MAXILLARY NECROSIS - A CASE REPORT

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Osteonecrosis of the jaws have been reported due to fungal infection, radiotherapy, medicinal side effects, coupled with systemic debilitating conditions. A case of avascular necrosis or osteonecrosis of the right maxillary segment, caused by alcohol abuse coupled with uncontrolled diabetes is being reported. The patient was an alcoholic, taking tobacco in gutkha form and an occasional bidi smoker with a history of diabetes mellitus and cirrhosis of liver. All of these could have led to the necrosis of the right maxillary segment.

Key words: osteonecrosis of jaw, diabetes, alcohol abuse.

Osteonecrosis or avascular necrosis is a condition, where there is death of a segment of bone due to decreased vascularity to that region. It has been categorized as traumatic or atraumatic with the most common sites reported being the femoral head, the knee and the shoulder1. There are various causes cited such as alcoholism, steroid therapy, chemical radiations and systemic diseases like Gaucher's disease, gout and diabetes[2,3].

Though the osteonecrosis of the jaws (ONJ) has been considered as a separate entity, the causes that are cited are Mucormycosis[4] (a fungal infection) or treatment with Zoledronate or radiation therapy to the head and neck region[5]. Massive sequestration of the upper jaw has also been reported in a diabetic patient with severe facial injury[6]. Bisphosphonate therapy used for various tumors and osteoporosis both have revealed ONJ in maxillary and mandibular arches [7,8]. A study by Khamaisi et al is, that a patient undergoing bisphosphonate therapy with underlying systemic disease such as Diabetes mellitus is more at risk of developing ONJ9. Another study on patients undergoing bisphosphonate therapy, who later presented with ONJ revealed that in 80% of these cases, necrosis was initiated by tooth removal[10].

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CASE REPORT

A 42 year old male patient reported to The Dept. of Oral and Maxillofacial surgery, SAIDS: with a chief complaint of some exfoliated teeth in the right side of the upper jaw.

On examination, the facial profile and symmetry appeared normal (fig.1). Intraorally, bare non vital bone was exposed form midline anteriorly to the tuberosity posteriorly. It could be seen that the whole palatal plate on the right side was necrosed till the midline and buccally the necrosis extended from the alveolar process to the anterior and postero lateral wall of the antrum. The canine and the two premolars had exfoliated rendering exposed empty sockets in the right alveolus. All the remaining teeth on the right upper quadrant appeared non vital and the bone was dry and light brown in color (fig.2). The whole segment was slightly mobile, the patient did not experience any pain rather he had a feeling of numbness since a few years.

In the CT Scans the right maxillary segment appeared separated at the mid palatal region, the nasal floor and the lateral antral wall. It also showed that this segment was hypocalcified. The antral lining appeared thickened (fig.3)

Systemic history revealed that the patient was aware that he was a diabetic since a year and a half; he was currently suffering from cirrhosis of liver as well. His FBS was 296mg./dl and PPBS was 405mg./dl.

Personal history revealed that he was an alcoholic for the past 20 years. He remained drunk on uncultured liquor for days together, not bothering to consume any food. He was also using tobacco in the gutka form, for the past 20-25 years, consuming around 7-8 cuds a day keeping them in the right buccal sulcus for 10-15 min. each time. Bidi smoking was occasional. He always consumed hot spicy food. His three teeth from the right maxilla had exfoliated one and half month back.

His treatment was started by controlling the blood sugar levels. After a week of treatment, the patient was found fit to undergo surgical procedure under General Anesthesia (GA). Incisions were placed and flaps were raised around the pathologic area, till healthy bony margins were exposed. The maxilla above the level of the antral floor was necrosed (fig.4). On the palatal side, healthy bony margins were revealed beyond the midline (fig.5). The greater palatine vessels were not encountered as they were within the mucosal flap which was healthy. The resection was performed buccally and palatally along the healthy bony margins where vascularity of the bone could be observed. The resected segment included the right palatal shelf, complete alveolar process with teeth, antral and nasal floor along with the nasal spine (fig.6). Under the sequestrated segment a firm, thick, healthy layer of antral mucosa was present (fig.7). Hemostasis was achieved and wound closed primarily (fig.8).

A palatal plate was given postoperatively (fig.9). Satisfactory healing was observed and rehabilitation was later done by replacing the plate with a removable partial denture (fig.10).

DISCUSSION

Osteonecrosis of the jaw can remain asymptomatic for many weeks or months and can be recognized only by the presence of exposed bone in the oral cavity5. Our patient exhibited similar signs and symptoms.

