



UTILIZATION OF N-BUTYL-2-CYANOACRYLATE FOLLOWING IMPACTED MANDIBULAR THIRD MOLAR EXTRACTION: A CASE REPORT

Pankaj Singla	Department Of Oral And Maxillofacial Surgery, Shree Bankey Bihari Dental College & Research Centre, Ghaziabad, Uttar Pradesh, India.
Gagan Khare	Professor And Head Of The Department, Department Of Oral And Maxillofacial Surgery, Shree Bankey Bihari Dental College & Research Centre, Ghaziabad, Uttar Pradesh, India.
Pallavi Srivastava	Reader, Department Of Oral And Maxillofacial Surgery, Shree Bankey Bihari Dental College & Research Centre, Ghaziabad, Uttar Pradesh, India.
Ashish Kumar Kushwaha	Reader, Department Of Oral And Maxillofacial Surgery, Shree Bankey Bihari Dental College & Research Centre, Ghaziabad, Uttar Pradesh, India.
Pravin Kumar	Department Of Oral And Maxillofacial Surgery, Shree Bankey Bihari Dental College & Research Centre, Ghaziabad, Uttar Pradesh, India.
Rakshika Jain	Department Of Oral And Maxillofacial Surgery, Shree Bankey Bihari Dental College & Research Centre, Ghaziabad, Uttar Pradesh, India.

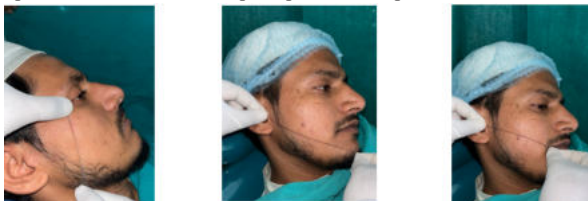
ABSTRACT The removal of impacted third molars, one of the most frequently performed oral surgical procedures, is associated with difficulties in achieving optimal wound closure and preventing postoperative complications. N-butyl-2-cyanoacrylate (NBCA), a tissue adhesive, has appeared as a promising additional material in promoting wound healing and reducing complications following third molar removal. The present paper is a comprehensive case report of the use of NBCA following impacted third molar extraction. The case report includes the biochemical properties of NBCA, its mechanism of action in wound closure, and its superiority over techniques of traditional closure. Furthermore, it discusses the clinical effectiveness of NBCA in augmenting the process of wound healing, and its role in reducing postoperative pain and inflammation, with added investigation on reduction in infection and alveolar osteitis. It also discusses the safety profile of NBCA, which involves the various adverse effects caused by it and the contraindications. Further, the case report will address practical considerations for the application of NBCA in impacted third molar surgery: technique, timing of application, and patient selection criteria. Further, it discusses the directions for future research and upcoming advancements in the use of tissue adhesives like NBCA in oral surgery. In general, the present case report aims at understanding the role of NBCA in optimizing outcomes following impacted mandibular third molar extraction, for which a proper guideline needs to be formulated for clinicians to practice it effectively and judiciously.

KEYWORDS :

INTRODUCTION-

Impacted mandibular third molars, popularly known as wisdom teeth, are one of the most common challenges faced in oral and maxillofacial surgery because of their clinical potential to cause discomfort, infection, and other complications. Among the myriad techniques employed for their extraction, the utilization of adjunctive measures such as tissue adhesives has gained ground in recent years for enhancing wound closure and minimizing postoperative sequelae.

In this case report, we will be discussing the clinical situation of a 28-year-old male patient with a right lower impacted third molar who underwent surgical extraction with the help of N-Butyl-2-Cyanoacrylate for adjunctive wound closure. While impacted third molar extractions are common, they are not free from challenges, and the procedure often necessitates meticulous attention to detail for optimal results and minimal postoperative complications.



Pre op Swelling criteria



Pre op intraoral



Pre Op Opg

The reason for choosing NBCA as a tissue adhesive in our case is due to the established facts of its rapid polymerization, strong bonding strength, and biocompatibility, which make it an ideal choice for wound closure in oral surgery. However, in spite of its promising features, there is a lack of literature specifically on its use in the scenarios of impacted third molar extractions.

We hope to provide useful data related to the efficacy and safety profile of NBCA in the context of impacted third molar extraction, particularly in the young adult population. The clinical course and outcomes of this patient are documented with the aim of elucidating the potential benefits of NBCA in reducing postoperative discomfort, accelerating wound healing, and improving overall patient satisfaction.

