of several professionals and the complete recovery of the patient without major sequels.

5. Conclusion

In conclusion, the management of oral care for patients with TEN must be individually assessed by a specialized dental team to establish the needs in each case. The use of photobiomodulation in oral TEN lesions helps in tissue repair and local analgesia. And the multidisciplinary approach is extremely important to provide comprehensive care, recover quality of life, avoid sequels, improve prognosis, reduce hospital stay and promote adequate rehabilitation.

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