

## Case Report

# Twin presentation of rhinocerebral mucormycosis and parotid abscess with facial nerve palsy in a case of unrevealed uncontrolled diabetes mellitus

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### ABSTRACT

Rhinocerebral mucormycosis is a saprophytic invasive fungal infection of the nose and paranasal sinuses. The angio-invasive nature of the disease and rapid spread to the surrounding vital structures makes this infection more fatal. Parotid abscess is a rare disease in both adults and children due to an ascending infection from the oral cavity via the parotid duct. Diabetes mellitus is an immuno-compromised state in which patients are more prone for several infections. Both these diseases can lead to fatal complications due to their spread and toxicity, but the one rare complication of both these diseases is Facial nerve palsy. We are presenting a case of Diabetes mellitus with Rhinocerebral mucormycosis and Parotid abscess. There have been very few documented cases of co-existing Rhinocerebral mucormycosis and Parotid abscess in a patient with facial nerve palsy as complication.

**Keywords:** Rhinocerebral mucormycosis, Parotid abscess, Facial nerve palsy, Diabetes mellitus

### INTRODUCTION

Rhinocerebral mucormycosis is a saprophytic invasive fungal infection of nose and paranasal sinuses. Most commonly seen in the immuno-compromised patients.<sup>1</sup> Parotid abscess commonly seen in premature infants and debilitated individuals. The disease is a sequela of acute suppurative parotitis due to an ascending infection from oral cavity via parotid duct.<sup>2</sup> Diabetes mellitus is an immuno-compromised state leading to several infections. The infections involving the head and neck are more fatal leading to increased morbidity and mortality.<sup>3</sup>

Both these diseases can lead to fatal complications due to their spread and toxicity, but one rare complication of both these diseases is Facial nerve palsy.<sup>4,5</sup>

### CASE REPORT

38 years old male patient came to casualty with 4 days history of left sided facial pain, swelling, inability to close left eye completely, deviation of angle of mouth to right side and one episode of nasal bleeding. Patient had 1month history of left upper molar pain. The patient is a non-diabetic and non-hypertensive.

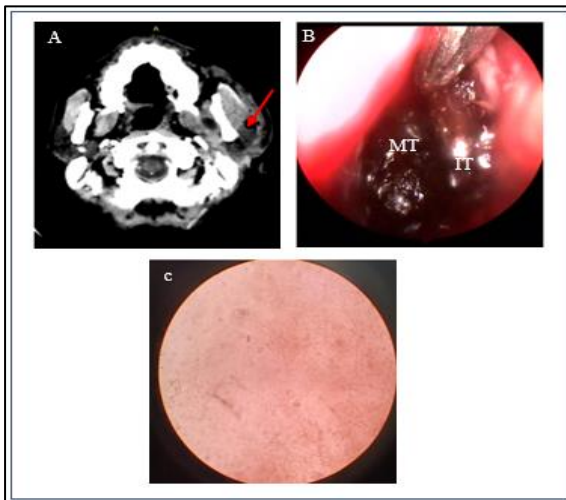
The physical examination revealed significant swelling and induration in the left side of the face with House-Brackmann grade 4 facial nerve palsy. On nasal examination blackish discoloration of anterior end of inferior turbinate noted. Oral cavity examination there was trismus, poor oral hygiene and caries tooth.

The patient was hospitalized. Blood investigations revealed random blood sugar of 316 mg/dL and HbA1c of 15.6 mmol/mol. The patient then diagnosed as a case of

newly detected Uncontrolled Diabetes mellitus, started on diabetic management. Computed tomography showed left parotitis with collection in superficial lobe of the gland and acute sinusitis of left maxillary, sphenoid and ethmoid sinuses. On diagnostic nasal endoscopy, eschar seen over left inferior and middle turbinate. The patient was taken up for Functional endoscopic sinus surgery under general anaesthesia and an adequate debridement with removal of left inferior and middle turbinate was done and specimen sent for histopathological examination. Needle aspiration of parotid abscess of 5ml was done and sent for culture and sensitivity. Post-surgery facial nerve improvement to grade 3 was noted.



**Figure 1: (A) Pre-operative image on presentation; (B) post-operative image after 8 weeks of treatment.**



**Figure 2: (A) Computed tomography image, red arrow showing the Parotid abscess; (B) diagnostic nasal endoscopy showing eschar formation of Inferior and middle turbinate; (C) KOH wet mount showing broad, ribbon-like, non-septate hyphae with wide angle branching.**

KOH wet mount showed broad, ribbon-like, non-septate hyphae with wide angle branching indicating mucor species, confirming the diagnosis of Rhinocerebral mucormycosis. The patient was then started on Liposomal Amphotericin B 50mg/day. Based on culture and sensitivity of parotid abscess antibiotics were started. The patient was taken up for repeated debridement of nasal cavity and sinuses. After day 5 dose of antifungal the

patient went into severe hypokalemia, due to which antifungal was withheld and hypokalemic correction given.

