

Unilateral Marginal mandibular nerve paresis: A rare complication of submandibular space infection

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Abstract

Maxillofacial space infections of odontogenic origin are very common in day to day dental practice. Frequently, submandibular space infection develops from an acute infection spreading from the lower molar teeth. Various complications such as Ludwig's angina, necrotizing fasciitis of the head and neck and mediastinitis may arise secondary to progression of the infection in different anatomical planes. It is highly unusual for facial nerve paresis to occur from inflammation or infection. Here, we report a case of marginal mandibular nerve paresis as a result of odontogenic infection originating from mandibular second molar, which is considered rare.

Keywords:

Facial nerve paresis, marginal mandibular nerve, odontogenic infection, space infection

Introduction

Odontogenic infections contribute to maxillofacial space infection across the world. The pathogens can travel within the fascial planes, from one space near the infected site to other distant spaces, by the spread of inflammatory exudates. Infection of maxillary teeth most commonly spread to the buccal space, whereas infection originating in the mandibular teeth mostly spread to the submandibular, pterygomandibular, submasseteric and buccal spaces¹. It usually presents with clinical symptoms like fever, swelling, pain, trismus and varying degree of toxic systemic symptoms. Various complications can result from both direct spread, as in the case of Ludwig's angina, necrotizing fasciitis of the head and neck and mediastinitis of odontogenic origin, or by distant spread via the bloodstream or lymphatic system such as cavernous sinus thrombosis, cerebral abscess and meningitis². But unilateral palsy of any branch of facial nerve secondary to space infection has been rarely reported in literature. Here we present a case report of a twenty year old

female with submandibular space infection who had an unusual complication of palsy of marginal mandibular branch of facial nerve.

Case Report

A twenty years old female patient presented with complaint of fever along with swelling of the right lower part of the face and inability to open the mouth for last seven days. Swelling was spontaneous in onset and gradually increasing in size. She also reported of pain in one of her tooth in the adjacent region. Due to pain, swelling and trismus she was having difficulty in food intake. She did not have any significant illness before. On examination she was febrile. The right submandibular lymphnode was palpable, which was single, soft, movable and tender on palpation. Face was apparently asymmetrical. On inspection, diffuse swelling was seen in right lower third of the face. Swelling was extending superiorly up to parotid region and inferiorly towards submandibular region (Figure1). Overlying skin was erythematous. There was no evidence of any sinus or ulcer. The smile of the patient was asymmetrical. The lower lip

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was elevated on the right side with inability to expose her right lower incisors. The lower lip was distorted towards the left side (Figure 2). This characteristic clinical feature indicated paresis of right marginal mandibular nerve, a branch of cervicofacial division of facial nerve. The facial expression and nasolabial folds in the static position were symmetrical, which indicated that the zygomatic and buccal branches were spared. The patient reported that the smile pattern was symmetrical before the onset of swelling. On palpation, swelling was fluctuant and markedly tender. Intraoral examination was compromised due to limited mouth opening. Orthopantomogram (OPG) radiograph revealed periapical radiolucency in relation carious 47 (Figure 3). A clinical diagnosis of right submandibular and pterygomandibular space infection with right marginal mandibular nerve palsy was made.

Complete blood examination revealed haemoglobin was 11.2 g/dl, total WBC count was 14600/cumm and random blood sugar was 125mg/dl.

The patient was then kept on antimicrobial coverage and surgical drainage of pus was done. She showed a gradual recovery over next 3-4 days. The healing of the wound was satisfactory and the paresis of right lower part of the face improved slightly on post operative visit after 15 days (Figure 4). The patient was kept under review but she didn't come for further follow up visit.



Fig 1: Photograph showing diffuse swelling in the right lower third of the face.



Fig 2: Photograph showing asymmetrical smile with distortion of the lower lip towards the left side.



Fig 3: OPG showing periapical radiolucency in relation to carious 47



Fig 4: Photograph showing sign of slight improvement in the smile pattern and satisfactory healing on post operative visit after 15days.

Discussion

Frequently, submandibular, buccal and pterygomandibular space infection develops from an infection spreading from the lower molar teeth¹. It presents with swelling, pain, trismus and systemic symptoms such as fever, chills, malaise, dehydration from decreased oral intake, and a generalized toxic ill-appearance. Complications such as Ludwig's angina, necrotizing fasciitis of

the head and neck and mediastinitis, cavernous sinus thrombosis, cerebral abscess and meningitis may arise secondary to progression of the infection in different anatomical planes². Unilateral palsy of branch of facial nerve secondary to space infection as seen in our case has been rarely reported in literature. This complication can be explained on the basis of anatomical landmarks and compression, especially in association with local inflammation³. Of the five major branches of the facial nerve, the marginal mandibular branch of the facial nerve supplies muscles of the lower lip. The marginal mandibular nerve runs forward below the angle of the mandible under the platysma, at first superficial to the upper part of the digastric triangle and then turning up and forward across the body of the mandible to supply muscles of the lower lip. A person with injury to the marginal mandibular branch of the facial nerve presents a very conspicuous deformity on opening the mouth, smiling or grimacing⁴. Sarkar D et al.⁵ reported a case of Marginal Mandibular Nerve Palsy as an unusual complication in Ludwig's Angina. Few cases of facial nerve palsy due to parotid abscess have also been reported^{3, 6}. Streppel et al.⁷ presented a case of facial nerve palsy due to an infected epidermoid cyst which did not enclose the facial nerve. It was then assumed that the inflammation was spread into the fallopian canal through the stylomastoid foramen causing a metabolic imbalance similar to the supposed for Bell's palsy.

Ischaemic neuropathy arising from the local toxic effects of a severe infection and from the compression of the nerve due to an expanding abscess is another suggested mechanism⁸.

In the present case, incision and drainage of the submandibular space infection was done. During the procedure care was taken to avoid the injury to the marginal mandibular nerve. A rapid partial recovery of the paralysis was seen within 15 days after the surgical drainage. This suggested that the marginal mandibular nerve palsy could have resulted from inflammatory process arising from space infection, which involved the marginal mandibular nerve.

Conclusion

Unilateral palsy of branch of facial nerve secondary to space infection as seen in our case has been rarely reported in literature. Characteristic clinical features and rapid partial recovery of the paralysis after surgical drainage attributed inflammation to be the cause of unilateral paresis of marginal mandibular nerve. A complete recovery of the facial nerve palsy is the commonest outcome.

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