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Case Report

Secondary hemorrhage after extraction of impacted mandibular third molar: An unusual case report

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ABSTRACT:

Extraction of impacted third molars is one of the most routinely practiced procedures by an oral and maxillofacial surgeon. The post-operative complications can range from minor pain, swelling or trismus to major complications such as uncontrolled intra-operative or post-operative hemorrhage or airway obstruction. Major complications can be defined as complications that need further treatment and may result in irreversible consequences. The factors contributing to these sequelae are complex as well as outlandish. This is a case of a 24-year-old male who underwent surgical extraction of his impacted mandibular third molar which culminated in an unusual type of secondary bleeding which presented two days after the extraction.

Keywords: Secondary hemorrhage, trans-alveolar extraction, platelet rich fibrin.

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INTRODUCTION

Extraction of impacted third molars is one of the most routinely practiced procedures by an oral and maxillofacial surgeon. The post-operative complications can range from minor pain, swelling or trismus to major complications such as uncontrolled intra-operative or post-operative hemorrhage or airway obstruction. Major complications can be defined as complications that need further treatment and may result in irreversible consequences. The factors contributing to these sequelae are complex as well as outlandish. This is a case of a 24-year-old male who underwent surgical extraction of his impacted mandibular third molar which culminated in an unsual type of secondary bleeding which presented two days after the extraction.

CASE REPORT

A 24-year-old male reported to department of oral and maxillofacial surgery at our institute with the chief complaint of pain in the lower right back tooth region since past 14 days. Patient was apparently asymptomatic 14 days back when he noticed pain in the right posterior tooth region. The pain was intermittent in nature which gradually turned to be continuous and dull aching. It aggravated on chewing and was relieved on taking medication. The pain was not associated with any swelling or pus discharge. The patient denied any history of systemic diseases such as diabetes, hypertension, hepatitis or blood dyscrasias. Patient neither gave any history of previous hospitalization nor any dental procedures done. Intra-oral examination revealed inflamed operculum along with positive tenderness on percussion with horizontally impacted mandibular right third molar. The patient was advised extraction for the same. OPG and routine investigations were performed. Haemoglobin count, bleeding time and clotting time were within normal limits. Ipsilateral maxillary third molar was extracted as a prophylactic measure to prevent cheek bite and trans-alveolar extraction was performed under local anesthesia using modified ward's incision followed by bone guttering and tooth sectioning the tooth was extracted and adequate closure was done. Since the procedure performed was uneventful the patient was sent home and anti-biotics and anti-inflammatories were prescribed. Two days after the extraction the patient came with the complaint of bleeding from the extraction socket of mandibular third molar which was managed locally by

firm pressure via gauze soaked in sepgaurd 1% (feracrylum) and administration of tranexamic acid 100mg/ml intra-venously. The patient reported after two days with the same complaint of bleeding from the extraction socket, this time the decision was taken to surgically explore the bleeding site, incision was given after administration of local anesthesia and socket was explored. Electrocautery was used and the bleeding was arrested followed by re-suturing and administration of tranexamic acid intra-venously. Peculiarly after two days the patient reported again with the complaint of bleeding. As shown in figure 2 the clot got dislodged in the oral cavity just above the socket. Suspecting any bleeding disorders complete blood profile was sent to the lab but all values (bleeding time, clotting time, prothrombin time, activated prothrombin time & platelet count) were within normal limits. Decision was made again to surgically explore the site, the clot was removed and site was thoroughly irrigated, cleaned and fresh bleeding was induced. 10ml of blood was withdrawn and was centrifuged at 3000 rpm for 10 minutes to obtain platelet rich fibrinogen (PRF).

Fig 1: Orthopantogram showing horizontally impacted right mandibular third molar.

Fig 2: Dislodged clot on the sixth day post-operatively

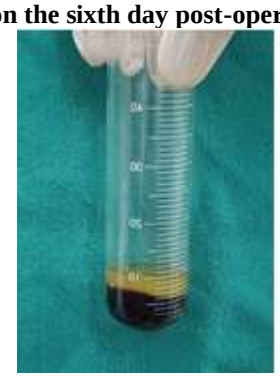

Fig 3: PRF placed into the extraction socket

PRF was placed in the socket to promote better healing and prompt closure as shown in figure 3.
Following the PRF placement and closure the patient was kept under observation for the next two days to check for any untimely bleeding. After two days there was no complaint of bleeding from the operated site.

Fig 4: Healing after 10 days of PRF placement

Fig 5: Post-operative OPG

On follow up after 10 days, there was no bleeding from the operated site and wound healing was satisfactory and adequate.

