

Liver Clot After Tooth Extraction: Recognizing a Rare Postoperative Complication

Chittaluri. Laxman Roy^{1*} Sudhir Ramiseti¹ D. Ganga Bhavani¹ M.V.N. Pradyumna¹

¹ Department of Oral and Maxillofacial Surgery, Mamata Dental College and Hospital, Khammam, Telangana, India.

ABSTRACT

Background: Post-extraction bleeding is a common concern in oral surgery and is usually controlled by normal physiological hemostasis. However, a liver clot, also known as a currant jelly clot, is a rare postoperative complication that may be overlooked or confused with other pathological lesions. We report two cases of liver clot formation following tooth extraction. Both patients presented with persistent postoperative bleeding and pain, with clinical examination revealing a characteristic dark red to brown, soft, gelatinous mass occupying the extraction socket. Comprehensive clinical evaluation and appropriate investigations were performed to assess potential local and systemic contributing factors. The lesions were managed surgically with removal of the unstable clot and appropriate management of the extraction socket, followed by histopathological evaluation where indicated. These cases emphasize the importance of recognizing the characteristic clinical appearance of a liver clot in patients presenting with persistent post-extraction bleeding. Early diagnosis, prompt local hemostatic management and appropriate evaluation for underlying systemic abnormalities are essential to prevent recurrent hemorrhage and facilitate uncomplicated socket healing.

Keywords: Liver Clot; Tooth Extraction; Post operative complication.

INTRODUCTION

One of the most commonly performed procedures in Oral and Maxillofacial Surgery is Tooth extraction. Although natural dentition preservation is a primary objective of modern dentistry, tooth extraction continues to be a common and necessary procedure in clinical practice. Extensive dental caries, advanced periodontal disease and orthodontic treatment requirements are the most frequent indications for extraction.

Despite being a routine procedure, postoperative complications occur in approximately 1–30.9% of cases and include pain, alveolar osteitis, edema, trismus, infection, paresthesia and postoperative hemorrhage. [1] Post-extraction bleeding is usually self-limiting in healthy individuals and is commonly caused by local factors such as premature clot dislodgement, manipulation of the extraction site by

the patient or by action of the salivary enzymes or early fibrinolysis.

A rare complication is the formation of a liver clot (currant jelly clot), which is presented as dark red, soft, gelatinous, friable mass composed of poorly organized erythrocyte-rich blood. Although it remains an uncommon occurrence, liver clot has been reported following post periodontal surgeries, [2] dental implant procedures, or even after routine extraction cases. [3,4]

Liver clot formation is usually associated with inadequate local hemostasis, however it may occasionally indicate an underlying systemic disorder such as platelet dysfunction, coagulation abnormalities, liver disease, anticoagulant therapy or hematological malignancy. Early recognition and appropriate management are essential to control

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*Correspondence Dr Chittaluri L Roy.

Department of Oral and Maxillofacial Surgery, Mamata Dental College and Hospital, Khammam, Telangana, India.

Email: laxman22roy@gmail.com

bleeding, promote healing and identify any underlying systemic condition.

CASE REPORT 1

A 60-year-old female from Khammam, Telangana presented to the Department of Oral and Maxillofacial Surgery on 29 May 2024 with a chief complaint of persistent pain over the right side of the face for 15 days following extraction of the right maxillary posterior tooth. The patient reported that she was apparently asymptomatic before the extraction. Subsequently following the procedure, she experienced uncontrolled postoperative bleeding from the extraction socket, accompanied by continuous dull aching pain of insidious onset, occasionally radiating to the ipsilateral temporal and auricular region. She initially sought treatment at local hospital in Bhadrachalam and was subsequently referred to our tertiary care center for further evaluation and management.

The patient's medical history was significant for hypertension for the past three years duration, controlled with antihypertensive medication. She also had a history of orbital surgery performed three years earlier, with an uneventful postoperative recovery. There was no relevant dental or family history. The patient consumed a mixed diet, brushed once daily, and reported normal bowel and bladder habits. She denied any parafunctional or deleterious habits.