On day 10, worsening of facial nerve palsy to Grade 5, increase in pain and parotid swelling was noted. CECT revealed residual collection in parotid gland extending medially into deep lobe, left masticator space and left infratemporal fossa. The patient was taken for parotid abscess incision and drainage. The abscess improved with repeated debridement of the cavity and appropriate antibiotics. Patient was discharged on day 15. Physiotherapy was started for facial nerve palsy but no significant improvement seen till a follow-up period of 8 weeks.

## DISCUSSION

The patients with diabetes mellitus are prone to several infections due to hyperglycemia which increases the virulence of the pathogens. Treatment of the head and neck infections with diabetes is absolutely challenging and many a times patient need long term hospitalisation.<sup>3</sup> The alarming increase in diabetes mellitus among young individual makes the diagnosis delayed and reflects on the complications being the first presentation.<sup>6</sup>

In Rhinocerebral mucormycosis, the causative organisms belongs to the family Mucoraceae. The predisposing factors are poorly controlled diabetes mellitus, diabetic ketoacidosis, haematological disease, prolonged immune-suppressant therapy and corticosteroids, severe neutropenia, iron overload, HIV and AIDS.<sup>1</sup> The disease is fatal and destructive due to angio-invasive nature of the organism which leads to thrombosis formation causing tissue ischaemia and necrosis. The eschar formed due to necrosis of the tissues is the pathognomic sign of mucormycosis. The spread of the disease is rapid and involves the vital structures of the head and neck.<sup>7,8</sup>

Due to rapid spread rhinocerebral mucormycosis is associated with several complications. The rarest among them is facial nerve palsy. Mucormycosis presenting with facial nerve palsy is reported in very few isolated cases. The pathogenesis of facial nerve involvement is unknown but it is believed when the infection spreads to infra-temporal fossa it may affect the nerve when it exits stylomastoid foramen. The spread can also be via the eustachian tube to middle ear affecting the nerve.<sup>7</sup> But in our case the ear examination was normal.<sup>4,9</sup>

Parotid abscess is one of the commonest infections in diabetic individuals. Usually, the infection in diabetic patients is more severe and requires hospitalization with aggressive antibiotic treatment.<sup>3</sup> Facial nerve palsy in parotid disease is most commonly due to malignancy of the gland. It is extremely rare in benign parotid disease.<sup>5</sup> There are only 10 reported cases in literature of facial nerve palsy due to parotid abscess.<sup>10</sup> The exact pathogenesis is unclear. The facial nerve palsy can be

attributed to local toxic effects from the surrounding leading to perineuritis and ischaemic neuropathy due to the compressive effect of expanding infection.<sup>5,10</sup>

In our case, diabetic control and antibiotics assisted in eliminating the infection of both mucormycosis and parotid abscess. The mucormycosis in this case has not involved the infratemporal fossa or middle ear. Hence, the facial nerve palsy is probably attributed to the parotid abscess or it can also be a Bell's palsy.

## CONCLUSION

Facial nerve palsy is a very rare complication of rhinocerebral mucormycosis and parotid abscess but one can expect this to be a presenting feature in these cases apart from their usual presentation. The administration of steroid for facial nerve palsy in this case is contraindicated due to the uncontrolled diabetes and severe infection. This makes the treatment of facial nerve palsy more challenging and complicated.

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## REFERENCES

1. Spellberg B, Edwards J, Ibrahim A. Novel perspectives on mucormycosis: pathophysiology, presentation, and management. Clin Microbiol Rev. 2005;18(3):556-69.
2. Tan VE, Goh BS. Parotid abscess: a five-year review—clinical presentation, diagnosis and management. The J Laryngol Otol. 2007;121(9):872-9.
3. Sathasivam P. Head and Neck Infections in Diabetic Patients. J Assoc Physicians India. 2018;66(9):84-8.
4. Mane R, Patil B, Mohite A, Mohanty R. Facial Nerve Palsy: An Unusual Presentation in Patients with Rhino Cerebral Mucormycosis. Indian J Otolaryngol Head Neck Surg. 2019;71(3):2110-3.
5. Alam M, Hasan SA, Hashmi SF, Singh PK. Facial palsy due to parotid abscess: an unusual complication. Turkish Arch Otorhinolaryngol. 2016;54(4):168.
6. Magliano DJ, Sacre JW, Harding JL, Gregg EW, Zimmet PZ, Shaw JE. Young-onset type 2 diabetes mellitus—implications for morbidity and mortality. Nature Reviews Endocrinology. 2020;20:1-1.
7. Kolekar JS. Rhinocerebral mucormycosis: a retrospective study. Indian Journal of Otolaryngology and Head & Neck Surgery. 2015;67(1):93-6.
8. Jain S, Kaushal A. Rhinocerebral mucormycosis with isolated sixth nerve palsy in an immunocompetent patient. Med J Malaysia. 2011;66(4):377.
9. Bakshi SS. An unusual cause for facial nerve palsy: mucormycosis. International Journal of Diabetes in Developing Countries. 2016;36(4):385-8.
10. Lakshmi MR, Kauser S. Lower motor neuron facial palsy secondary to parotid abscess - first sign of uncontrolled diabetes mellitus: a case report. Int J Otorhinolaryngol Head Neck Surg. 2020;6:1206-8.

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