Diabetes can cause micro vascular diseases, impairing bone nutrition by loss of nutrient vessels in bone11. Also alveolar bone destruction in cases of poorly controlled diabetes is known to occur even in absence of microangiopathy12. Our patient was an uncontrolled diabetic which may have led to the initiation of necrosis of maxillary alveolar ridges.

The pathogenesis of alcohol related avascular necrosis is not clearly understood, there are 2 theories commonly mentioned :- a) Thromboemboli in blood supply to the bone resulting from the circulating fat, b) Vessels occluded by excessive packing of adjacent marrow spaces with extravasated blood or fat. The studies on Chinese alcoholic population investigating the alcohol metabolizing enzyme gene has revealed that alcoholic avascular necrosis coexisted more frequently with alcoholic liver disease than with acute alcoholic pancreatitis13.Our patient was suffering from cirrhosis of liver since 2 yrs, as he was an alcoholic remaining under the influence of alcohol throughout the day continuously for days on end, not consuming food. The patient also smoked occasionally.

Massive sequestration of the upper jaw has been reported in a patient who had suffered severe facial injury and was also suffering from diabetes mellitus 6. Our patient had no history of major trauma, though he may have had minor trauma due to the use of 7-8 cuds of gutkha that contains beetle nut, tobacco and slake lime all mixed together, which he kept in his oral cavity for approximately 10-15 minutes at a time.

Maxillary necrosis have been reported in patients having mucormycosis 4(a fungal infection) and rarely tuberculosis of paranasal sinuses14. These conditions were ruled out from our patient as the histopathology report did not find any fungal filaments or tuberculous granuloma. The report stated it to be a nonspecific infection (fig.11).

Osteonecrosis of the jaw has also been reported in the literature to be caused by osteoradionecrosis, osteomyelitis, osteoporosis, or some cancer treatment protocols. In our case, a thorough clinical examination, history and investigations ruled out the presence of these or any other contributing conditions like Gaucher's disease, gout, corticosteroid therapy, cancer treatment protocol, sickle cell disease, dental

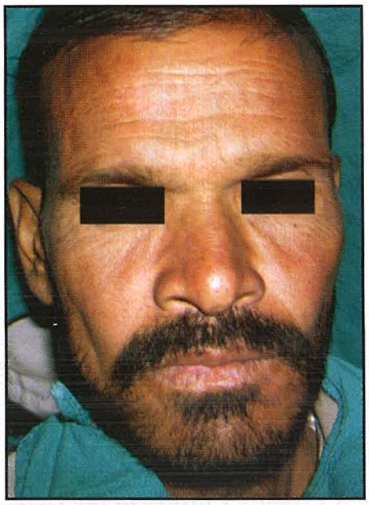


Fig.1 Extra-Oral View Showing Facial Symmetry



Fig:2 Necrosed Right Maxillary Segment

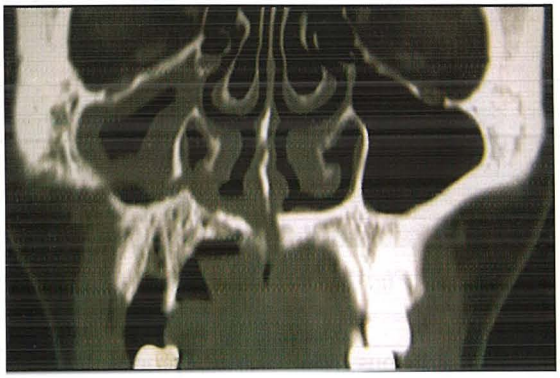


Fig.3 CT Scan Showing the Detached Hypocalsified Segment with Thickened Right Antral Mucosa

