Assessment of Atraumatic Extraction Technique on the Incidence of Alveolar Osteitis

Thesis Submitted for partial fulfillment of the requirements for master degree in oral and maxillofacial surgery

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Dedication

I would love to dedicate this work, to my father and mother, who believed in me and to my dear wife, who supported me and stood by my side along the journey, through the ups and downs.

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Disclosure

This thesis was a part of a project conducted on the different etiologies and risk factors related to Alveolar Osteitis. This project included the thesis of dear colleagues:

- Ramy Hamdy El-Shater, titled: “The efficacy of hyaluronic acid in decreasing the incidence of Alveolar Osteitis following surgical extraction of mandibular molars”.
- Hany Salah El-din, titled: “The effect of Chlorohexidene on the prevention of Alveolar Osteitis after surgical extraction of lower molars”.
- Fayrouz Abdel-Hamid, titled: “The effect of Clindamycin on the incidence of Alveolar Osteitis in cases of acute infection”.

There are no financial conflicts of interest to disclose with Golden Inc., USA regarding its product: the Physics Forceps® or any of the materials mentioned within the contents of this study.

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Arabic Summary

AO: Alveolar Osteitis

CHX: Chlorohexidine

IANB: Inferior alveolar nerve block

ORN: Osteo-radio necrosis

PDL: Periodontal ligament

PMN: Poly morph nuclear Lymphocyte

PRGF: Plasma rich in growth factors

SIBS: Sonic instrument for bone surgery

TMJ: Tempro-mandibular Joint

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Alveolar Osteitis (AO), which is more commonly known as Dry socket is a common complication following the extraction of teeth, it was first described by Crawford in 1896 [(1)]. This complication appears in around 3% of non-surgical extractions [(2)], but it is more common with surgical extraction of impacted third molars, were the incidence rises up to 30% [(3)]. Alveolar Osteitis is ten times more common in the mandible due to many factors [(4)], such as: the higher density of the bone, leading to more difficult and traumatic extractions and the less blood circulation in the mandible when compared to the maxilla.

The exact etiology of the disease is still controversial [(5)], but many risk factors were proven related. But unlike the etiology, the pathogenesis of the disease was discussed thoroughly in literature [(6,7)]. Alveolar Osteitis was found to be a fibrinolytic disorder, where the blood clot present in the extraction socket is lysed, leading to delayed wound healing (6).

It was found that any of the many causative factors (e.g.: trauma, estrogen, bacteria..etc.) causes the conversion of plasminogen, which is the inactive form into plasmin, which is a fibrinolytic enzyme (active form) followed by disintegration of the fibrin network and loss of the blood clot in the extraction socket. This leads to the presence of an “empty socket” [(6)].

The chief complaint of the patient with AO is a severe pain related to the extraction site arising on the third day after the extraction [(7)]. This occurs due to the presence of bare bone in the socket. Other signs and symptoms of AO include: empty socket, foul odour and others.

Many risk factors were related to AO, among them is the iatrogenic trauma during extraction. It was suggested that this trauma causes damage to the