https://doi.org/10.5272/jimab.2019253.2663

Journal of IMAB
ISSN: 1312-773X
https://www.journal-imab-bg.org

Journal of IMAB - *Annual Proceeding (Scientific Papers).* 2019 Jul-Sep;25(3)

Case report

INFLAMMATORY COMPLICATIONS AFTER TOOTH EXTRACTION IN A PATIENT WITH MYASTHENIA GRAVIS - CASE REPORT

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ABSTRACT

Myasthenia gravis (MG) is an antibody-mediated autoimmune disorder of the neuromuscular junction. We report a case of a 34-year-old female myasthenic patient with inflammatory complications after extraction of mandibular 1st and 3rd molars. Myasthenia gravis (MG) has been diagnosed more than 10 years ago. Routine dental management in myasthenic patients is expected to be unsafe and even life-threatening. Special management considerations, as well as advice and precautions are required with which all oral health providers should be sufficiently informed. To avoid complications in patients with MG we recommend oral surgical procedures to be performed in a hospital-based maxillofacial surgery clinic.

Keywords: Myasthenia gravis, Tooth extraction, Inflammatory complications, Oral pathology, Oral surgery,

INTRODUCTION:

Myasthenia gravis (MG) is an antibody-mediated autoimmune disorder of the neuromuscular junction. MG is associated with decreased number of postsynaptic acetylcholine receptors [1]. Thus the muscular contractions are impaired due to the limited depolarization. Currently there is no causative pathogen identified. In 1672 Thomas Willis first described a clinical case of MG in a patient with weakness of limb muscles increasing over time.

MG has a prevalence of 50 to 142 cases per million in the population and it can be found at any age [2]. It may be localized to a specific muscle group, although generalized forms are also observed. Improvement after rest is quite common.

Infections, drugs, surgical procedures and emotional stress may predispose to worsening the status of MG patients and myasthenic crisis occurrence [3]. Routine dental management in myasthenic patients is expected to be unsafe and even life-threatening. Special management considerations, as well as advice and precautions are required with which all oral health providers should be sufficiently informed.

CASE REPORT:

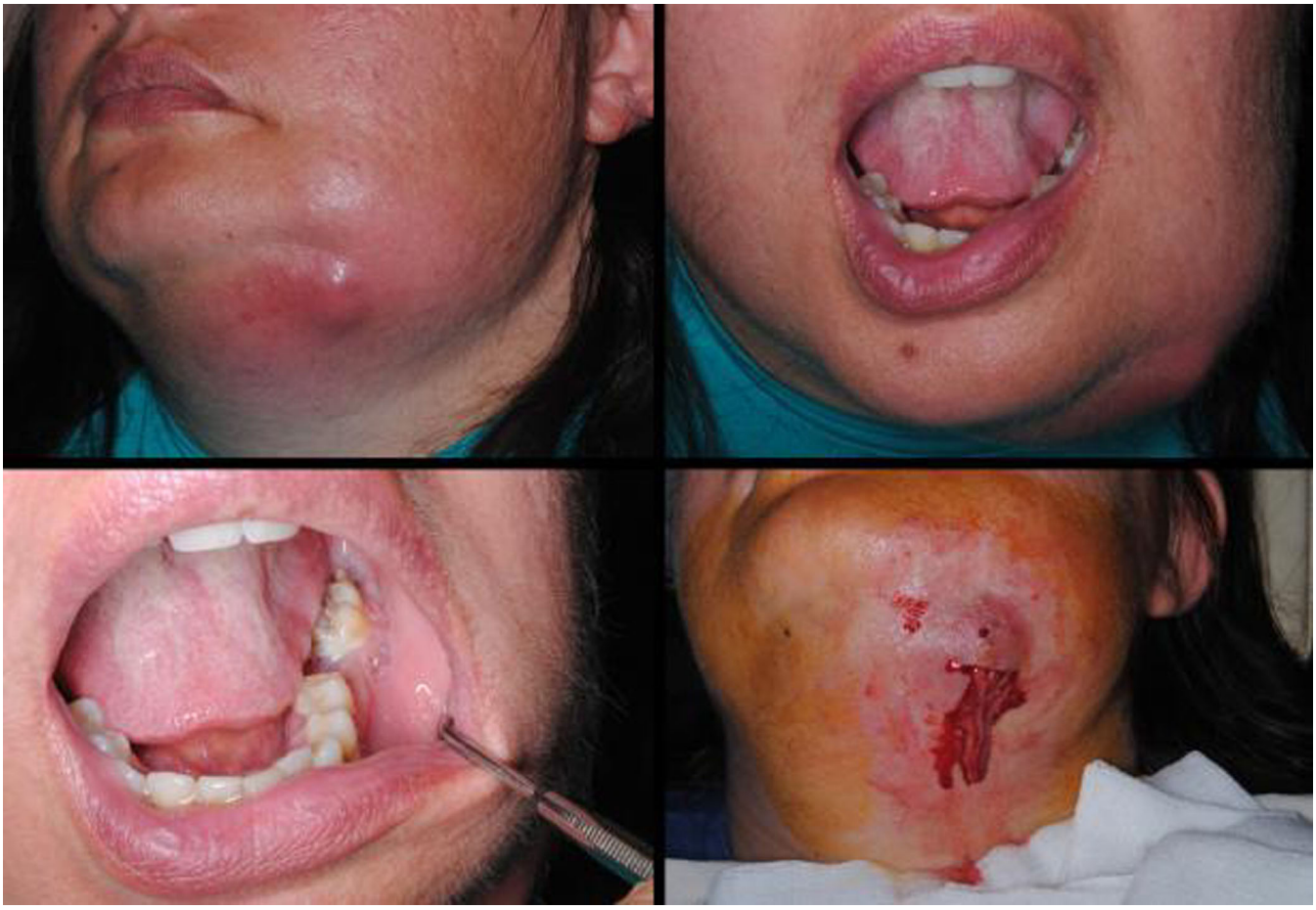
We present a clinical case report of a 34-year-old female MG patient who sought care at the maxillofacial surgery clinic twice within 1 month due to inflammatory complications after teeth extraction (Fig. 1).