DISCUSSION

The surgical extraction of the lower third molar has been widely practiced and its complications are also well reported; however, there are very few reports about minor complications and their prevention.[1] The overall complication rate associated with the removal of third molars is 7% to 10%, and the risk of hemorrhage is 0.2% to 1.4%.[2,3] In one large study involving a retrospective analysis of 1,000 mandibular and 500 maxillary third molar extractions by oral surgeons,[3] the rate of postoperative complications was 4.3% for the mandibular extractions and 1.2% for the maxillary extractions. The rate of postoperative bleeding for mandibular and maxillary third molar extraction was 0.6% and 0.4%, respectively.[3] Jensen[4] reviewed 103 cases of postoperative hemorrhage after oral surgery and made several important observations. He found that the male to female ratio was 2:1, and the age range was 21 to 45 years. There was a personal or family history of bleeding in 25% of cases. Postoperative bleeding occurred within 8 hours of the surgery in 75% of cases. More than half of the patients (54%) underwent some form of unsuccessful hemostatic intervention in the office or the ED. The general physical condition of the patient was not affected in 84% of cases. Among cases in which the location of the bleeding was identified, 7% had an arterial source and 72% involved hemorrhage from the soft tissue. A single site of bleeding was found in 43% of cases. About a quarter (26%) of patients left the dental office with active bleeding, and 10% had inadequate postoperative instructions. Local control was successful in 84% of patients. Hematological investigations revealed no diagnosable bleeding abnormalities, except in 4 patients with previously known coagulation deficiencies. Post-extraction hemorrhage, or bleeding after a dental extraction, can be caused by either local or systemic factors [5,6]. Local factors refer to those that are specific to the site of the extraction, such as damage to the soft tissues or blood vessels during the procedure. Systemic factors, on the other hand, are those that affect the body as a whole and can include medications or underlying medical conditions that impact blood clotting. Some systemic factors that can increase the risk of post-extraction bleeding include medications that directly or indirectly affect coagulation, such as anticoagulants or antiplatelet drugs. Additionally, patients with liver disease or hypertension may be at higher risk due to the impact of these conditions on blood clotting.[10] Local factors that can contribute to post-extraction hemorrhage include injury to the soft tissues, such as the gums, as well as damage to blood vessels during the extraction process. Bleeding from the mandibular molars is more common than from the maxillary molars due to the highly vascularized nature of the floor of the mouth. In particular, bleeding from the distolingual aspect of the mandibular third molar region can be particularly severe due to the presence of an accessory artery emanating from the lingual aspect of the mandible.[7] While routine preoperative blood testing is not necessary for patients without a relevant medical history of coagulation disorders, some patients may experience bleeding even if they have a normal hematological profile.[8] This may be due to oral fibrinolysis caused by salivary enzymes, which can lead to clot lysis. In such cases, the use of fibrin-stabilizing factors such as epsilon-aminocaproic acid and tranexamic acid may be helpful in controlling bleeding.[9] In our case the bleeding was due to some local factors as there was no abnormality detected in the blood examination. One possible cause of post-extraction hemorrhage is direct injury to the lingual artery or one of its branches in the distolingual aspect of the extraction site, particularly in cases involving the mandibular third molar. However, it is also possible for bleeding to occur as a result of the use of a handpiece during the procedure, which can cause laceration of any blood vessel in the area if it is passed too deeply into the surrounding tissues. This highlights the importance of careful and precise technique during dental extractions to minimize the risk of complications such as post-extraction bleeding. Another cause of recurrent timely haemorrhage could be if the patient didn't follow proper instructions even after reinforcing post-operatively. Generation of negative pressure by the act of spitting can dislodge the clot from the operated site. Coming to the management of the case the local measures to achieve hemostasis are usually enough to cover up, although in our case firm digital pressure by 1% feracrylum soaked gauze could stop the bleed temporarily but ultimately it bled after every two days. Even the use of electrocautery just gave a temporary solution to the problem. It was noticed that not just hemostasis but good and faster healing was also necessary. Platelet-rich fibrin (PRF) is a biological product that is derived from a patient's own blood and is used to promote tissue healing and regeneration. It is obtained by spinning a sample of the patient's blood in a centrifuge, which separates the various components of the blood into distinct layers. The layer that contains the highest concentration of platelets and other growth factors is collected and processed into a gel-like substance called PRF. This substance is rich in fibrin, a protein that plays a critical role in blood clotting, as well as platelets and other growth factors that stimulate tissue repair and regeneration. PRF is used in a extensively by oral and maxillofacial surgeons to promote healing and reduce the risk of complications such as infection and bleeding. In a study, M. Gogulanathan et al[11] evaluated fibrin agent as wound closure agent in mandibular third molar surgeries. In this study thirty patients with bilateral mandibular third molar impactions were recruited. Using a split-mouth study design, wound closure following extraction was done using fibrin sealant on the study side and suturing on the control side. They concluded that, fibrin sealant is a superior intraoral wound

closure and haemostatic agent and a worthy alternative to suturing.

CONCLUSION

Performing an uneventful impacted third molar extraction requires careful planning, proper technique, and attention to detail. Thorough evaluation of medical history of the patient, adequate anesthesia and proper technique of extraction causing minimal trauma to underlying and adjacent structures are the key points to keep in mind while doing the procedure. Although complications like post-operative bleeding are relatively rare, one should be ready to manage when required with proper knowledge of anatomy, physiology and causative factors of hemorrhage. Surgeons should be well versed with the use of local as well as systemic hemostatic agents to successfully manage such cases.

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