

# The Benefits of Steroids Therapy in Surgical Extraction of Mandibular Third Molar

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## ABSTRACT

The purpose of this study was evaluation of the effects of the steroid therapy for the prevention of post operative complications after the surgical removal of mandibular wisdom tooth. A prospective study was done on 100 patients in which mandibular last molar was impacted. 4mg dexamethasone & 250mg of hydrocortisone were given intravenously in straight dose after completing the surgical procedure. There was considerable impact of these medicines for prevention of post operative complications like swelling, edema, pain, discomfort, ecchymosis, trismus. Patients were recalled on 1st, 3rd and 7th post operative days. The post operative complications due to open extraction of mandibular third molar can be minimized by the use of steroids.

**Keywords:** impacted third molar, steroids, post operative complications.

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## INTRODUCTION

An impacted tooth is defined the tooth which is unable to achieve its normal occlusal plane in its usual eruption time.<sup>1</sup> The different causes of impacted tooth are adjacent teeth, over lying dense bone and excessive soft tissue. the most common cause is insufficient space and length in jaw which does not allow the tooth to erupt. The mandibular third molar is the most frequently impacted, followed by maxillary third molar, maxillary canine and mandibular premolars. the mandibular third molars are also called wisdom teeth because their normal eruption time is 17 to 21 years and this is the age of adulthood. the oral surgeons classify the mandibular wisdom teeth to determine the difficulty index for their removal. According to angulation impacted lower third molar can be classified as:

*Mesio-angular, Horizontal, Vertical, Disto-angular Buccal version, Lingual version AND Transverse.*<sup>2</sup>

Pell & Gregory and Winter lines are the mostly used classifications for calculation of difficulty index before surgical extraction of these mandibular third molars.

Relationship to Anterior Border of Ramus.

According to Pell & Gregory Class 1 Mandibular third molar is anterior to the anterior border of ramus.

Class 2 half of mandibular third molar is covered by the anterior border of ramus. Class 3 the whole of mandibular third molar is lying in the bone of ramus.

Relationship to Occlusal Plane.

According to Pell & Gregory Class A occlusal planes of impacted tooth & 2nd molar are at the Same level. Class B impacted tooth is between

occlusal plane & cervical line of 2nd molar. Class C occlusal plane of impacted tooth is below cervical line of 2nd molar.

Impacted mandibular third molar is a bad news for the patient and it becomes worse when it is explained to the patient during counseling that surgical procedure is required for its removal. the sequelae of surgical procedure may be swelling, edema, discomfort, pain, ecchymosis, trismus. The prevention of these complications is challenging for oral surgeons. This was the motivation and decision was taken to use steroids therapy so that these post operative complications can be minimized. the mode of action of dexamethasone and hydrocortisone is almost same. These stop the both cyclo-oxygenase pathways' chemo taxis by starting the production of lipocortin<sup>1</sup>, which inhibits phospholipase A<sup>2</sup>. All this cycle leads to decrease synthesis of prostaglandins & leukotrienes<sup>3</sup>. These Medicines suppressed the immune system by reducing the immunoglobulin and complement concentrations and affecting the antigen- antibody binding<sup>4</sup>. The difference between two is, hydrocortisone is short acting having half life of 6 to 8 hours while the dexamethasone is long acting and it's half life is 36 to 54 hours.

## METHODOLOGY

This study was carried out in the department of oral & Maxillofacial Surgery, Sharif Medical & Dental College Lahore from 15/05/2010 to 14/05/2015. One hundred patients were evaluated in this study. All these patients were diagnosed cases of impacted lower third molar and healthy. Peri apical and OPG x-Rays were done for pre-operative assessment. Informed consent was taken from the patients after telling about the risks and benefits of the treatment. Inferior alveolar nerve lingual nerve long buccal nerve blocks were given. After confirmation of effectiveness

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of anesthesia, mucoperiosteal flaps were raised. The bone cutting alone or sectioning of tooth followed by bone cutting was done for the extraction of impacted tooth. Irrigation of wound and smoothing of sharp bone margins was done. Flaps were replaced and sutured with vicryl 3/0. On completion of surgical procedure 250mg hydrocortisone and 4 mg of dexamethasone were injected intravenously in straight dose. Cap. Amoxil 500 mg TDS Tab. Flagyl 400 mg TDS, Tab. Brufen 600 mg BD ,Tab. Flexin 500 mg BD. were prescribed to the patients for 3 days. Follow up of these patients was done on 1st, 3rd and 7th post operative days. The sutures were removed on 7th post operative day.

**Exclusion criteria:** Soft tissue impactions, known hypertensive, diabetic and pregnant patients.

## RESULTS

Out of 100 patients 40 were males and 60 were females. There was no effect on treatment of gender. The mean age of these patients was 23.7, when they presented and most patients were in their third decade of life. The details of their ages as follow.8 - 17.7-18,3-19,6-20,8-21, 10-22, 10-23 ,18-24, 6-25, 7-26, 2-28, 3-29, 2-30,1-31,3-32,2-34,2-35,1-36,1-45. There was no effect on treatment regarding age.

All patients were examined for post operative sequelae on 1st post operative day. Out of 100 patients, 74 had moderate pain, mild edema, swelling, trismus but no ecchymosis. These complications were relieved on 3rd post operative day and medicines were discontinued. These patients were in their usual state of health on 7th post operative day and sutures were removed. In remaining 26 patients, on 1st post operative day there was only minor pain. The swelling, edema, trismus or ecchymosis was not found in these patients. This minor pain was subsided on 3rd post operative day and medications were discontinued. On 7th post operative day, sutures were removed and these patients were in normal state of health.

## DISCUSSION

Throughout the world people are working to develop a method by which post operative complications can be reduced after surgical extraction of mandibular third molar. Use of steroids is one of them. They might be used as are pre-operatively, per-operatively or immediate after operation. The route of their administration can be oral, submucosal, Intramuscular or Intravenous<sup>5,6</sup>. The use of glucocorticoid has been analyzed which shows dexamethasone is more effective as it has longer time of action and 25-30 times more potent than cortisol<sup>7,8,9</sup>. We have used the combination of

hydrocortisone and dexamethasone to get better results and our study is proving it.

The use of glucocorticoid in combination of antibiotics give good results for prevention of post operative complications in mandibular wisdom tooth surgery which is supporting our study<sup>10</sup>. The effects of glucocorticoid and ibuprofen was evaluated to prevent pain and swelling after removal impacted third molars and this is also same for our study<sup>11</sup>.

The dexamethasone has been injected in submucosal layer or in endoalveolar which has showed good effects for the prevention of inflammatory complications in last mandibular molar but we have given intravenously and get good results<sup>6</sup>.

## CONCLUSION

The patients of mandibular third molar surgeries can be brought to their usual state of health earlier by giving the steroids intravenously in immediate post operative period and no adverse effects of these steroids were seen in our treated patients.

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