The first symptoms of MG in our patient are detected in 2006 when she has been admitted in neurology clinic. In 2007 a surgical thymectomy has been conducted followed by medication therapy with Kalymin 60mg 4 times a day and Prednisolone F 0,5mg. The therapeutics and their dosages remain unchanged since then. The patient has had 2-3 episodes of acute myasthenic crisis with respiratory insufficiency. She has undergone tracheotomy and orotracheal intubation.

In May 2018 lower left wisdom and first molar have been extracted in a dental office. Antibiotic therapy has been given orally: Cefuroxime 500mg every 24h for 4 days. On the 4th day the patient has visited the dental ambulatory again with complaints of swelling around the body of the mandible on the side of the extracted teeth. She keeps taking the antibiotic for another 5 days without any improvement in the local status. Consultations with patients' physician and another dentist have been conducted and the patient is referred to maxillofacial surgery clinic.

The patient was admitted in our clinic 2 weeks after the teeth have been extracted, with acute inflammatory symptoms. Dense swelling in the left submandibular space, as well as swelling around the body and the angle of the mandible is observed. The overlying skin is hyperemic and erythematous with pain on palpation. Shining center and fluctuation are found in the submandibular region. Enlarged, firm and painful submandibular lymph nodes are presented on the same side. Intraorally acute inflammatory symptoms and suppuration of the extracted wounds (mandibular left first and third molars) are not found and the mouth opening is in normal range. Scar in the jugular fossa due to a previous tracheostomy is observed. (Fig. 1)

Fig. 1. Inflammatory complications after tooth extraction (submandibular abscess), incision and drainage in a patient with MA



During the clinical examination ocular symptoms (i.e. ptosis, double vision, nystagmus) are not seen. Dysphonia (disrupted speech) is observed due to 1-week intubation, conducted immediately after the thymectomy.

An extraoral incision was made on 2cm medially to the body of the mandible and 5mL purulent exudate was evacuated. Drainage was placed and intravenous antimicrobial and anti-inflammatory agents were given for a couple of days.

The same symptoms were observed in both the first and the second admissions of the patient in our clinic. After the second admission, significant improvement in the patients' local and general condition was observed. Two weeks later the patient had no swelling, no enlarged regional lymph nodes and normal healing in the extraction wounds were noticed. Long term follow-up revealed no inflammatory complications.

