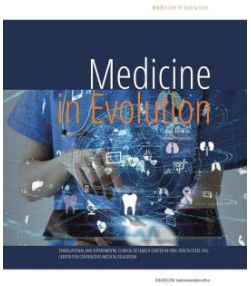
Submandibular lodge abscess. Case presentation



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Abstract

The submandibular lodge abscess represents a limited purulent collection of the primary mandibular space, the most frequently involved causative factor being the dento-periodontal damage of the lower molars, especially the third molar.

The article presents the case of a 27-year-old patient with a marked swelling of the right hemiface, a swelling placed submandibular, which extends anteriorly under the chin and posteriorly to the level of the anterior border of the sterno-cleido-mastoid muscle, accompanied by marked trismus and pain.

Keywords: Submandibular lodge abscess, swelling, trismus

INTRODUCTION

Odontogenic infections have as their starting point the teeth and neighboring structures; at the oro-maxillo-facial level there is increased variability depending on the etiological factor, the type and virulence of the pathogen, the anatomical reports, the general state of health of the patient and the immune response [1,2]. The infectious process evolves in three stages - inoculation, cellulitis and abscess formation [3].

The submandibular abscess represents a limited purulent collection of the primary mandibular space, the most frequently involved causative factor being the dento-periodontal damage of the lower molars, especially the third molar [4].

The microbial flora present is polymorphic, mixed and non-specific. Oro-maxillofacial suppurations are 87% plurimicrobial and only 13% monomicrobial [5,6].

The anatomical-pathological relationship between the roots of the lower molars and the mandibular cortical bones, together with respecting the path of least resistance, determines the perforation of the lingual cortex under the insertion of the mylohyoid muscle [1].

MATERIAL AND METHODS

We present the case of a 27-year-old patient with a marked swelling of the right hemiface, a swelling placed submandibular, which extends anteriorly under the chin and posteriorly to the level of the anterior border of the sterno-cleido-mastoid muscle, accompanied by marked trismus and pain (Figure 1). The integuments in the region appear congested, warm, distended and glossy, palpation reveals fluctuance, endo-oral the mucosa of the floor of the mouth on the right side is congested and edematous (Figure 2).

Figure 1. Clinical appearance: right hemiface swelling

Figure 2. Intraoral clinical appearance (multiple dental septic outbreak)

The patient complains of spontaneous pain on palpation; also dysphagia, odynophagia and dehydration. The general condition is altered with fever and tachycardia. The patient has no other health conditions. Clinically, percussion in the shaft is positive at the level of tooth 48.

Paraclinical investigations help us in diagnosis. Scrolled radiograph of the mandible (Figure 3) reveals the starting point of suppuration, acute apical periodontitis 48 and the rest of the tooth 47. Laboratory analyses, blood count reveal elevated leukocyte level and significantly elevated C-reactive protein.

Figure 3. Scrolled radiograph of the mandible

Emergency surgery is performed under general anesthesia (Figure 4) with intravenous sedation, local anesthesia, incision and drainage of the involved region with secretion collection for antibiogram, application of the drain tube.

Figure 4. Intraoperative clinical aspect: incision and collection drainage, microbiological examination

RESULTS

Through the drain tube, antiseptic washes are done for seven days. Antibiotic therapy is initiated with clindamycin 300mg i.v. 2-0-2, the antibiotic being chosen based on the

antibiogram, analgesics, anti-inflammatory, hydro-electric rebalancing, liquid and semi-liquid diet.

Figure 5. Clinical appearance three days after incision, drainage and antibiotic treatment

The evolution was favorable (Figure 5), the patient presented pain relief, the disappearance of trismus, the hospitalization period was seven days. Dental septic outbreaks were also cleaned up.

DISCUSSIONS

The management of suppurations of the submandibular lodge involves a well-defined protocol: emergency surgical and medical treatment; its lack causes diffusion in neighboring spaces with the appearance of phlegmon, which can in turn have serious general complications - mediastinitis, cavernous sinus thrombosis or meningitis. The favoring factors for the appearance of diffuse suppurations are represented by the decrease in the body's resistance (cachectic diseases, overwork, diabetes, chemotherapy, corticotherapy), the increased virulence of the microbial flora, as well as incorrectly conducted antibiotic therapy.

The Minimally Invasive Intraoral Approach (MIIA) is performed on selected cases of abscesses and phlegmons of odontogenic origin when the infection has not extended beyond the lower mandibular margin. This technique is followed by excellent cures, the impact required by MIIA being low compared to the traditional cervicotomy approach [7,8].

Submandibular abscess in some cases can be treated by intraoral drainage, this being a better technique than external in terms of cosmetic result. Postoperative recovery is easier because daily irrigation and dressing of the wound is not required. There may also be no risk of damaging the surrounding nerves [8].

