

## Preoperative Assessment of the Patients Undergoing Periodontal Surgery Who Taking Isotretinoin: A Report of Two Cases

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### Abstract

Hemorrhage is a common result of periodontal or oral surgery, moreover, the conflicting data suggesting that isotretinoin may cause an untoward effect on wound healing, from dental procedures such as periodontal treatments; these patients, noted by a tendency to hemorrhage, develop a hard challenge in the dental exercise. Although progress in the medical diagnosis of bleeding disorders has exhibited dental professionals to new cases not corresponding to the application of the management protocols correlated with other, better-known, complaints. We report a unique case of two women of abnormal bleeding at the surgical site on the patient described, during and after medication with oral isotretinoin for acne. There aren't any hallmarks correlating to the attention of such subjects should be identified and brought to attention when the dental procedure is deliberate and need to be known the subject of the recommended approach.

**Keywords:** Isotretinoin; Periodontal flap surgery; Prolong bleeding; Postoperative hemorrhage

### Introduction

Acne patients are generally otherwise healthy, young, and physically active. As the treatment period may be as long as 6-8 months, such kind of patients may, subject to Facial and sports injuries, traffic accidents requiring urgent surgeries or elective Procedures such as rhinoplasty or oral surgeries during the treatment interval It is risky for the operator to know the possible bleeding and coagulation hazards, which may also be impacted by the usage of about medicine. There are few statements about the effects of systemic isotretinoin medication on bleeding and coagulation parameters [1,2]. Patients with acne may need periodontal surgery through medication with isotretinoin and so the operators should consider the possible effects of this prescription on coagulation systems; although normal bleeding occurs after periodontal surgery. Isotretinoin is a vitamin A derivative and has been used in dermatology since 1982 for treating severe acne [3]. This case report describes the rare development of an abnormal clot subsequent periodontal flap surgery in Patients were treated with isotretinoin. Baseline surveys in the form of liver function tests and lipid profiles are very important and patients must systematic follow-ups. Isotretinoin causes complications include cheilitis, hair loss, dryness of mucous membranes [4-6]; and increased serum transaminase levels [7]; hematologic abnormalities (white blood cell, hemoglobin, or platelet counts) were rare and generally mild [8]; although there are conflicting data coming from these case reports, there are few examinations about effects of isotretinoin on blood coagulation and fibrinolytic system [9,10]. In 1993, a study; reported the effect of isotretinoin on endogenous tissue-type plasminogen activator (t-PA) and plasminogen activator inhibitor-1 (PAI-1) in humans. A recent study showed that both platelet count and the mean platelet volume were significantly decreased following the treatment [11]; instead, in other study, indicated that a significant increase in a PTT was detected, and mentioned that Isotretinoin seems to have no effect on these coagulation parameters [2]; but this report to highlight the regions of main attention, and to advise supervision regimens for subjects who take an isotretinoin; describes the rare development of an abnormal clot subsequent periodontal flap surgery in patients were treated with isotretinoin.

### Case Reports

#### Case 1

A 23-year-old Iranian female was admitted to my dental clinic. The patient presented to achieve with isotretinoin for acne, after 2 months of initiating isotretinoin therapy, she referred to my section to crown-lengthening of mandibular molar tooth on the left side, She reported a history of having an extraction of wisdom tooth approximately 6 months previously, further reported an unexpected consequence of significance; there were no bleeding problems related to the extraction site on the left molar area of the mandible. Earlier in the surgical flap procedure, routine hematological consideration, were done and all the amounts were found to be within normal limits. The patient deprived of any history of NSAID use prior to her surgical procedure. She also denied taking any herbal medications. Scaling and Root planning were implemented at the primary appointment, and a few days later, a periodontal flap surgery technique was designed to treat the site. The patient was given oral antibiotics, analgesics, and antiseptic mouthwash for 5 days.

#### Case 2

A 24-year old Iranian female, after 3 months of the last part of therapy with isotretinoin, was referred to my dental office for a periodontal evaluation with the complaint of an extensive sub gingival caries in maxillary right second premolar tooth on the lingual aspect, not known to have any previous medical problems, and no family history, further biochemistry and blood counts were normal. She reported a history of having a sub-epithelial connective tissue graft about 8 months ago,

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Coagulation parameters patients		Normal range	Coagulation parameters in	
			Case: 1	Case: 2
Prothrombin time	PT	11-14 seconds	12.3 seconds	12 seconds
Partial thromboplastin time	PTT	25-35 seconds	30 seconds	30 seconds
International normalized ratio	INR	0.8 to 1.2	1.1	1.2
Aspartate aminotransferase	AST (SGOT)	12-37 IU/L	35 IU/L	34 IU/L
Alanine aminotransferase	ALT (SGPT)	3-25 IU/L	24 IU/L	23 IU/L
Bleeding time	BT	3 minutes	3 minutes	3 minutes

**Table 1:** Normal lab values.

after orthodontic treatment; moreover, she reported no prolonged hemorrhage associated with mechanical and traumatic injury. After oral hygiene instruction and professional cleaning, the periodontal flap was done and apply a periodontal dressing to protect the surgical site. The patient was given oral antibiotics, analgesics, and antiseptic mouthwash for 5 days.

