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A case report on fungal osteomyelitis

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ABSTRACT: Osteomyelitis caused by fungi is a rare and potentially fatal opportunistic illness. In the orofacial region, the nose and paranasal sinuses are frequently affected. It is a deadly infection that needs to be treated right away to avoid serious consequences. Herewe present a case of 53 years old female patient,came to OPD with chief complaints of left side facial pain for 1 monthand also with history of headachesince 1 month,burning sensation of the left eye, left side upper teeth loosening and pain. She had the history of diabetesmellitus,hypertension and hypothyroidism.On physical examination, noted that mobility of the left side upper teeth is presentand fistula noted at hard palate in midline.In biopsy, necrotic debris multiple grey brown soft tissuesbits admixed with turbinatesin left maxilla and multiple fragmentary maxillectomy specimens were found. GMS stain was also positive for fungal elements. she was diagnosed as fungal osteomyelitis left maxilla.Therefore, highlighting this case's rarity, presentation, management, and most crucially, management outcome, is the main goal of this paper.

KEY WORDS: Grocott Methenamine Silver Stain (GMS), pterygopalatine fossa (PPF), Endoscopic sinus surgery (ESS)

I.INTRODUCTION:

One of the deadliest and quickly spreading fungal infections in human beings is Mucormycosis [1]. It is brought on by zygomycetes, which are present in soil and on rotting plants. Invading the arteries, this fungus creates thrombi inside the blood vessels and causes necrosis of the nearby hard and soft tissues [1, 2, 3]. By direct invasion or via blood vessels, the infection can migrate from the nose and paranasal sinuses to the orbital and cerebral regions. Typically, Mucormycosis presents as a disseminated, cutaneous, pulmonary, gastrointestinal, or rhinocerebral form. Depressed immune system, Diabetes, Hematopoietic stem cell transplant, Hematological malignancies or Long-term steroid usage were the predisposing factors. Bone necrosis can also occur due to extension of infections such as Acute Necrotizing Ulcerative Gingivitis (ANUG) from the gingiva to bone. In this case report the gingiva was normal. Recent reports have suggested that jaw necrosis can also occur in patients on bisphosphonate therapy.

Signs and symptoms of osteomyelitis include fever, swelling, warmth and redness over the area of the infection, pain in the area of the infection, fatigue. Depending on the region of infection and underlying risk factors, mucormycosis mortalityrates might range from 10% to 100%, according to published literature[3]. Maxillary sinus mucormycosis has a high death rate (46%) and it has a bad prognosis[5]. Children with Aspergillosis have a terrible prognosis and a mortality rate of 30%[6]. For such individuals, an early diagnosis and prompt treatment are crucial. Controlling the underlying risk factors was one of the treatment modalities, along with antifungal medication, surgical debridement, supportive therapy and surgical or prosthetic rehabilitation (reconstruction), which was crucial for returning quality of life to the premorbid condition.Common diagnostic tests used in osteomyelitis are X-ray which may show bone damage. However, damage may not be visible untilos teomyelit is persists for several weeks. Moreimagingtestsmay be needed ifosteomyelitishasrecentlydeveloped.Usingradiowavesandstrongmagneticfields,MRIscanscanproduceverydetailedimagesofbonesandthesofttissuearoundthem.ACTscancombinesx-rayimagestakenfromdifferentanglestocreateadetailedcross-sectionalviewofaperson'sinternalstructures.ACTscanisusuallydoneonlyifonecannothaveanMRI.A bone biopsy canreveal the type of germ that has infected the bone.

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Figure 1: CT Scan showing fungal osteomyelitis

II. CASE REPORT:

A 53 years old female patient came to OPD with chief complaints of left sidefacial pain with headache,burning sensation in left eye, left upper teeth loosening and pain since one month. Patient was apparently normal2 months back and the present illness started as toothache which was later spread to remaining teeth of same side for which she was undergone teeth extraction 1 month ago (5 teeth right upper molars and lower molars and premolars). The pain soon spread to remaining half of face and head which was throbbing type and aggravated during evening associated with fever, headache, nausea, and vomiting. She had no history of photophobia,nasal discharge or nasal obstructions. The burning sensation in the left eye was associated with watery discharge rarely and not associated with vision disturbances.She was a known case of diabetes mellitussince 10 years and was usingGlycometGP-2 (BD), hypertension since 10 yearsand takingTelmisartan 20 mg and hypothyroidism since 10 years and usingThyronorm150 mcg.

