



## MODERN METHODS OF ASSESSING THE TREATMENT OF POSTOPERATIVE WOUNDS IN DIABETIC PATIENTS AFTER EXTRACTION

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### Introduction

Diabetes is a common metabolic disorder characterised by an inability to regulate blood glucose due to insulin deficiency or resistance. Type 1 diabetes or insulin dependent diabetes is characterised by deficient insulin production whereas type II or non-insulin dependent diabetes results from relative insulin deficiency and tissue insulin resistance. Traditionally in dentistry, diabetics are considered to have increased healing problems related to dental extractions, periodontal surgery and wearing ill-fitting dentures. They are also considered more likely to have infections. Although this may be so for poorly controlled Type 1 diabetics, there is only unreliable support for this view for Type 2 diabetics on oral hypoglycemics.

### NORMAL HEALING PROCESS

There are 5 stages of healing of the extraction socket:

Stage 1- Hematoma and clot formation

Stage 2- Granulation tissue formation

Stage 3- Replacement of granulation tissue by connective tissue

Stage 4- Replacement of connective tissue by fibrillar coarse bone

Stage 5- Replacement of immature fibrillar coarse bone by mature bone

Factors that affect healing of sockets after extraction

- 1) Smoking: Smoking decreases extraction socket wound recovery. It decreases the blood supply to that area and brings toxic products to the area.
- 2) Alcohol consumption: Alcohol causes delay in the healing process. Alcohol consumption should be avoided by the patient few days after the tooth removal.
- 3) Diet of the patient: Protein, vitamins and minerals deficiency slows down the healing process.



- 4) General health of the patient: In cases of patients with diabetes, anemia, ischemia etc, the healing of the extraction socket will take place slowly than a normal healthy person.
- 5) Age: Healing is faster in young but is normal in old age unless associated with diabetes or ischemia.
- 6) Use of birth control pills: If a woman is taking birth control pills and gets her tooth extracted, then the chances of dry socket are more due to high level of estrogens. Dry socket delays the healing process.
- 7) Infection: In cases of infection like that in dry socket, delayed secondary healing occurs and it takes longer time for healing than the normal extraction socket healing.
- 8) Oral hygiene maintenance: After the tooth extraction, the socket area should be kept clean. If there are food deposits around the socket, it will take longer time to heal. It is advised to maintain a good oral hygiene after the tooth removal, eat from the other side of the socket and keep the socket clean.
- 9) Medicaments: Certain medicaments like corticosteroids delay the healing process of the socket.

**Purpose and objectives.** The purpose of this study is to determine the differences in delayed healing after tooth extraction in insulin-dependent diabetics compared to patients without diabetes.

#### Oral manifestations in diabetic patients

Several soft tissue abnormalities have been reported to be associated with diabetes mellitus in the oral cavity. These complications include periodontal diseases (periodontitis and gingivitis); salivary dysfunction leading to a reduction in salivary flow and changes in saliva composition, and taste dysfunction. Oral fungal and bacterial infections have also been reported in patients with diabetes. There are also reports of oral mucosa lesions in the form of stomatitis, geographic tongue, benign migratory glossitis, fissured tongue, traumatic ulcer, lichen planus, lichenoid reaction and angular cheilitis. In addition, delayed mucosal wound healing, mucosal neuro-sensory disorders, dental carries and tooth loss has been reported in patients with diabetes. The prevalence and the chance of developing oral mucosal lesions were found to be higher in patients with diabetes compared to healthy controls.

#### Instructions to be followed by the patient after extraction

In most cases, the recovery period lasts only a few days. The following practices will help the patient speed recovery. Painkillers to be taken that has been prescribed by the dentist or oral surgeon. An ice or cold pack can be applied to the outside of your mouth to help relieve pain and swelling. After 24 hours, the patient should rinse the mouth gently with warm salt water several times a day to reduce swelling and relieve pain. Change of gauze pads before they become soaked with blood. To Relax after surgery, physical activity may increase bleeding.





Avoid smoking. To Eat soft foods, such as gelatin, pudding, or a thin soup. Gradually add solid foods to the diet as healing progresses. To not lie flat, this may prolong bleeding. Avoid rubbing the area with tongue

Commonly seen complications after extraction

Postoperative complications included the following signs and symptoms: edema; erythema; alveolar bone exposure; halitosis; trismus; fever; cellulitis; Ludwig's angina; loss of appetite; malaise; itching; moderate pain and unpleasant taste. It has been established in scientific literature that patients with diabetes have a greater predisposition to oral complications and that oral infections may compromise their metabolic control. There is scant clinical evidence of a relationship between diabetes and an increased risk of infection after dental extractions.

### **Materials and methods**

The aim of this study is to evaluate clinical healing after dental extraction and the occurrence of surgical complications in patients with type 1 and 2 diabetes and compare with non-diabetic patients. According to the literature, the dental alveolus is filled with blood clot and fibrin at 3 days after dental extraction; on postoperative day 7, the alveolus is filled with granulation tissue; on postoperative day 21, wound epithelialization is complete; and on postoperative day 60, alveolar bone formation can be observed on a dental radiographic image. Delayed wound healing was defined as a delay in any of the aforementioned events. [9] 30 patients had been observed after taking into account of the diabetic ranges and been called for review on day 3,7,21 of their post extraction.

### **Results**

30 diabetic patients had been recalled and their complications had been taken into account. On day 3 after extraction, many patients had complaints of burning sensation in the area of the extracted tooth. A few patients has also felt pain and swelling on the area of the tooth extracted. On day 7 of extraction, many patients had complaints of bony flakes. Patients had also reported with allergic reaction towards antibiotics dosage. On day 21 after extraction, patients had complaint of dry socket.

### **Discussion**

Patient with blood sugar level ranging from 170 mgdl to 220 mgdl have major complications of pain and swelling around the extracted tooth area. These patients are considered to be at the mild level of hypoglycaemia and hyperglycaemia. The major complication evaluated in patients with their post prandial blood sugar level around 220 to 250 mgdl have burning sensation in the surrounding alveolus and the respective arch. Such complication postpones



the wound healing in diabetic patients. This condition also involves a concurrent methodology for isolating the adverse reaction of antibiotics that complexes the burning susceptibility.

### **Conclusions**

The traditional view that diabetics have increased delayed healing is not truly supported. Diabetics on oral hypoglycaemics should be treated the same as non-diabetic patients for extractions. These observations suggest that in uncontrolled, insulin-dependent diabetes; the formation of the collagenous framework in the tooth extraction socket is inhibited, resulting in delayed healing and increased alveolar destruction. Patients should be advised to have proper diet and make sure to have a controlled level of glucose and prevent oral complications.

### **References**

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