Although, several tests of coagulation system of the patients, including blood counts, bleeding time, prothrombin time, time partial thromboplastin and international normalized ratio (INR), both AST and ALT (Table 1) are normally present in the serum at low levels in healthy populations.; Next morning, they reported to my office about the presence of any material on the surgical site, On clinical examination, a dark red clot was distinguished in relative to the surgical site, following removal of the clot, a little hemorrhage was obvious when of removal of the clot, and the periodontal flap was reflected again to visualize for any abnormality, then nothing was apparent. The site was irrigated with saline and hydrogen peroxide mouth rinse (Nanonil D1, KimiaFam Pharmaceuticals Co, Tehran-Iran) flap was closure to its original position with suture and using a periodontal dressing again, and direct pressure is applied to the site. After 2 days, this condition gradually disappeared.

## Discussion

The use of isotretinoin for the treatment of severe acne has been extensively known over the past 30 years. Various adverse reactions to isotretinoin have been reported. Nevertheless, the effects of isotretinoin on the hemostasis are still not well known. There are conflicting reports about its effect on coagulation system. Dootson et al. described the first case with an intensification of bleeding tendency in a patient with hemophilia, while isotretinoin treatment in 1992 [10]; although in another case of hemophilia A using isotretinoin was reported by Bettoli et al. in 2004, was reported to have had no exacerbating effect on bleeding [12] various studies have shown that hepatotoxicity could occur in about 10% and hyperlipidemia in 20-45% of the patients [13]. Vigorous hematological changes were earlier published as case reports. In the literature, four cases with thrombocytopenia during isotretinoin were reported. In three of them, thrombocytopenia occurred in 1-2 weeks of initiation of treatment, and thrombocytes recovered within 1 week after discontinuation of the drug [14]. Nevertheless, in the report by Moeller et al. thrombocytopenia, which was prolonged as long as 2 months was emphasized [15].

In a great number of acne patients being treated with isotretinoin Zane et al. surveyed the correlation between isotretinoin and abnormal laboratory test results [2]. They reported that a small number of patients had a significant decrease in their rates of white blood cells, but only very few of these decreases were severe enough to pose a risk of infection. Thrombocytes showed no significant change [4]. However, there are no sufficient studies evaluating the effect of the hematological parameters, especially on the platelets [16]; and another study found that a significant increase in activated partial thromboplastin time was

detected and mentioned that Isotretinoin It does not seem to influence the coagulation parameters [7]. Regardless of the time phases, secondary hemorrhage following oral surgery is most often associated with the presence of foreign bodies and may be a piece of dental restorative material, the delayed organization of a blood coagulum. Another reason may be the formation of the liver clot that is venous bleeding, which could not have a pulsating. The bleeding will be slightly less quick and there will be a darker red color [11] In a study described state that while the rate of dry socket or alveolar osteitis in this cohort of patients (4-11%) was higher than the average cited rates (3-5%), but no other problems with wound healing were reported [17,18]. However, isotretinoin-induced thrombocytosis can be caused by the effect of IL-6 on the production of platelet count [19]. But then, did not recognize each hematological irregularities in their investigation evaluating the laboratory findings of 94 patients [20]. The main mechanism of isotretinoin-induced thrombocytopenia may be due to many potential causes such bone marrow suppression [15]. A significant increase in a PTT was detected. The INR values, which are more reliable and safe, demonstrated no difference. Isotretinoin appears to have no influence on these clotting parameters. The former study showed the significant reduction in platelet count in the patients who received isotretinoin for acne. Another study provides further evidence that tissue plasminogen activator level production is stimulated by isotretinoin that this tissue plasminogen activator inhibitor levels, may accelerate fibrinolysis, but there was no clinical evidence that hemostasis was impaired in these hematological normal persons [10]. However, the influence of isotretinoin upon coagulation system such a fibrinolysis in patients may be clinically relevant, and at the current time, we would caution against the use of isotretinoin in patients receiving isotretinoin for acne. Finally, a rising number of dental patients are taking medicines which interfere with hemostasis, and there is concern that they might have elongated hemorrhage through or after an invasive oral surgery. Although this paper is not capable of covering all the factors affecting the coagulation in patients taking isotretinoin, but only acquired coagulopathies from medications are addressed in this report.

## Conclusions

Diagnosis and Management of Hemorrhage in oral Surgery are constituted a serious challenge in the dental practice; however, in order to obtain more-relevant research outcomes, it is recommended before oral surgery with isotretinoin, the patients will need to be paid attention more.

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