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Incidence Of Clot Dislodgement Complications Following Molar Extractions

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ABSTRACT

Background: Clot dislodgement following molar extraction is a common postoperative complication that can lead to delayed healing and painful conditions such as alveolar osteitis (dry socket). Introduction: The integrity of the blood clot is essential for proper healing after tooth extraction. Its premature loss may result in various complications, affecting patient comfort and recovery outcomes. Aim: This study aimed to evaluate the incidence and types of complications associated with clot dislodgement following molar extractions. Method: A retrospective observational study was conducted by analyzing 200 patient records obtained from the Dental Information Archiving System (DIAS) at Saveetha Dental College and Hospital. Data collected included patient demographics, indications for extraction, type of complication, time of onset, management, and clinical outcomes. Result: Pain and swelling were the most commonly observed complications, followed by infection, dry socket, bleeding, and sinus-related complications. A higher incidence of complications was noted among female patients. Conclusion: Clot dislodgement significantly contributes to post-extraction complications. Proper surgical technique and adherence to postoperative care protocols are essential to minimize risks and improve healing outcomes.

Key Words: Clot dislodgement; Dry socket; Alveolar osteitis; Molar extraction; Post-extraction complications

INTRODUCTION

Tooth extraction is one of the most frequently performed procedures in oral and maxillofacial surgery, indicated for a variety of conditions such as dental caries, periodontal disease, impaction, trauma, and orthodontic requirements. Although generally considered a routine procedure, it initiates a complex biological process involving wound healing and tissue regeneration. Following extraction, a blood clot forms within the socket, which acts as a temporary matrix and protective barrier over the exposed bone and nerve endings. This clot is essential for uneventful healing, as it facilitates key processes such as hemostasis, granulation tissue formation, angiogenesis, and epithelialization [1].

The stability and integrity of this blood clot are critical for successful postoperative recovery. However, disruption or premature dislodgement of the clot can compromise the healing cascade and lead to a range of complications. Among these, alveolar osteitis, commonly known as dry socket, is the most notable and clinically significant condition. It is characterized by intense throbbing pain, exposure of alveolar bone, foul odor (halitosis), and delayed wound healing [2]. Dry socket typically develops within 2–5 days following extraction and is more frequently associated with mandibular molars, particularly third molars, due to their dense bone structure and relatively reduced blood supply [3].

The reported incidence of clot dislodgement and dry socket varies considerably depending on the nature of the extraction and patient-related factors. It ranges from approximately 1% to 5% in routine extractions and may increase to as high as 30% in surgical extractions, especially those involving impacted third molars [4]. This variability highlights the multifactorial etiology of clot dislodgement. Several predisposing factors have been identified, including traumatic or prolonged extraction procedures, smoking, poor oral hygiene, hormonal influences (particularly in females), use of oral contraceptives, systemic conditions that impair healing, and inadequate adherence to postoperative instructions.

In addition to alveolar osteitis, clot dislodgement can result in other postoperative complications such as infection, persistent bleeding, sinus exposure (especially in maxillary molars), and delayed wound healing [5]. These complications not only increase patient discomfort but may also necessitate additional clinical interventions, thereby increasing the overall treatment burden. Therefore, understanding the mechanisms, risk factors, and patterns of complications associated with clot dislodgement is crucial for improving clinical outcomes and enhancing patient care.

Despite the clinical significance of these complications, there is limited literature focusing on their comparative incidence and distribution, particularly within the Indian population. Most existing studies emphasize dry socket alone, with less attention given to other associated complications. Hence, there is a need for comprehensive evaluation to better understand the spectrum of complications arising from clot dislodgement following molar extractions

2. AIM AND OBJECTIVES

Aim

To determine the incidence of clot dislodgement and its associated complications following molar extractions.

Objectives

- To identify the most common complications following clot dislodgement
- To analyze gender distribution of complications
- To evaluate clinical outcomes and management strategies

3. MATERIALS AND METHODS

3.1 Study Design

A retrospective observational study was conducted.

3.2 Study Setting

The study was carried out at Saveetha Dental College and Hospital, Chennai, India.

