

# A Case Report

## Post Traumatic Necrosis of Maxilla - A Case Report

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### Abstract

In the literature osteonecrosis of the mandible and the maxilla is known but traumatic fracture leading to aseptic necrosis of the maxilla is hardly reported. The aim of this case report is to realize the necessity need to closely follow up and treat such patients as it can lead to osteonecrosis of the bone and cause difficulty in daily activities.

**Keywords:** Post-traumatic necrosis, maxilla, osteonecrosis, aseptic necrosis

### INTRODUCTION

Rarely post-traumatic necrosis of the maxilla is reported, only two such case reports have been published about traumatic fracture leading to necrosis of the maxilla.<sup>1,2</sup>

When the vascularity is compromised anywhere in the body or maxilla it develops osteonecrosis that may occur from a traumatic fracture which is also a known complication after surgical osteotomy.<sup>3,4</sup> Some other causes can be infections, tumours and radiation.<sup>5-9</sup> Recently in cancer patients, bisphosphonate-associated osteonecrosis has been reported as an emerging oral complication.<sup>10-13</sup>

Hence, we report a case of mid-face trauma leading to vascularity compromise and aseptic necrosis of the maxilla.

### CASE REPORT - 1

A 23-year-old male patient reported with history of trauma in upper anterior region 10 years back. The teeth became non vital teeth and were endodontically treated 8 years back. From past 1 year, there was presence of intra oral sinus and recurrent inflammation. Hence apicectomy was done in the affected teeth at a government hospital. After 1 month of the surgery there appeared a discoloration of gingiva.

Patient reported with this condition suggestive of necrosis. (Figure 1) Probable reason to be extensive raising of the periosteal flap from both buccal and lingual aspect.

The affected teeth were extracted. (Figure.2) The granulation was done after uneventful healing of 21 days and missing teeth were restored with crown and bridge.



Figure 1: Pre-operative image of patient



Figure 2: Extraction of affected teeth

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<https://zenodo.org/record/8116155>

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**How to cite this article:** Gupta et al.: Post Traumatic Necrosis of Maxilla - A Case Report, HTAJ OCD 2023; May-June(5):23-25

## CASE REPORT - 2

A middle-aged woman presented with the history of a road side accident 2 years back. There was a pan-facial and multiple fracture which were treated by open reduction and bone plating in the plastic surgery department of a government hospital.

The patient presented with necrosis in the upper front and most of the right region of the maxilla. (Figure 3)



Figure 3: Pre-operative image of patient

Probable reason assumed to be compromised blood supply because of extensive surgery, bone plating, trauma etc. The affected teeth were extracted. (Figure 4) The granulation was done after uneventful healing of 21 days.



Figure 4 : Extraction of affected teeth

## DISCUSSION

To the best of our knowledge, only two cases of osteonecrosis of the maxilla from traumatic fracture have been reported.<sup>1,2</sup> In one case described by Cornah and O'Hare,<sup>1</sup> the patient developed maxillary infection due to extensive maxillary fractures associated with Le Fort I and II-type fractures leading to the excision of the maxilla which had undergone complete necrosis.<sup>1</sup> In the other case, due to inadequate treatment, the patient sustained a Le Fort I-type fracture and resulted in a large maxillary defect.<sup>2</sup>

The maxilla's vascular supply arises from the descending palatine artery and the internal maxillary artery.<sup>14</sup> There are a few known conditions that result in osteonecrosis of the maxilla, which occurs when the vascularity is compromised. Causes are broadly classified into septic and aseptic necrosis. Various infections lead to septic osteonecrosis, and malignancy, radiation, trauma, surgery, and bisphosphonate therapy lead to aseptic osteonecrosis.<sup>5-9</sup>

Aseptic necrosis of the maxilla can occur due to malignancy and radiation in the region of the maxillary sinus. In the case of malignancy, such as squamous cell carcinoma of the maxillary sinus, it can cause direct destruction of the maxilla and osteonecrosis by occluding the vasculature.<sup>14</sup> Radiation of tumors in the head and neck region also causes osteonecrosis and is the worst long-term complication of radiotherapy.<sup>9,12</sup>

In elective orthognathic surgery, Le Fort I osteotomy has become a routine procedure.<sup>4</sup> One of the rare known complications of this procedure is ischemia. In a study involving 1000 patients with Le Fort I osteotomy, ischemic complications affected 10 patients, of whom 2 (0.2%) experienced partial aseptic necrosis of the alveolar process.<sup>4</sup> Especially in diabetic patients, a theory suggests that the blood flow to the maxilla after osteotomy is reduced, which may be a cause of necrosis.<sup>15</sup>

Recently, there have been reports in medical literature supporting the association between bisphosphonate use and osteonecrosis, as it is most commonly reported in patients with metastatic disease.<sup>11</sup> Lesser-known causes of osteonecrosis include acute necrotizing ulcerative gingivitis arising from the gingiva, which can involve the maxilla, and Wegener's granulomatosis, which is an inflammatory disease affecting blood vessels.<sup>5</sup>

Surgical reconstruction of the maxilla is a difficult task for the surgeon because it includes the restoration of the original form and function, which has been lost.<sup>16</sup> For the quality of life after the operation, which is optimal, masticatory function, the resonance of the voice, and the architecture of the face have to be restored.<sup>16</sup> Many local flaps have been described, which achieve soft-tissue closure of the defect, such as local flaps of the palatal mucosa used to close small defects and pedicle regional

flaps are used for larger defects, though the most common is the ipsilateral temporalis myofascial flap. Little success is obtained from osseous reconstruction of the maxilla.<sup>17</sup> The method of choice to fabricate the lost dental arch is the reconstruction of the maxilla and the surrounding tissues using a prosthetic maxillary obturator device and the best possible results has been received compared to other methods.<sup>17</sup>

### CONCLUSION

In road traffic accidents trauma to the face is common and mid-face trauma can result into fractures of the maxilla. Proper management of such injuries should be done as they can result in osteonecrosis of the maxilla. Though it is rare, but should be taken seriously as it can lead to significant anxiety for the patient and necessitate major surgery to fill the defect.

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