The bacteria responsible for odontogenic abscesses are frequently those in dental plaque, Streptococcus Spp and Staphylococcus Aureus being the most frequently incriminated bacteria [9,10].

Frequently the origin of submandibular lodge abscesses are lower molars, their periapical periodontitis being determined by caries in 90% of cases [11]. Pericoronitis, following the incomplete eruption of a wisdom tooth can favor bacterial proliferation in the

region between its crown and the surrounding soft tissues. In the case of aggressive forms, it can spread to peripheral tissues [12].

Antibiotic therapy for submandibular sinus abscesses is based on broad-spectrum antibiotics such as penicillin, clindamycin, and metronidazole. The literature also supports the use of corticosteroids. The antibiogram of the material taken during surgery is useful to identify the bacteria and to start a targeted therapy. Surgical intervention must be supported by antibiotic therapy [13,14].

In the case of submandibular lodge abscesses, to treat infections, in most cases it is necessary to perform the extraction of one or more dental elements [15].

The location of the submandibular incision depends on the affected area. The incision should be placed in healthy skin when possible, not at the site of maximum fluctuation, as these incisions tend to heal with an unsightly scar. The incisions are preferably placed in a natural skin fold. An intraoral subperiosteal incision and an extraoral incision may be required to drain the submandibular space. The extraoral incision should be made approximately 3 to 4 cm below the angle of the mandible. The incision is made on the skin and subcutaneous tissues, up to the platysma [11,16].

CONCLUSIONS

The favorable evolution in a submandibular abscess involves a well-defined process. A submandibular abscess is diagnosed based on clinical evaluation and imaging tests. Dental septic foci that represent the starting point of suppuration must be cleaned to prevent recurrence. The key to a successful recovery is prompt diagnosis and appropriate treatment, along with diligent adherence to postoperative care instructions. Oro-maxillofacial infections can put the patient's life at risk, both by compromising the upper airways and by the serious septic condition they can induce. Also, these infections can spread to other structures, leading to serious specific complications.

REFERENCES

1. Neal TW, Schlieve T. Complications of Severe Odontogenic Infections: A Review. Biology. 2022; 11(12):1784.
2. Erazo D, Whetstone DR. Dental Infections. [Updated 2022 Sep 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK542165/
3. Jevon P, Abdelrahman A, Pigadas N. Management of odontogenic infections and sepsis: an update. Br Dent J. 2020 Sep;229(6):363-370.
4. Boscolo-Rizzo P, Da Mosto MC. Submandibular space infection: a potentially lethal infection. International Journal of Infectious Diseases. 2009; 13(3):327-333
5. Maharaj SH. A Review of the Microbiology of Submandibular Space Infections. J Maxillofac Oral Surg. 2019 Dec;18(4):584-588.
6. Siqueira JF Jr, Rôças IN. Microbiology and treatment of acute apical abscesses. Clin Microbiol Rev. 2013 Apr;26(2):255-73.
7. Galli M, Fusconi M, Federici FR, et al. Minimally Invasive Intraoral Approach to Submandibular Lodge. J Clin Med. 2020;9(9):2971.
8. Ardehali MM, Jafari M, Hagh AB. Submandibular space abscess: a clinical trial for testing a new technique. Otolaryngol Head Neck Surg. 2012;146(5):716-718.
9. Buckley J, Harris AS, Addams-Williams J. Ten years of deep neck space abscesses. J Laryngol Otol 2019; 133:324-328.
10. Prabh SR, Nirmalkumar ES. Acute fascial space infections of the neck: 1034 cases in 17 years follow-up. Ann Maxillofac Surg 2019; 9:118-123.

11. Cambria F, Fusconi M, Candelori F, Galli M, Stanganelli FRF, Venuta F, Valentini V, de Vincentiis M. Surgical multidisciplinary approach in the management of odontogenic or non-odontogenic neck infections. Acta Otorhinolaryngol Ital. 2021 Apr;41(Suppl. 1): S138-S144.
12. Zehnder M. Endodontic infection caused by localized aggressive periodontitis: a case report and bacteriologic evaluation. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2001:440-445.
13. Plum AW, Mortelliti AJ, Walsh RE. Microbial flora and antibiotic resistance in odontogenic abscesses in upstate New York. Ear Nose Throat J 2018;97: e27-e31.
14. Tansey JB, Hamblin J, et al. Dexamethasone use in the treatment of pediatric deep neck space infections. Ann Otol Rhinol Laryngol 2020; 129:376-379.
15. Heim N, Warwas FB, Wiedemeyer V, et al. C. T. The role of immediate versus secondary removal of the odontogenic focus in treatment of deep head and neck space infections. A retrospective analysis of 248 patients. Clin Oral Investig 2019; 23:2921-2927.
16. Probst FA, Otto S, Sachse R, Cornelius CP. Minimally-invasive catheter drainage of submandibular abscesses. Br J Oral Maxillofac Surg. 2013;51(7): e199-e200.