

## Original Research

### Assessment of Incidence of Trismus in a Transalveolar Extraction of Lower Third Molar

Nishant Kumar Tewari<sup>1</sup>, Kunal Kundan<sup>2</sup>, Sushmita Tiwari<sup>3</sup>, Aditi Sinha<sup>4</sup>, Pankaj Kumar<sup>5</sup>, Shraddha Pathak<sup>6</sup>

<sup>1</sup>Dental Surgeon, Nalanda Medical College and Hospital, Patna Bihar, India;

<sup>2,3</sup>General Practitioner, Patna Bihar, India;

General Practitioner, Patna Bihar, India;

<sup>4</sup>Prosthodontist, Gaya, Bihar, India;

<sup>5</sup>Physiotherapist, Patna Bihar, India;

<sup>6</sup>General Practitioner, Kolkata West Bengal, India

#### ABSTRACT:

**Background:** Transalveolar extraction of mandibular third molar is a difficult procedure. Removal of third molar is the most commonly performed procedure associated with a wide range of complications. The most commonly occurring complications are pain, paresthesia, trismus, swelling and mandibular fractures. The present study was conducted to assess the incidence of trismus in a transalveolar extraction of lower third molar. **Material and methods:** The present randomized prospective clinical study was carried out among 98 patients who underwent surgical removal of impacted mandibular third molar teeth. A thorough clinical and radiological analysis was carried out in all the selected patients. A standard ward's incision or ward's incision with distal extension was placed, the mucoperiosteal flap was reflected and the bone was exposed. Mouth opening was measured with a ruler by placing alongside the teeth. The follow-up was carried out on the 1<sup>st</sup>, 3<sup>rd</sup>, and 7<sup>th</sup> postoperative days (PODs). Data was analysed using SPSS 22 version software. **Results:** In the present study, all patients experienced intermittent reduction of Mouth opening. Mouth opening was less on day POD 1 and POD 3. Mouth opening on 7<sup>th</sup> day was maximum with mesiangular impaction and minimum with distoangular impaction. **Conclusion:** Our study concluded that the postoperative trismus was more significant in disto-angular impaction which may be due to inflammation and pain.

**Key words:** Trismus, impaction, distoangular

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**Corresponding Author:** Dr. Kunal Kundan, General Practitioner, Patna Bihar, India

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#### INTRODUCTION:

Transalveolar removal of impacted third molars is the most commonly performed procedure by oral and maxillofacial surgeons.<sup>1</sup> Impaction refers to the failure of tooth to reach normal occlusal and functional position following completion of chronological age and two-thirds root formation. Since it does not reach normal functional position, an impacted tooth is considered pathologic and requires treatment.<sup>2,3</sup> Complications associated with surgical removal of third molar are alveolitis, dry socket, infection, paresthesia of the inferior alveolar nerve, haemorrhage, persistent pain, swelling and edema. Some of the less

common complications are trismus, iatrogenic damage to adjacent tooth, temporomandibular joint injury and iatrogenic mandibular fracture.<sup>4-6</sup> Trismus (Greek - *trismos*) is defined as prolonged tetanic spasm of masticatory muscles of jaw. Like edema, the transient jaw stiffness usually reaches its peak on the 2<sup>nd</sup> day and resolves by the end of the 1<sup>st</sup> week. It is diagnosed from clinical examination of the maximal interincisal distance (MID) <40-45 mm caused by contracture and not by obstructive joint impingement.<sup>7</sup> The present study was conducted to assess the incidence of trismus in a transalveolar extraction of lower third molar.

**MATERIAL AND METHODS:**

The present randomized prospective clinical study was carried out among 98 patients who underwent surgical removal of impacted mandibular third molar teeth. Before the commencement of the study ethical approval was taken from the Ethical Committee of the institute and informed consent was obtained from the patients. A thorough clinical and radiological analysis was carried out in all the selected patients. The impacted tooth were assessed by Pedersen's index and Winter's lines. Patients with the American Society of Anesthesiologists (ASA) grade I with impacted mandibular third molar teeth with normal hematological values were included in the study. Patients with ASA grades II, III, and IV, Patients with extraoral swelling and cellulitis and Patients with oral submucous fibrosis, radiation fibrosis, and temporomandibular joint ankylosis were excluded from the study. Intraoral preparation was done with povidone-iodine solution. Anesthesia was secured with 2% lignocaine hydrochloride with 1:2,00,000 adrenaline through classical IAN block plus infiltration of mucosa of retromolar trigone. A standard ward's incision or ward's incision with distal extension was placed, the mucoperiosteal flap was reflected and the bone was exposed. Bone removal was done by guttering technique with a round bur on the buccal and distal aspects of the tooth, depending on the type of impacted tooth. Odontectomy was performed whenever necessary to facilitate the tooth removal. Tooth was removed from the socket by an elevator. Sharp bony edges were smoothed with bone files and socket was irrigated with povidine-iodine solution and saline. Complete hemostasis was achieved before wound closure. The wound was closed with 3-0 silk suture and the patient was given postoperative instructions. All patients were under antibiotic coverage for 5 days. Assessment of pain was assessed using universal pain assessment tool. Mouth opening was measured with a ruler by placing alongside the teeth. The follow-up was carried out on the 1<sup>st</sup>, 3<sup>rd</sup>, and 7<sup>th</sup> postoperative days (PODs). Data was analysed using SPSS 22 version software.

**RESULTS:**

In the present study, all patients experienced intermittent reduction of Mouth opening during the postoperative course, which regained on POD7. Mouth opening on 7<sup>th</sup> day was maximum with mesiangular impaction and minimum with distoangular impaction. The postoperative trismus was more significant in disto-angular impaction.

Type of impaction	Mouth opening				
	Preoperative	POD 0	POD 1	POD 3	POD 7
Mesioangular	49	46	34	39	50
Horizontal	49	47	32	34	47
Vertical	50	48	35	39	49
Distoangular	44	29	31	39	42

**DISCUSSION**

Surgical intervention disturbs the normal fascial barriers and tends to accumulate fluid by transudation in the interstitial fluid compartment. The amount of edema is directly proportional to the extent of tissue injury, duration of surgery, and the percentage of connective tissue in the operative field. Pain is a subjective experience and is influenced by factors such as age, sex, anxiety levels, and also the surgical difficulty.<sup>8</sup> According to Mercier et al<sup>9</sup> and Tetsch et al,<sup>10</sup> the chances of intraoperative and postoperative complications are three

times more in mandible compared to maxilla this is due the fact that poor blood circulation, more retention of saliva and food particles leading to difficulty in maintaining oral hygiene in mandible.

It has also been observed that as the age advances the incidence of complication also increases, this may be due to increase in bone density and complete root formation therefore more abnormality in root curvature leading to difficulty in extraction.<sup>11</sup>

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Pedersen *et al.* explained the strong interrelation between postoperative pain and trismus. They indicate pain as the main reason for reduced MO after removal of impacted mandibular third molars.<sup>12</sup>

Ngeow and Lim conducted a review involving 34 articles to assess the efficacy of corticosteroids following third molar surgery. Based on their review, the authors concluded that swelling and trismus have a significant impact while reduction of pain following administration of steroids is still debatable.<sup>13</sup>

Ehsan *et al.*, conducted a randomized controlled trial involving 100 patients to assess swelling and trismus and concluded that submucosal injection of 4 mg dexamethasone is effective.<sup>14</sup>

**CONCLUSION:**

Our study concluded that the postoperative trismus was more significant in disto-angular impaction which may be due to inflammation and pain.

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