On examination, it was found that nasal septum deviated to right side and mobility of the teeth noted over left upper jaw and fistula noted in the hard palate in the midline.Diagnostic tests like complete blood profile, coagulation profile, viral markers,renal function tests, serum electrolytes, ECG, 2DEcho, urine for albumin and sugars, X-ray chest and biopsy were done.CT scan and biopsy showed that necrotic debris at left maxilla,erosionof bones of left maxillary sinuses, hard palate, alveolar process of left and right maxilla(left > right), zygomatic bone left half of the frontal sinus and left nasal bone, left greater palatine foramen floor of left orbit, left pterygoid plates and bone with minimal extraconal soft tissue in inferior aspect of left orbit left infraorbital fissure, pre and retro antral region and concluded as fungal osteomyelitis and positive fungal mucor mycosis. The other laboratory investigations arePlasma glucose (RBS)-290 mg/dl, serum sodium-135 mmol/L, serum potassium-3.8 mmol/L, serum osmolality-294 osmol/kg. With the evidence of all diagnostic tests, the patient was diagnosed with fungal osteomyelitis.Endoscopic sinus surgery with sinus debridement with extended maxillectomy was planned to treat the disease. In a stable condition, she was discharged with some medicines which was mentioned in table 1and need medical review for every one week.

S.No.	Drugs(brand)	Composition	Dose	Route	Frequency	Days
1	FARONEM	Faropenem sodium	200 mg	Oral	BD	7
2	PANTOP	Pantoprazole	40 mg	Oral	OD	7
3	LEVOCET	Levocetrizine	5mg	Oral	HS	1month
4	NASOCLEAR	Sodium chloride	2 drops	Nasal route	TID	1 month
5	NASOWASH	Sodium chloride powder	2 puffs	Nasal	TID	1 month
6	BECOSULES	B-complex with vitamin C	1capsule	Oral	OD	2 months
7	OROFER XT	Ferrous ascorbate & Folic acid	I capsule	Oral	OD	2 months
8	HIFENAC- P	Aceclofenac& Paracetamol	1 tab	Oral	SOS	_

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III. DISCUSSION:

Although opportunistic fungal diseases like Mucormycosis, often affect immunocompromised patients. They can also infect healthy people(7-8). Uncontrolled Diabetes (especially in individuals with ketoacidosis), cancers such as Lymphomas and Leukaemia, Renal failure, Organ transplant, Long-term corticosteroid use and Immunosuppressive medication, Cirrhosis, Burns, Protein energy malnutritionand AIDS were risk factors for Mucormycosis. Uncontrolled hyperglycemia in our patient was a well-known risk factor for Mucormycosis.Reports have suggested that the ability of serum to inhibit Rhizopus was reduced in immunocompromised patients, which makes them suitable hosts to opportunistic fungal infections (8).

Usually Mucormycosis occurs as a pulmonary, gastrointestinal, disseminated or rhinocerebralinfection (6-10). In our patient, infection was only localized to the maxilla and it underwent necrosis without any other symptoms.Three principles in the patient management were followed. Firstly, control of Diabetes for which the patient was advised Insulin therapy and dietary restrictions. Secondly, removal of the necrotic bone and administering antifungal drugs. In this patient, entire necrotic bone was removed along with the antral lining and the area was dressed with Betadine. Lastly, Amphotericin B was administered parenterally as it was the drug of choice in the treatment of mucormycotic infection [9]. Blood urea & creatinine levels were monitored. Post-operatively patient was advised an obturator to prevent oronasal regurgitation.Mucormycosis has long been considered a deadly infection with bad prognosis. However, early medical and surgical interventions resulted in management survival was now believed to be exceeded 80% (5). In this case, the patient survived due to early diagnosis and timelymanagement. In summary, clinicians should be aware of the possibility of mucormycotic disease infection in immunocompromised or immunosuppressed patients with post-extraction osteonecrosis.

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