3.3 Sample Size

A total of **200 patients** who underwent molar extraction were included.

3.4 Data Collection

Patient data were retrieved from the **Dental Information Archiving System (DIAS)**. The following parameters were recorded:

- Age and gender
- Indication for extraction
- Type of complication
- Time of onset
- Management provided
- Clinical outcome

3.5 Inclusion Criteria

- Patients who underwent molar extraction
- Patients with complete clinical records

3.6 Exclusion Criteria

- Incomplete or missing records
- Patients with systemic diseases affecting healing

3.7 Statistical Analysis

Data were analyzed descriptively. Frequency and percentage distributions were calculated.

4. RESULTS

Figure 1: Post-extraction complications

4.1 Distribution of Post-Extraction Complications

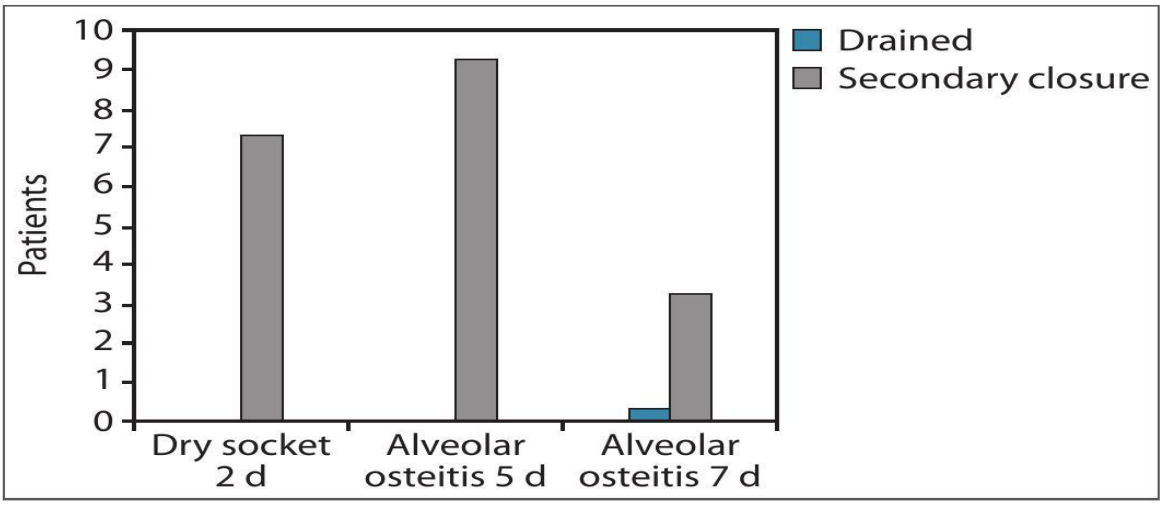

Figure 2: Distribution of post-extraction complications

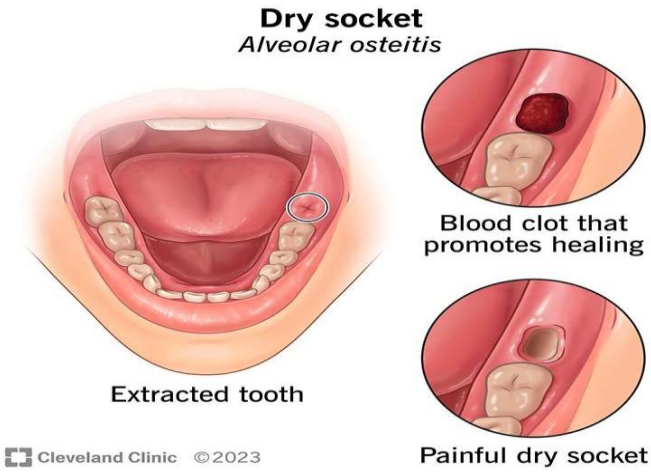

Figure 3: Prevalence of different complications following clot dislodgement

Age	Sex	Complications	Medication	Management
47	F	pain	augmentin	Wound irrigation
40	F	Pain,swelling	Zerodol-sp	Wound irrigation, packing done
38	M	Infection	Amoxicillin	Wound irrigation
43	F	Pain	Augmentin	Wound irrigation
52	F	Dry socket	Aug, Zerodol	Wound irrigation,packing done
55	M	Pain,swelling	Augmentin	Wound irrigation
57	M	Pain	Aug, Zerodol	Wound irrigation
62	F	Infection	Amoxicillin	Wound irrigation
54	F	Pain	Aug, Zerodol	Wound irrigation
65	F	Pain,swelling	Aug, Zerodol	Wound irrigation