DISCUSSION:

MG is a neuromuscular disorder characterized by fluctuating weakness of skeletal muscles and abnormal fatigue on exertion. Ptosis and diplopia due to the extraocular muscles functional disability are seen in the initial stage. In nearly 15% of the cases the disease is clinically presented only with ocular symptoms, while in the remaining 85% widespread muscle weakness is developed [4]. Facial and masticatory muscles weakness is expected to appear leading to dysphagia, dysarthria and lack of facial expressions. Myasthenic crisis due to an extreme involvement of respiratory muscles with the need for mechanical ventilation may occur in nearly 15-20% of patients, as in 4-8% is fatal [4]. In the majority of cases autoantibodies against acetylcholine receptors are identified, whereas nearly 10-20% of the patients are seronegative [5].

Although, it is a well-known pathology, dental treatment of myasthenic patients still presents a challenge. Complete medical history, as well as thorough medical examination of the patient, review of the symptoms and assessment of the swallowing and phonation ability is required prior treatment. Simple tests for the disease severity evaluation are checking the length of time the patient is able to look up before ptosis and the period of time the patient is able to maintain outstretched arms [6].

Many drugs used in the dental medicine are capable to cause complications in myasthenic patients, like muscle weakness and breathing disruption. In Table 1 are

listed some of the most commonly prescribed drugs classified in 3 groups as relatively contraindicated, used with caution and relatively saved Tamburrini et al. [7] have classified the most commonly prescribed drugs in 3 groups as relatively contraindicated, used with caution and relatively safe medications.

MG is expected to be well controlled in most of the patients, with limited or mild neuromuscular involvement. Minor dental procedures (fillings, root canals, etc.) can be performed safely in a dental office, however more significant surgical procedures (i.e. multiple teeth extractions, extractions of wisdom teeth, etc.) are better to be done in a hospital-based dental clinic. A consultation with patient's physician and neurologist is preferable especially in medical history of frequent exacerbations and muscle weakness. Currently there are no evidence-based guidelines for dental and oral surgical management of myasthenic patients. There is no strict protocol to be followed. Although, early morning short visits and stress-reduction measures are highly recommended [8].

There is concern arising about the sensitivity of myasthenic patients to local anesthetics used in dentistry. Currently there are no clear evidences about the safety in application of esters and amides, although it well known that local anesthetics decrease the sensitivity of the postsynaptic membrane to acetylcholine [9]. Careful attention should be paid to their application in dentistry. Ester anesthetics (procaine, tetracaine, etc.) are metabolized by plasma cholinesterase and in myasthenic patients receiving anticholinesterase drugs they may present particular problem, leading to high risk of systemic toxicity [9]. The amide anesthetics are metabolized in the liver by monoamine oxidase enzymes and are probably better choice because they may not interfere with patient's medication. However, reduced doses of amides and avoidance of intravascular injection are required to lessen the risk of complications.

In our case the patient has been treated as outpatient and surgical extractions of wisdom tooth and first molar have been conducted in ambulatory private dental practice. Although, there are no clinical symptoms of inflammatory complications intraorally (i.e. suppuration, swelling, redness, etc.), more severe symptoms are observed including lymphadenitis and abscess in the submandibular and perimandibular spaces. To decrease the risk of hard to treat inflammatory complications and myasthenic crisis, a hospital-based dental and maxillofacial surgery clinic must be chosen when oral surgical procedures are needed in MG patients. In all cases severity of the disease and patient's anxiety must be carefully assessed. Consultations with physician and neurologist, as well as premedication and additional therapy may be required prior treatment.

CONCLUSION:

MG is a chronic neuromuscular disorder characterized by muscle weakness and fatigability with improvement after rest. Myasthenic patients represent a challenge for dental treatment. Thorough assessment of clinical signs and symptoms, medications and patient's emotional stress is required. Basic understanding about the disease and drug selection is essential to avoid complications. Oral surgical procedures are recommended to be conducted in hospital-based clinic.

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Please cite this article as: Mihaylova Z, Ugrinov R, Aleksiev E, Stanimirov P. Inflammatory complications after tooth extraction in a patient with Myasthenia gravis - Case report. *J of IMAB.* 2019 Jul-Sep;25(3):2663-2666.
DOI: https://doi.org/10.5272/jimab.2019253.2663

Received: 25/02/2019; Published online: 22/08/2019

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