

Complication of exodontia, mimicking a vascular lesion: A case report

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Abstract

Exodontia is a routine procedure carried out in Dentistry. The most common outcome of extraction is the uneventful healing of the extraction wound, with a very few exceptions of improper or incomplete healing estimated to be about 1.0 to 11.5%. To name a few complications like haemorrhage, pain, discharge, foul odour usually, whereas uncommonly we can see acute alveolar osteitis, trismus, bone dehiscence and rarely hypertrophied clot. We report a rare case of a massive postoperative clot formation mimicking a fast enlarging neoplasm after tooth extraction and a highlight on the various oral complications of surgical procedures.

Keywords: Exodontia, Post-operative complication, Exophytic lesion, Hypertrophic clot, Vascular lesion, Pyogenic granuloma, Tumour.

Introduction

Exodontia is the most common procedure carried out in Dentistry. Tooth extraction is the removal of a tooth, using either forceps or elevators from the dental alveolus or the socket in the alveolar bone, due to various reasons such as dental caries, loose teeth, impacted teeth, etc.¹ The uneventful healing of extraction is the most common outcome that can be seen in normal healthy patients. However, few extraction wounds, estimated at 1.0 to 11.5% in different studies, have been reported to heal improperly or incompletely.² Haemorrhage, pain, discharge, foul odour are common post extraction complications, whereas uncommonly we can see acute alveolar osteitis, trismus, bone dehiscence and rarely hypertrophied clot.³⁻⁵ General systemic complications may include postoperative rise in blood pressure, shock due to blood loss, acute myocardial infarction, pulmonary embolism or septicemia, and at last, low urine production, insufficient fluid substitute intraoperatively and postoperatively may amplify the condition.⁶ All of these culminates into patient's distress, lost days at work and decreased productivity from frequent hospital visits.

The attempt of this case report is to present a case of massive postoperative clot formation mimicking a fast enlarging neoplasm after tooth extraction and highlight on the oral complications of surgical procedures.

Case Report

A 26-year-old male patient reported to the department of Oral and Maxillofacial Pathology of our College with the chief complaint of erythematous exophytic mass in left maxillary first molar region, with the history of continuous oozing of blood from the same site since 1-2 days. Patient had a Dental history of extraction of maxillary left first molar, four days back from a private Dental clinic (Fig. 1).

There was no medical history of any prolonged hospitalization or medications, any past or present noteworthy illness such as coagulation disorders, liver disorders. Patient had a Dental history of extraction of maxillary left first molar, four days back from a private

Dental clinic. On clinical examination the lesion was bright pink to red in colour, tender, soft in consistency. The lesion was measuring of about 2.5 cm in diameter, which was readily bleeding on provocation. A treatment plan of the excision of the lesion under local anaesthesia was decided followed by thorough irrigation & debridement of the socket. Then, histopathological examination of the excised tissue was done (Fig. 2).

On microscopic examination of tissue section stained with the haematoxylin and eosin revealed a huge collection of red blood cells (RBC) in close aggregates with normal morphological architecture. Mixed inflammatory cell infiltrate mainly neutrophils, plasma cells, lymphocytes were also seen dispersed in between the RBC aggregates (Fig. 3). Few areas resembling hemorrhage could also be appreciated (Fig. 4). Based on these features, a final diagnosis of hypertrophic clot was given. Patient healed normally after the treatment and reported to be asymptomatic.



Fig. 1: Exophytic lesion in left maxillary first molar area.

Table 1

Sequence of events	
Hemostatic response	1. Alterations in the vascular bed
	2. Vasodilatation and engorgement
	3. The socket fills the clot
First week: Epithelial response	1. Proliferation of fibroblasts
	2. Peripheral growth of clot
	3. Clot is replaced by granulation tissue
	4. Epithelial margins migrate and proliferate over the granulation tissue
	5. Cells with osteogenic potential invade the clot from adjacent bone marrow
Second week: Clot organization	1. Fibroblasts ingrowth
	2. Neovascularization – enter the center of the clot
Third week: Proliferation and synthesizing phase	1. Clot – completely organized
	2. Young osteoid trabeculae – entire periphery
	3. New osteoblast differentiate and proliferate and form new bone to fill the extraction site
	4. Cortical bone remodelling
Fourth week: Final stage	1. Deposition & remodeling of bone which continue for several weeks
	2. Evident even after 6 th or 8 th week , even 4 – 6 months



Fig. 2: The Gross Specimen.