Procedure-

During preoperative assessment, the medical and dental history was reviewed and the radiographic evaluation was made. Local anesthesia was administered; a Ward incision was made to expose the impacted tooth. Bone shedding around the tooth was done by bur that was attached to a motor to open space for extraction. The tooth was extracted using forceps. Socket irrigation and cleaning were done, and the flap was repositioned.



Intra op



Post op

DISCUSSION-

In the case presented, the application of N-Butyl 2 cyanoacrylate after the removal of an impacted third molar has some potential advantages, such as lessening the operative time, better approximation of the wound, and decreasing the risk of postoperative complications like hemorrhage and infection.

Tissue adhesives, such as N-Butyl 2 cyanoacrylate, can be used as an alternative and reliable material to suture material in the conventional techniques, especially when the procedures with poor hemostasis and delayed wound tension-free healing are indicated.

Pain and Bleeding Assessment:

Postoperative pain and bleeding are the most common clinical symptoms after the removal of mandibular third molars. The VAS pain scale and bleeding scoring will provide a linear scale for assessing the patient's experience in the postoperative period.

The VAS pain scale helps in assessing the severity of pain, and the bleeding can also be assessed from the blood-stained gauze piece with the help of the scoring system, which helps clinicians to manage the patient accordingly.

Healing Index Assessment:

Landry et al. proposed a methodology for the evaluation of the healing index, which provides an objective way of assessing healing following a surgical procedure.

There are several variables involved in calculating the healing index like epithelialization, inflammation, tissue maturation, and provides a means of assessing healing quality of the wound in a structured way and can help in detecting any aberrations or complications.

The calculated values of the healing index can be compared to determine if the patient has deviated from the expected course of healing and respond to the clinician's management or not.

Edema Assessment:

Edema is a usual symptom during the postoperative period in oral surgical procedures, such as mandibular third molar extraction, with an impact on comfort and the recovery of the patients.

Measuring specific distances, such as EG, TM, and TP, offers objective information to quantify edema's volume and monitor its development over time.

Measuring edema with accuracy improves clinical examinations and guide treatment modalities to enhance patient comfort and speed up the healing process.

PARAMETER	Pre op	Post op 1 st day	7 th day
Pain	7	5	0
Bleeding	✖	0	0
Healing	✖	Good	Very Good
Swelling	EG-10 cm TM-12 cm TP-16.5 cm	EG-10.8 cm TM-12.3cm TP-18 cm	EG-10 cm TM-12 cm TP-17 cm

CONCLUSION:

Use of N-Butyl 2 cyanoacrylate for wound closure, together with well-done measurements using the VAS scale for pain and bleeding, the index proposed by Landry et al. and, in the present study, the evaluation of postoperative edema constitutes a comprehensive strategy in the treatment of patients undergoing removal of impacted third molars.

Based on the results and its importance for calibrating other studies, and for the use of tools in standard care, we believe that standardized scales and edema measuring techniques are important to enhance clinical examination and guide treatment modalities in patients to optimize comfort and enhance healing process after oral surgical procedure

REFERENCES

1. Toriumi DM, O'Grady K, Desai D, Bagal A (1998) Use of octyl 2-cyanoacrylate for skin closure in facial plastic surgery. *Plast Reconstr Surg* 102(6):2209–2219
2. Daniel Knott P, Zins JE, Banbury J, Djohan R, Yetman RJ, Papay F (2007) A comparison of dermabond tissue adhesive and sutures in the primary repair of the congenital cleft lip. *Ann Plast Surg* 58(2):121–125
3. Dean M Toriumi; Wasim F Raslan, Michael Friedman, M. Eugene Tardy, Jr. (1991) Variable histotoxicity of histoacryl when used in a subcutaneous site: an experimental study. *Laryngoscope* 101: 339–343
4. Choi B-H, Kim B-Y, Huh J-Y, Lee S-H, Zhu S-J, Jung J-H, Li J (2006) Cyanoacrylate adhesive for closing sinus membrane perforations during sinus lifts. *J Cranio-Maxillofacial Surg* 34: 505–509
5. Petrovsky BV, Gigaury VS, Milonov OB, Perelman MI, Mlinchik VE, Gotye SV, Safarov IS (1980) MD Surgical application of tissue adhesives. *World J Surg* 4:331–356
6. Kaplan M, Bozkurt S, Kut MS, Kullu S, Demirtas MM (2004) Histopathological effects of ethyl 2-cyanoacrylate tissue adhesive following surgical application: an experimental study. *Eur J Cardiothorac Surg* 25:167–172
7. Arunachalam P, King PA, Orford J (2003) A prospective comparison of tissue glue versus sutures for circumcision. *Pediatr Surg Int* 19:18–19