Clinical evaluation of ozonated oil on reducing postoperative complications after Odontectomy of impacted mandibular wisdom tooth

THESIS

Submitted to the Faculty of Oral and Dental Medicine, Cairo University

In partial fulfillment of the requirement of Master Degree in Oral and Maxillofacial surgery

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B.D.S

October 6th University 2004

Faculty of Oral and Dental Medicine

Cairo University

2011

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بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا الا ما علمتنا انك أنت العليم الحكيم

صدق الله العظيم

سورة البقرة – الايه ٣٢

Acknowledgement

Before and above all, all gratitude and thankfulness to **ALLAH** who guided and help me to finish this work.

I would like to express my profound appreciation and many thanks to **Dr. Hatem Abdel-Rahman**, Professor of oral and maxillofacial surgery, Faculty of Oral and Dental Medicine, Cairo University, for his care, concern, generous help and valuable support.

My deepest gratitude, countless thanks and great appreciation to **Dr. Sameh Mekhemer**, Professor of oral and maxillofacial surgery, Faculty of Oral and Dental Medicine, Cairo University, for his tremendous support unforgettable help to accomplish this work. Words are not enough to thank him for enthusiastic encouragement, guidance, advice and powerful support in each stage of the work.

Finally I would like to thank all my colleagues and staff members of Oral surgery department, October 6th University for their Continuous Support and cooperation.

Dedication

To my dear parents, sister and brother for their unconditional love and continuous support

To my kind husband

To my precious son ADHAM

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Introduction

Surgical removal of impacted third molars or "wisdom teeth" is one of the most commonly performed dentoalveolar procedures in oral and maxillofacial surgery [(1)]. Conditions surrounding the removal and/or preservation of third molars are one of the greatest controversies in dentistry. The range of opinions varies from promiscuous removal, contempt, and emotional bias for its preservation [(2)].

Preventive dentistry indicates that impacted teeth should be removed before complications arise according to the philosophy of (Prevention of problems), some authors believe that if third molars are removed only when symptoms and pathologic changes occur, the patients may have a very real risk of serious complications following surgery [(3)].

Others believe that prophylactic surgery is not an appropriate management strategy as not every impacted third molar causes a clinical problem, and an unknown percentage of impacted third molars may remain asymptomatic throughout life[(4)].

The frequency of complications after third molar removal is between 2.6% and 30.9%. The spectrum of complications ranges from harmless adverse effects as pain, swelling and trismus to nerve damage, mandibular fracture and life threatening infections [(5)].

Factors reported to be associated with third molar surgery postoperative complications include age; gender; medications such as antibiotics, corticosteroids, or oral contraceptives; smoking; previous infection; periodontitis; poor oral hygiene; surgeon experience; difficulty of

extraction; length of surgical procedure; inadequate irrigation; number of teeth extracted; and anaesthetic technique[6].

Several methods are reported to reduce the incidence of postoperative complications, these include the use of prophylactic antibiotics, corticosteroids and chlorohexidine mouthwashes and gels [7].

One of the most remarkable discoveries in recent years in the field of alternative medicine is the use of ozone as a therapeutic agent [8]. Ozone works destructively against bacteria, fungi, viruses and protozoa. Recent researches around the world are exploring new applications and modalities of ozone in medicine. When ozone dissolved in an oil base; they react to form ozonized oil that has antimicrobial properties [9] .Controlled ozone application has been found to be extremely safe and free from side effects more than most medications, including antibiotics[10] .

The use of ozone is based on its oxidative properties. These properties are due to its activation of oxygen dependent reactions of metabolism and the Krebs cycle, with formation of a large amount of protons necessary to restore the buffer capacity of antioxidant defense system against free radical and peroxidates and its direct destructive effect on almost all microorganisms in addition to its therapeutic effect that facilitates wound healing and improves blood supply. Ozone has been successfully used in medicine; it may be applied as a gas or dissolved in water or in oil form. [11]

`Review Of Literature

Archer defined impacted tooth as the tooth which is completely or partially unerupted due to mechanical hindrance from adjacent tooth, bone, soft tissue or pathological condition [(12)], while **Peterson** defined the impacted tooth as the tooth that fails to erupt into the dental arch within the expected time and can no longer reasonably be expected to do so. The mandibular third molar is the most frequently impacted tooth because it is the last tooth to erupt [(13)].

Development Of The Mandibular Third Molar:

Third molar exhibits the greatest variability in timing of development, crown and root morphology and position [(14)].The average age for third molar crypt formation is around five to seven years with initial cusp calcification occurring between seven to 12 years. Crypt formation has been shown to occur up to 12 years of age [(15)].

The mean age of initial mineralization of cusp tips as during the ninth year. The mean age of completion of the third molar crown is during the 12th or 13th year. The mean age of root cleft formation is from mid thirteenth to the beginning of the fifteenth year. The mean age of closing the apex was during the 19th or 20th year. The third permanent molar is usually the only tooth visible from crypt appearance to apex completion on radiographs of children and young adults who attend dental teaching hospitals. [(16)].

The mandibular third molar tooth germ is usually visible radio-graphically by age 9 years, at age 11 years; the tooth is located within the

anterior border of the ramus with its occlusal surface facing almost directly anteriorly. During the time of crown completion the body of the mandible grows in length at the expense of resorption of the anterior border of the ramus. As this process occurs the position of the third molar relative to the adjacent teeth changes, with the third molar assuming a position at approximately the root level of the adjacent second molar, during the time of root formation the tooth rotates from horizontal to mesioangular to vertical. Most third molars do not follow this typical eruption sequence and, instead, become impacted teeth [(13)].

Approximately 43 percent of third molar impactions may be classified as mesial in the mandible because the third molar buds are angulated mesially at the time of calcification. Increased tipping may also be more prevalent in the mandible since horizontal impactions occur in approximately 3 percent of mandibular cases. Only about 6 percent of mandibular impactions are classified as distal. The chances of eruption may be limited if the mesial tipping exceeds 30 degrees at 18 years of age [(17)].

Etiology of Impaction

Nodine pointed out that civilization could be held responsible for the withdrawal or elimination of a stimulus that excites an adequate development of the human jaws, a development that would provide sufficient room for the normal eruption of all the teeth, This lost stimulus is the force demanded for the mastication of hard food .The modern diet does not require a decided effort in mastication and so, modern man has impacted teeth [(18)].