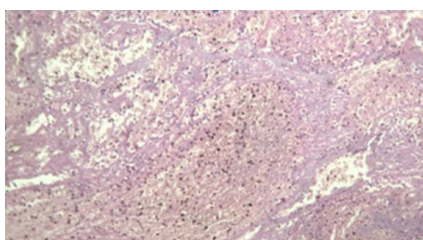


Fig. 3: Histopathological Picture- Numerous RBC with mixed inflammatory cell infiltrate.aggregates.

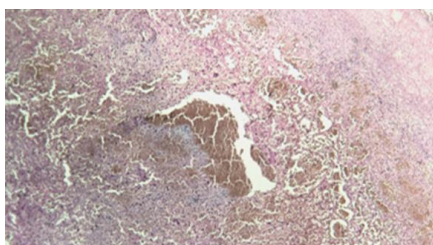


Fig. 4: Histopathological Picture- Hemorrhagic areas with extravasated RBCs.

Discussion

A post-extraction alveolus heals in five overlapping stages, which involves the clotting of the blood, replacement of clot with healthy granulation tissue, replacement of granulation tissue into connective tissue and young pre osseous tissue after a period of 72 hours and by the thirty-eighth day bony trabeculae fills at least two-thirds of the alveolus (Table1).⁷

In a histological study conducted by Amler, he reported some factors for the disturbances in the progression of healing from blood clot to granulation tissue like failure or interference within the mechanism of the granulation tissue development to replace the clot which leads to disintegration of the clot by putrefaction instead of an orderly organic process. This gives rise to the well-known symptoms of dry socket. The study reported histologic examination of infected alveoli which revealed a breakdown of the granulation tissue with a flow of influx of pyogenic cells usually with a preponderance of neutrophils and a few plasma cells and monocytes.⁸

Postoperative hemorrhage seen after extraction of a tooth can be related to several reasons. Firstly, the oral tissues are extremely vascular, therefore the extraction of a tooth leaves an open wound constituting of both soft tissue and the bone; which results in added bleeding during surgery. Secondly, patients may be inclined to irritate the region of surgery with their tongue and infrequently dislodge the blood clot, by generating small negative pressures that cause suction of the blood clot from the region which causes the secondary bleeding.^{9,10} Finally, salivary enzymes could lyse the blood clot before it gets organized, disturbing the formation of granulation tissue.¹⁰ The hemorrhage that is seen after tooth extraction is typically due to venous hemorrhage. If hemorrhage is seen after half an hour of extraction, the patient may encounter difficulty controlling the bleeding with applying pressure only. During that time if patient calls from home, he should

be advised to wipe away the clot with a piece of clean gauze or cotton and apply pressure for 10 minutes and watch. In case of no relief and with continuous bleeding patient should be asked to visit the Dentist immediately. If the patient comes to the Dentist straightaway, the bleeding site should be injected with local anaesthesia along with 1/50,000 epinephrine. Curettage of the fibrin clot and suturing of the site should be done. And if bleeding persists, vasoconstrictive substances such as thrombin or collagen (procoagulants) may be employed. However, active bleeding which cannot be controlled by local measures in the Dental office should be referred to the nearest hospital so that the hemorrhage is managed appropriately and the airway can be secured.¹¹

To control the hemorrhagic risk in patients after intraoral surgical procedures, several protocols have been proposed in literature. Postoperative bleeding can be controlled by combination of local antifibrinolytic therapy and hemostatic agents (fibrin glue) however, these fibrin products are expensive and many times raise the question of the potential for infection by contaminations. Other authors have suggested that patients can safely use tranexamic acid as an antifibrinolytic local agent for two days after the surgery.¹²

The normal clotting mechanism is as a cascade of events where the process is such that one factor will activate the following factor in a sequential manner resulting in the formation of clot. Following removal of the tooth, saline irrigation and direct pressure can be applied to the exposed area. Healing of extraction site takes place after the clot formation and later there will be a progression of that clot to a reorganized matrix preceding to the formation of new bone. Thus, most of the time, the clot resolves on its own.¹³⁻¹⁶

Conclusion

The exophytic oral lesion may range over an array of diseases. A simple post-operative complication like an exuberant clot may mimic lesions like pyogenic granuloma or some tumours. So the microscopic examination by a Pathologist is mandatory to clinch a final diagnosis which is imperative for patient's treatment and health.

Source of funding

None.

Conflict of interest

None.

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