

***Proteolytic Enzyme Bromelain as an
Adjunctive Treatment in the Management of
the Complications Associated With the
Surgical Removal of Impacted Mandibular
Third Molars***

***A Thesis Submitted To The College Of Dentistry University Of
Baghdad In Partial Fulfillment Of The Requirements For The
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Abstract

Background: The surgical removal of the impacted mandibular third molars may result in a number of complications such as pain, swelling, trismus and infection as a result of post-operative inflammation which was the reason to find a good and safe drug for the management of such complications.

Aim of the study: The purpose of this clinical study was to evaluate and compare the effect of oral enzyme bromelain 500 F.I.P units (100 mg) as an adjunct treatment in the management of post-operative inflammatory complications (pain, swelling, trismus and infection) associated with the surgical removal of the impacted mandibular third molars.

Patients ,materials and methods : A randomized , double-blind , placebo-controlled investigation was performed on the 60 healthy young patients who needed the surgical removal of the impacted mandibular third molars , attending the department of Oral and Maxillofacial surgery , college of dentistry , university of Baghdad in a period of one year from June 2006- June 2007.

The drugs had to be taken orally according to a fixed scheme for seven days.

Patients in this trial were distributed in two groups as the following:-

- **Study group (bromelain treated group)** in which patients have been recieved bromelain four times daily on an empty stomach starting 24 hrs before operation and lasting five days after the operation, in addition to mefenamic acid capsules 250 mg, and amoxicillin capsules 500 mg or erythromycin capsules 500 mg if the patient was sensitive to penicillin .

- **Control group (placebo treated group)** in which patients have been received placebo (glucose capsules) taken in the same manner of bromelain

in addition to the same analgesics and the same antibiotics that have been given in the study group.

The patients in the both groups were told to increase the dose of mefenamic acid capsules 250 mg if the pain was difficult to be withstand by them; the follow-up visits took place in the 1st, 3rd, and 7th post-operative days.

The pain intensity assessed by the patients using the Visual Analogue Scale one time daily at 7 o'clock at the night from the day of the operation till the 7th post-operative day; also the pain was assessed by recording the number of the additional mefenamic acid capsules 250 mg that was taken by the patients; and also assessed by recording the day that the patient stopped taking the analgesics when the pain completely disappeared.

The swelling assessed by the clinical grading system , the trismus assessed by the ruler , while the post operative infection assessed by the clinical diagnosis according to Arteagoitia et al scale by the presence or absence of fever, intra-oral abscess, dry socket, severe pain persisting or increasing after 48 hours or persisting to the 6th day accompanied by intra-oral erythema and/or suture dehiscence and all these assessed by the researcher by the help of the supervisor .

Results: it showed that:-

- 1- the use of oral enzyme bromelain as an adjunctive treatment has a significant effect in the reduction of post-operative complications associated with the surgical removal of impacted mandibular 3rd molars including pain, swelling and trismus; it's also has an additional effect as a potentiation of the action of the antibiotics amoxicillin and tetracyclin capsules as less infection occurred in the study group as compared to the control group.
- 2- the clinical study registered that ; the age of the patient, gender, angulations of the impacted mandibular third molar, sectioning of the

tooth during the operation and the amount of the surgical removal of the bone does not effect on the development of these clinical signs & symptoms whether using these medications or not .

Conclusions: the oral enzyme bromelain is effective adjunctive treatment in the management of the complications associated with the surgical removal of the impacted mandibular third molars including the pain, swelling, trismus and infection.