

AN UNIQUE CASE OF FREY'S SYNDROME SUBJECTED TO POST- SURGICAL MANDIBULAR CONDYLE FRACTURE COMPLICATION.

Case Report

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ABSTRACT

Background: Frey's syndrome poses a clinical challenge due to its impact on the parotid gland and the auriculotemporal nerve. This report delves into the diagnosis and treatment of Frey's syndrome in a patient who underwent surgical intervention.

Case Description: The patient presented with sudden facial redness and sweating, raising suspicion of Frey's syndrome. Clinical examination and the Minor Test confirmed the diagnosis. Surgical intervention had been previously undertaken by the patient, making the case unique.

Practical Implications: Treatment strategies focused on symptom management and addressing the patient's specific concerns. This case underscores the importance of recognizing Frey's syndrome in patients with parotid gland or auriculotemporal nerve involvement. It also emphasizes the need for further research and heightened awareness among oral physicians and general dental practitioners to enhance understanding and management of this condition along with the need of early recognition

Key Words: Frey's syndrome, parotid gland, auriculotemporal nerve, surgical intervention, Minor Test.

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INTRODUCTION

Frey's syndrome is a rare occurrence observed in cases following post-surgical mandibular condyle fracture reduction. This condition, characterized by undesired sweating and flushing in specific facial regions such as the cheek, temple (temporal region), or behind the ears (retro-auricular region), is triggered by certain foods that stimulate salivary response. It should be noted that Frey's syndrome after post-surgical mandibular condyle fracture reduction is a seldom-reported phenomenon, with only a limited number of cases documented in the literature. The underlying mechanism involves aberrant regeneration of the auriculotemporal nerve, which impacts both the parotid gland's secretomotor fibers and the sweat glands and blood vessels in the preauricular area.

CASE PRESENTATION:

A 42-year-old farmer presented with a complaint of discomfort and unusual sweating on the right side of the face during eating, persisting for the past two years. The patient also reported altered sensation around the preauricular region and the cheek on the right side, along with pain in the right temporomandibular joint region. The symptoms began six months after the surgical treatment of a fractured right mandibular condyle caused by a bike accident.

The patient sought the opinion of multiple medical professionals and was given recommendations for various scans and tests. A government hospital referred the patient to the Department of Oral Medicine Radiology since the patient's condition did not significantly improve. According to the patient's history, the bike accident occurred three years ago, resulting in a lower jaw fracture. The patient underwent surgery for a right mandibular condyle fracture, which involved open reduction and internal fixation performed by an orthopedic surgeon. No other relevant findings were reported.

During extraoral examination, notable facial asymmetry was observed on the lower right side of the jaw. The masseter and temporal muscles were tender on the affected right side. The examination revealed the presence of diffuse swelling on the right side, extending from the pretemporal region to the upper border of the angle of the mandible, measuring approximately 30x40mm in a superior-inferior direction. The swelling extended from the anteroposterior aspect of the ala of the nose to the tragus on the right side. A surgical scar was observed beneath the pinna of the right ear on the lower right side (Fig1).



Figure 1. Affected right side

During the oral examination, occlusal derangement was observed on the left side. Additionally, an open bite was noted in the front teeth. Furthermore, the patient reported experiencing episodes of redness, warmth, and perspiration in the preauricular area and right cheek during meals.



Figure 2. Oral examination

Based on the patient's history and observations, a provisional diagnosis of a postoperative complication following mandibular fracture reduction, possibly attributed to Frey's Syndrome, was made. A differential diagnosis of Frey's Syndrome/Auriculotemporal Syndrome secondary to synkinesis of postganglionic parasympathetic nerve fibers was considered. Post-surgical complications related to condyle reduction were also considered. The post-operative orthopantomogram revealed the presence of microplates in the right condylar region, extending from the head of the condyle to the descending ramus region. Regional examination indicated satisfactory healing of the operated site (Fig 3).

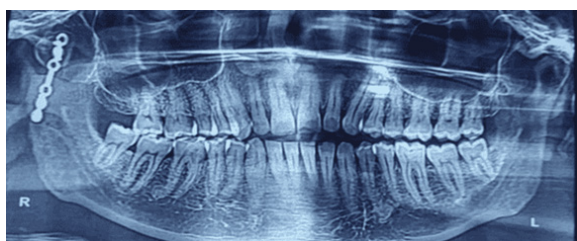


Figure 3: Post-operative orthopantomogram

Based on these observations, a specific investigation using a CBCT scan was conducted to assess for any potential fracture recurrence or callus formation. The results of the CBCT scan are depicted in Figure 4.

