

Reduction Of Postoperative Sequelae After III Molar Surgery Using Serratio Peptidase: A Prospective Randomised Control Study.

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ABSTRACT

BACKGROUND: Extraction of the impacted mandibular third molars is the common surgical procedure in dental clinics. Complications after extraction are commonly seen in all the patients who underwent extraction. These complications are almost impossible to avoid but they can be reduced for the comfort of the patient. This study deals with a drug which can reduce the complications after impacted mandibular third molar extraction.

MATERIAL AND METHODS: Patients were divided into 2 groups. **GROUP 1:** patients were advised to use NSAID and Serratiopeptidase along with application of icepack extra orally. **GROUP 2:** patients advised to use NSAID and icepack. Postoperative sequelae like swelling was measured using Laskin's method, trismus by Vernier callipers, and pain using VAS scores.

RESULTS: In the present after 2nd day pain and swelling was considerably less in the patients who used Serratiopeptidase. Mouth opening was more in group 1 patients might be because of less pain experienced by patients.

CONCLUSION: The present study provides direct clinical evidence that postoperative administration of the proteolytic enzyme serratiopeptidase significantly reduced the occurrence of post-surgical swelling, pain and postoperative trismus.

Date of Submission: 20-05-2023

Date of Acceptance: 30-05-2023

I. INTRODUCTION:

Impacted third molars are frequently extracted surgically. Postoperative sequelae associated with such procedures include pain, trismus and swelling which occur due to the local inflammatory reaction.¹ Tissue handling, amount of bone removed during procedure can contribute to complications significantly. Although proper technique and gentle handling of tissues may reduce inflammatory reactions, but use of NSAID'S will also help. Since the last decade, enzyme-based drugs (anti-inflammatory) emerged, and have an immense potential to be used. Serratiopeptidase, which is an extracellular metalloprotease has an anti-inflammatory, antiedemic and fibrinolytic activity. It reduces inflammation and blocks the release of pain-inducing amines from inflamed tissues. The recommended period is 1 week. The usual adult dosage of Serratiopeptidase is 10 mg 3 times daily (range, 15 to 60 mg/day). The aim of the study is to determine the reduction in postoperative sequelae using Serratiopeptidase.²

II. MATERIAL AND METHODS:

Patients who reported to the Department of Oral and maxillofacial surgery, SVS institute dental sciences requiring 3rd molar extraction were randomly divided into 2 groups.

- GROUP 1: patients advised to use NSAID and Serratiopeptidase along with application of icepack extraorally.
- GROUP 2: patients advised to use NSAID and icepack.

INCLUSION CRITERIA:

Class I, Position A impacted mandibular III molars with all types of angulations.
ASA physical status I and II.

EXCLUSION CRITERIA:

Class II/ III, Position B/C impacted molars.
Bilateral impactions.

Surgical extractions of other teeth

Patients with and history of peptic ulcers.

Patients included in the study underwent surgical extraction under local anaesthesia. Surgical technique used is standardised for all the patients. After the extractions patients received analgesics with Serratiopeptidase in group 1(Aceclofenac 100mg, paracetamol 325 mg, Serratiopeptidase 15mg) for 3 days twice a day. In group B patients received analgesics (Aceclofenac 100mg, paracetamol 325 mg) for 3 days twice a day. Post operative sequelae were measured after 2nd day.

METHODOLOGY: Postoperative sequelae like swelling measured using Laskin's method, trismus by Vernier callipers, and pain using VAS scores.

Laskin's method: The distance in millimetres from the bottom edge of the earlobe to the midpoint of the symphysis Hirota; horizontal distance to the symphysis (horizontal distance 1).

The distance in millimetres from the bottom edge of the earlobe to the external angle of the mouth; horizontal distance to the corner (horizontal distance 2).

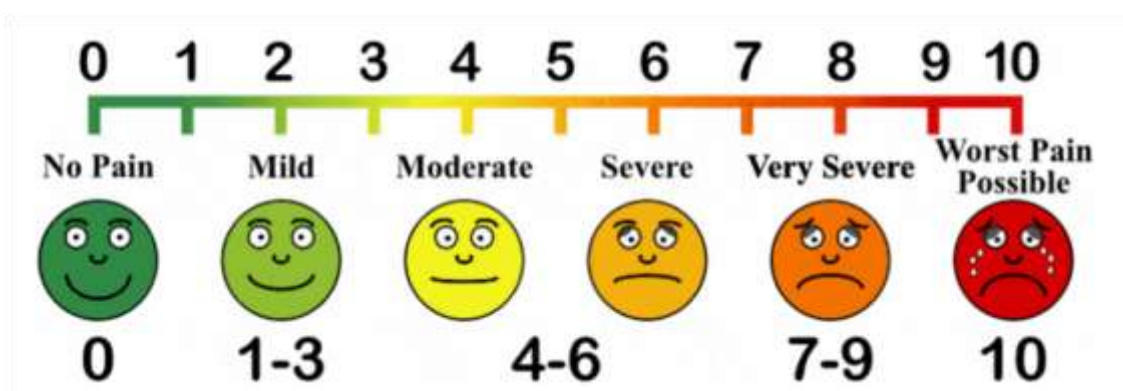
The distance in millimetres from the palpebral outboard angle to the gonial angle. (Vertical distance).



LASKIN METHOD FOR MEASUREMENT OF SWELLING



MEASUREMENT OF TRISMUS USING CALIPERS



VISUAL ANALOG SCALE

III. RESULTS:

All the patients tolerated the medication well with no serious complications or side effects. Wound healing was uneventful.