On general physical examination, the patient was moderately built, measuring 4 feet 7 inches in height and weighing 47 kg. She was conscious, cooperative, and oriented with a Glasgow Coma Scale score of 15/15. Her gait was normal, vital signs were within normal limits, and there were no evident signs of pallor, icterus, cyanosis, clubbing, lymphadenopathy, or edema.

Extraoral examination revealed no obvious facial asymmetry or swelling. Tenderness was elicited over the right maxillary region on palpation.

Intraoral examination showed adequate mouth opening and fair oral hygiene. Tooth 11 exhibited Grade II mobility, while teeth 17, 26 and 28 were clinically missing. Clinical examination revealed a well-defined, sessile, brownish, soft, compressible mass occupying the extraction socket in relation to the missing right maxillary second molar (17). The

lesion was non-tender, showed no bleeding on gentle palpation or probing and was not associated with local temperature rise, purulent discharge or sinus tract. Based on the clinical presentation, a provisional diagnosis of liver clot (currant jelly clot) associated with the extraction socket in relation to tooth 17 was established.

Prior to surgical intervention a comprehensive diagnostic work-up was undertaken. Routine preoperative investigations, including complete blood count, major surgical profile, serum electrolytes, liver function tests, electrocardiography, chest radiography and maxillary occlusal radiography were performed. The patient subsequently underwent surgical excision of the lesion with biopsy under general anesthesia. The excised specimen was submitted for histopathological examination to establish the definitive diagnosis.

The H&E-stained tissue section showed fragmentation of hyperplastic pseudostratified squamous epithelium. The underlying connective tissue consisted of fibrous tissue and unorganized blood clot-like material, along with inflammatory cell infiltrate and bacterial colonies. [Figure 1] shows the sequential preoperative and intraoperative images documenting the surgical management of the case.



Fig 1: Pre-operative and Post-operative images of case 1.

CASE REPORT 2

The patient presented with a chief complaint of pain and persistent bleeding from the lower left posterior tooth region for the past three days. The patient was apparently asymptomatic until three days prior to presentation, when pain developed in the lower left posterior region following a dental procedure. This was associated with continuous oozing of blood from the extraction site and the formation of a dark red, gelatinous blood clot. Owing to the persistence of pain, bleeding and clot formation, the patient reported to the Department of Oral and Maxillofacial Surgery for further evaluation and management.

Clinical examination demonstrated a well-defined, dark reddish-brown, gelatinous mass completely occupying the extraction socket in the left mandibular posterior region. On the basis of persistent post-extraction bleeding and the characteristic appearance of the lesion, a provisional diagnosis of a liver clot (currant jelly clot) involving the extraction socket was established. The differential diagnosis included an organized blood clot, exuberant granulation tissue, pyogenic granuloma, peripheral giant cell granuloma and an underlying vascular lesion presenting as persistent post-extraction bleeding. A comprehensive clinical and radiographic evaluation was therefore planned to exclude associated local or systemic pathology before definitive surgical management under General Anesthesia.

Following the clinical and radiographic evaluation, the lesion was surgically removed under general anesthesia and sent for histopathological examination. The H&E-stained sections showed fibrous connective tissue along with unorganized blood clot-like material, chronic inflammatory cell infiltrate and bacterial colonies. These histopathological findings, together with the characteristic clinical presentation, supported the diagnosis of a liver clot (currant jelly clot). The preoperative clinical findings and intraoperative surgical views are depicted in [Figure 2].