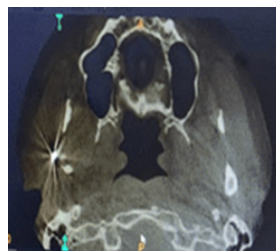


Figure 4a: Axial View



Figure 4b: Coronal View

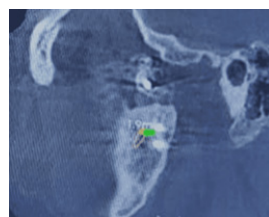


Figure 4c: Sagittal View

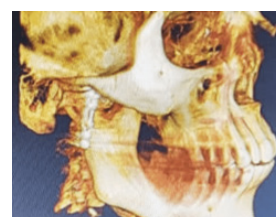


Figure 4: 3d View

A clinical investigation was conducted using Minor's starch-iodine test (also known as the starch-iodine test or iodine-starch test), as described by Victor Minor in 1928. During the test, a tincture of iodine was applied to the affected area and allowed to dry. The area was then lightly dusted with cornstarch. The patient was given lemon candy to chew, and the reaction of the cornstarch to the iodine tincture was observed. Following the consumption of the candy, the affected area became visibly demarcated, indicating a positive starch-iodine test Figure 5.

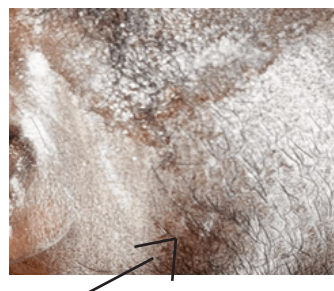


Figure 5a: Application of cornstarch and betadine



Figure 5b: Discoloration showing a positive result.

DISCUSSION

Based on the patient's medical history, clinical investigation, and radiographic findings, it was determined that the patient was experiencing Frey's syndrome as a complication of post-surgical mandibular condyle fracture reduction. The patient was provided with information regarding various medical treatment options, including anticholinergic ointment and botulinum toxin injections. The patient expressed understanding and reassurance that this condition is not life-threatening. The patient opted for regular follow-up appointments to monitor the condition. Frey's syndrome, also known by various names such as Baillarger's syndrome, Dupuy's syndrome, Auriculotemporal syndrome, Frey-Baillarger syndrome, and gustatory hyperhidrosis, has been extensively studied and described. It was initially described by Dupenix in 1757 and later elucidated by neurologist Dr. Lucja Frey, who coined the term "auriculotemporal syndrome" in 1923. This syndrome typically occurs as a result of damage to the auriculotemporal nerve, often resulting from surgical interventions.

The auriculotemporal nerve is a mixed nerve that arises from the mandibular nerve (CN V3), a branch of the trigeminal nerve (CN V). The mandibular nerve exits the skull through the foramen ovale. The auriculotemporal nerve carries both sympathetic and parasympathetic fibers. The sympathetic fibers are responsible for inhibiting salivary stimulation and causing vasoconstriction in the vessels of the parotid gland, temporomandibular joint, and skin over the auriculotemporal area and external acoustic meatus. On the other hand, the parasympathetic fibers innervate the parotid gland and stimulate salivary secretion and vasodilation. Patients with Frey's syndrome may experience symptoms such as erythema (redness or flushing) and sweating in the cutaneous distribution of the auriculotemporal nerve, usually triggered by gustatory stimuli. Pain in the affected area, often described as burning in nature, can also be present. Between episodes of pain, patients may experience numbness or other altered sensations, such as anesthesia or paresthesia. This phenomenon is sometimes referred to as "gustatory neuralgia."

Treatment

The treatment options for Frey's syndrome include:

1. Injection of botulinum toxin A: Botulinum toxin A injections can be used to temporarily block the nerve impulses and reduce sweating and flushing in the affected area.
2. Surgical transection of the nerve fibers: Surgical transection of the auriculotemporal nerve fibers can be performed as a temporary treatment option to alleviate the symptoms of Frey's syndrome. However, it is important to note that this procedure carries potential risks and should be carefully considered.
3. Application of anticholinergic ointment: The use of an ointment containing an anticholinergic drug, such as scopolamine, can help reduce sweating and manage the symptoms of Frey's syndrome.

It is worth mentioning that Cochrane reviews examining the interventions to prevent or treat Frey's syndrome have found limited or insufficient evidence to support their effectiveness and safety. Further clinical trials are necessary to establish the efficacy of these treatments.

CONCLUSION

Frey's syndrome has distinguishing features that make it unique from other conditions, in a few circumstances, it becomes a tedious job for oral physicians to make out a timely diagnosis. The primary treatment line must be guided by the patient's complaints. The condition is rare, although the exact incidence is unknown. For a prompt diagnosis and successful treatment of the present matter professionals need to be more knowledgeable about it. Further research is necessary to deepen our understanding of Frey's syndrome and improve diagnosis and therapy. Thus, Frey's syndrome is "A rare reminder that human body is still a mystery waiting to be unblended".

Conflicts of interest

There are no conflicts of interest

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