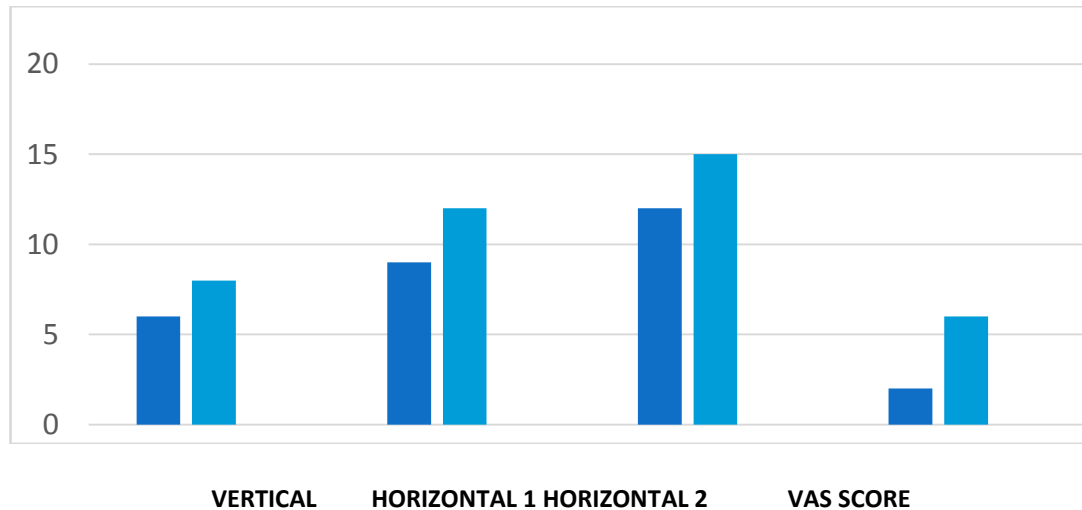
GROUP I

S.NO	VERTICAL DISTANCE (cm)	HORIZONTAL DISTANCE 1(cm)	HORIZONTAL DISTANCE 2(cm)	VAS SCORE	MOUTH OPENING (mm)
1	6	8	12	2	25
2	8	14	18	2	15
3	8	12	17	3	20
4	7	9	16	3	35
5	6	8	14	1	45
6	7	8	17	2	35
7	7	8	16	1	40
8	6	9	16	3	35
9	5	8	18	1	40
10	7	8	16	1	45

GROUP II

S.NO	VERTICAL DISTANCE (cm)	HORIZONTAL DISTANCE 1(cm)	HORIZONTAL DISTANCE 2(cm)	VAS SCORE	MOUTH OPENING (mm)
1	7.5	12	18	6	20
2	8	14	18	5	15
3	8	12	17	5	20
4	6	9	14	6	15

5	6	10	15	4	45
6	7	12	14	2	35
7	7	11	17	6	30
8	8	14	17	4	35
9	6.5	14	18	5	30
10	7	16	17	5	30



IV. DISCUSSION:

Third molar extraction is one of the most ubiquitous procedures performed by oral and maxillofacial surgeons. In all surgical procedures, proper preoperative planning and the blending of surgical technique with surgical principles is of paramount importance for decreasing the incidence of complications.³ Third molar removal is no different, yet such a common procedure sometimes results in what are relatively common complications like swelling, pain and decreased mouth opening.

The main purpose of this study was to evaluate the efficacy of serratiopeptidase in the control of swelling, pain and trismus associated with the surgical removal of impacted mandibular third molars. A cheap and simple method was utilized in the present study: facial swelling Laskin's method. It is a non-invasive, simple, cost-effective and time-saving method, which provides numeric data for determination of soft-tissue thickness changes.

Serratiopeptidase and other proteolytic enzymes are effective in controlling and modulating inflammatory processes are referred to as adjunct therapeutic agents. Serratiopeptidase decreases pain by inhibiting the release of bradykinin from inflamed tissues. It also acts by breaking down fibrin and dead or damaged tissue, thus dissolving blood clots and atherosclerotic plaques.¹

Anti-inflammatory drugs [NSAIDs and corticosteroids] may offer temporary, symptomatic relief from pain, swelling, and inflammation, they may also be immunosuppressive and are known to have gastrointestinal side effects, while serratiopeptidase has no gastric side effects.

Results are indicating the time course for findings of pain and facial swelling reached a maximum at day 1 or 2 postoperatively and had generally resolved at day 7. It has been found that swelling is considerable on the second postoperative day and according to our study it is less in group 1 patients. In the present study pain after 2nd day was considerably decreased in the patients who used Serratiopeptidase. The ability of Serratiopeptidase to inhibit the release of bradykinin is reason for decrease of pain while using it. Mouth opening was more in group I patients might be because of less pain experienced by patients.

In some of the patients serratiopeptidase may be a cause of infection. In those cases alternatives like bromelain obtained from pineapple, papain from papaya, rituside, trypsin, chymotrypsin can be used.⁴

V. LIMITATIONS OF THE STUDY:

Sample size is less.

Few of the patients did not show any decrease in inflammatory sequelae.

VI. CONCLUSION:

The present study concludes that there is direct clinical evidence of postoperative administration of the proteolytic enzyme serratiopeptidase in significantly reducing the occurrence of post-surgical swelling, pain and postoperative trismus following third molar extractions.

CONFLICT OF INTEREST: The authors declare no conflict of interest.

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