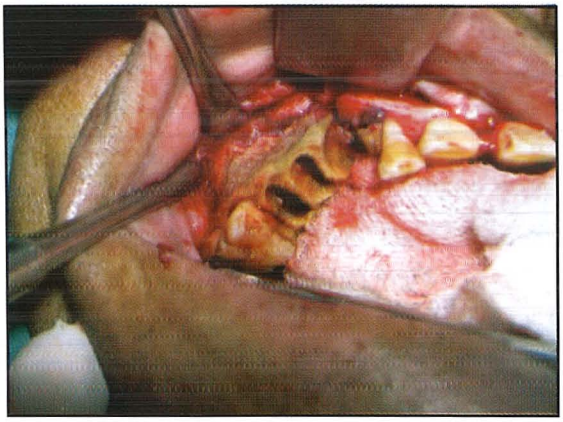


Fig:4 Buccal View of the Necrosed Segment

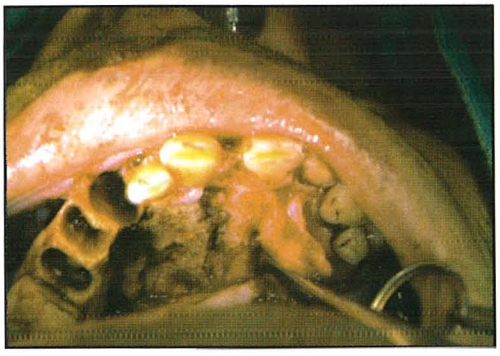


Fig: 5 Palatal Necrosis upto Midline

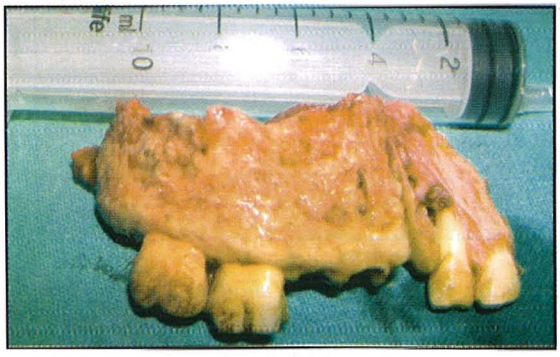


Fig:6 Resected Necrosed Maxillary Segment

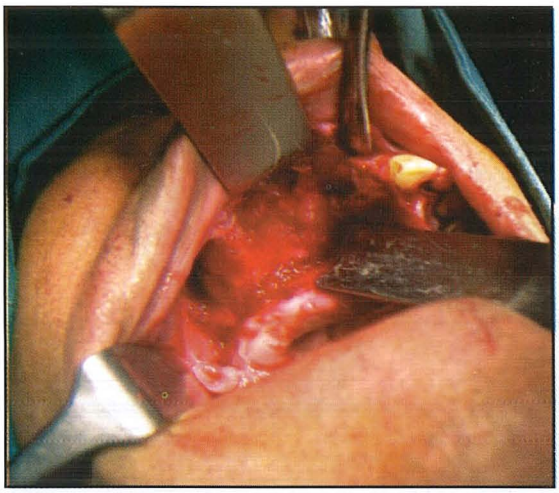


Fig:7 Thick Antral Mucosa

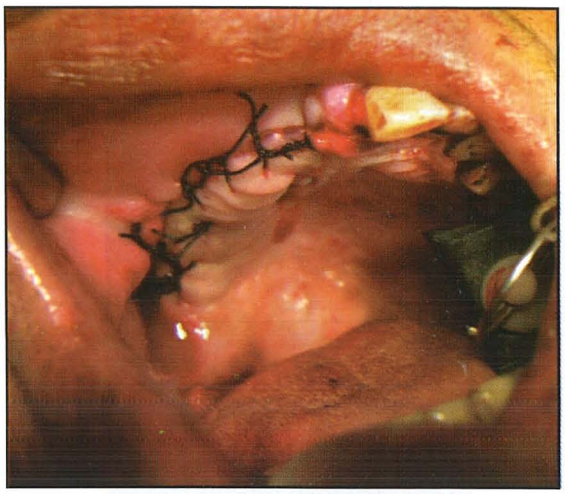


Fig:8 Primary Closure of the Defect



Fig:9 Palatal Plate Support



Fig: 10 Partial Denture

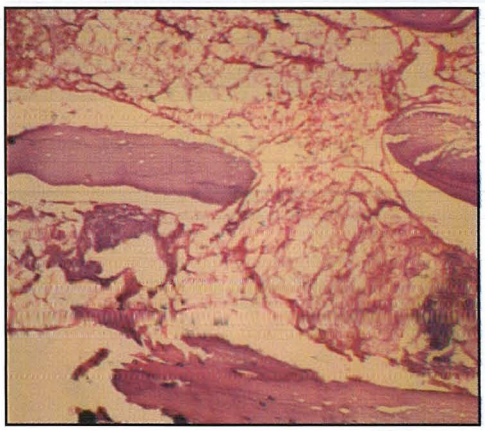


Fig.11: Photomicrograph showing a strip of bony tissue without osteocytes with necrosed fatty marrow.

prosthesis, previous invasive dental procedures 2,3. etc.

CONCLUSION

Thus, the combination of chronic alcoholism, debilitating diabetes mellitus, gutkha consumption and occasional smoking all of which could have led to the necrosis of the right maxillary segment in our patient.

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