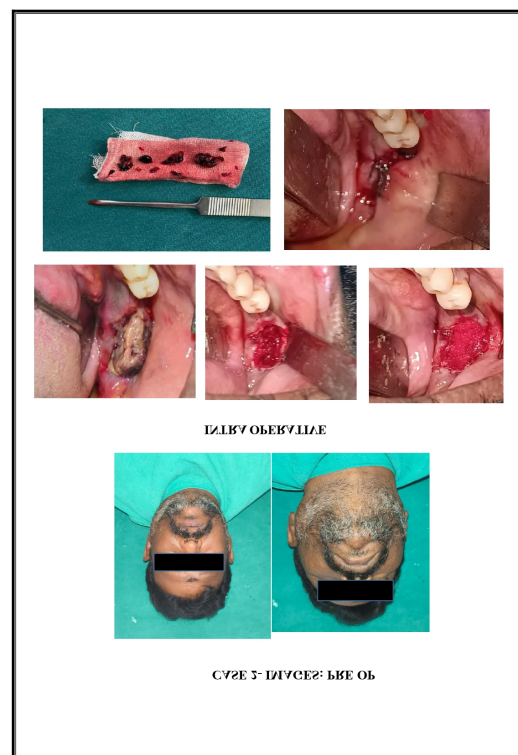


Fig 2: Pre-operative and Post-operative images of case 2.

DISCUSSION

One of the most common complications encountered in oral surgery is post-extraction hemorrhage. In most patients, bleeding is self-limiting and controlled by normal physiological hemostasis, which involves primary hemostasis through vasoconstriction and platelet plug formation, followed by secondary hemostasis through activation of the coagulation cascade and fibrin clot formation. Once tissue repair begins, fibrinolysis gradually dissolves the clot and restores vascular integrity. Disruption of any of these mechanisms, or failure to achieve adequate local hemostasis, may result in prolonged postoperative bleeding and delayed wound healing. [5]

Postoperative hemorrhage is conventionally classified as primary, reactionary, and secondary. Primary hemorrhage occurs during the surgical procedure due to injury to blood vessels. Reactionary hemorrhage usually develops within the first few hours after surgery and may result from the loss of vasoconstrictor effect, elevation of blood pressure, or displacement of the initial clot. Secondary hemorrhage generally occurs several

days after surgery and is commonly associated with infection, trauma, premature fibrinolysis, or disruption of the healing socket. [6] Liver clot formation is considered an uncommon manifestation of post-extraction hemorrhage and typically develops within 24–48 hours, as a result of persistent oozing from the extraction socket and failure of stable clot organization. [7]

A liver clot, also referred to as a currant jelly clot, is a dark red, soft, friable, gelatinous coagulum composed predominantly of erythrocytes suspended in an unstable fibrin matrix. It usually results from persistent venous oozing rather than arterial bleeding, producing the characteristic non-pulsatile, dark-colored appearance. [8] Local factors such as traumatic extraction, premature clot dislodgement caused by tongue movement or vigorous mouth rinsing, infection and excessive fibrinolytic activity within the extraction socket are recognized predisposing factors. However, systemic conditions including thrombocytopenia, coagulation disorders, liver disease, anticoagulant therapy, and hematological malignancies should always be considered, particularly in patients presenting with persistent or recurrent postoperative bleeding.

Management of a liver clot primarily involves removal of the unstable coagulum using high-speed suction or a large curette, followed by copious irrigation of the extraction socket with sterile saline. [9] Direct pressure is then applied to achieve hemostasis, and suturing is required only in selected cases where local bleeding persists. Additional local hemostatic agents may be used when necessary. Prompt treatment relieves patient discomfort, facilitates normal socket healing and prevents recurrent hemorrhage. Careful preoperative medical assessment, appropriate laboratory investigations in selected patients, meticulous surgical technique and effective postoperative instructions remain essential for preventing this uncommon complication and identifying patients with previously undiagnosed bleeding disorders.

These cases highlight the importance of recognizing liver clot as a rare but clinically significant post-extraction complication. Early diagnosis, appropriate local management and evaluation for possible systemic causes are essential to ensure successful healing and favorable patient outcomes.

CONCLUSION

Liver clot is an uncommon complication of post-extraction bleeding and can present as a soft, dark red mass within the extraction socket, often causing pain and persistent bleeding. Early recognition, careful clinical evaluation, and timely surgical removal with histopathological examination are important to establish the diagnosis and achieve successful healing. Awareness of this rare entity will help clinicians differentiate it from other post-extraction lesions and provide appropriate management.

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