Figure 4: Gender-wise distribution of complications

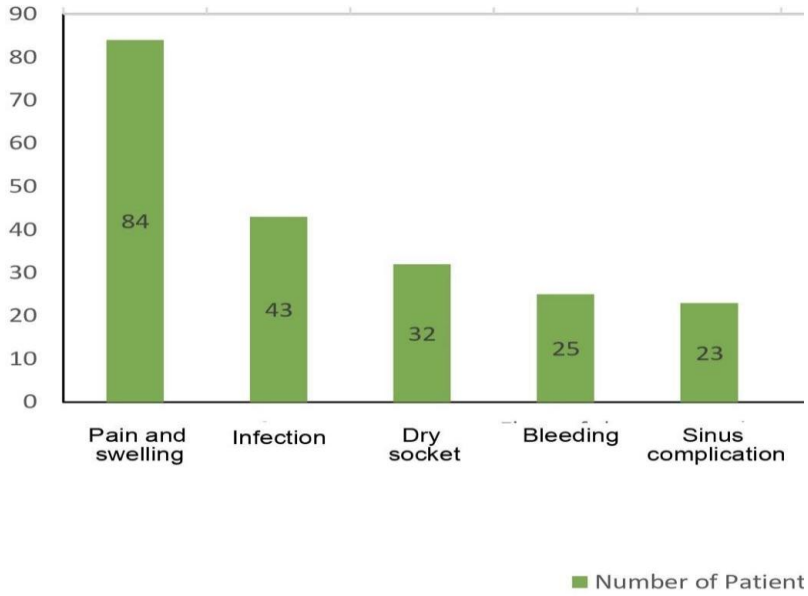

Figure 5: Clinical outcomes after management of complications

The analysis of 200 patient records revealed the following pattern of complications:

- **Pain and swelling** – most common
- **Infection** – second most common
- **Dry socket (alveolar osteitis)**
- **Bleeding**
- **Sinus complications** – least common

4.2 Gender Distribution

- Higher incidence of complications was observed in **female patients** compared to males.

4.3 Clinical Outcomes

- Most cases were managed successfully with medication and local care
- Delayed healing was observed in dry socket cases

5. DISCUSSION

The present study evaluated complications associated with clot dislodgement following molar extractions. The findings indicate that **pain and swelling** are the most frequent complications, consistent with previous studies [6]. These symptoms are primarily due to inflammation and tissue trauma following clot loss.

Dry socket, although less frequent than pain and swelling, remains a clinically significant complication due to its severity and impact on patient comfort. The pathogenesis involves fibrinolysis of the clot, leading to exposure of bone and nerve endings [2].

The higher prevalence among female patients may be attributed to hormonal influences, particularly estrogen, which enhances fibrinolytic activity and increases susceptibility to clot breakdown [7].

Infection was identified as the second most common complication, highlighting the importance of maintaining aseptic conditions and postoperative oral hygiene. Sinus complications, though rare, are typically associated with maxillary molar extractions due to proximity to the maxillary sinus [5].

The findings emphasize the need for:

- Atraumatic surgical techniques
- Proper postoperative instructions
- Use of medicated dressings when necessary

6. LIMITATIONS

- Retrospective design
- Limited sample size

- Lack of long-term follow-up
- No evaluation of lifestyle factors (e.g., smoking)

7. CONCLUSION

This study concludes that **pain and swelling are the most common complications following clot dislodgement**, followed by infection, dry socket, bleeding, and sinus complications. Female patients showed a higher incidence of complications. Proper surgical technique and adherence to postoperative instructions are essential to minimize clot dislodgement and improve healing outcomes..

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