

30.07.2023

**Comparison of the Efficiency of Tissue Adhesive (Periacryl 90) and Silk Suture in
Bilateral Mandibular Impacted Wisdom Dental Surgery**

Study Protocol

A total of 60 lower impacted wisdom teeth were extracted from 30 patients participating in the study. The study was conducted as a randomized controlled trial (closed envelope method). One mucosal or bone retention fully impacted wisdom tooth was extracted from each patient at a time. The tooth extraction on the other side of the same patient was performed 3 weeks later after postoperative complications were eliminated and the extraction site wound healed and the mouth opening returned to its previous value. Patients whose extraction sites did not heal were not included in the study. The wound closure technique to be applied to the tooth to be extracted was randomly decided by the closed envelope method. The side to which suture was applied after tooth extraction was determined as the control group, and the side to which cyanoacrylate tissue adhesive (Periacryl 90) was applied was determined as the experimental group.

All operations were performed by the same dentist. In Group 1, a full thickness gingival flap was lifted to reach the first tooth to be extracted and after the procedure, the gingiva was sutured with silk in the starting position, while in Group 2, the lifted full thickness flap of the second tooth to be extracted was brought to the starting position and tissue adhesive (Periacryl 90) was applied.

Surgical Technique and Application

The patients in the study were operated on by the same physician in the local operating room environment at the XXX University, Faculty of Dentistry, Department of Oral, Dental and Maxillofacial Surgery, in accordance with the rules of asepsis and antisepsis. It was planned to extract one mandibular wisdom tooth with mucosal or bone retention from each patient at a time. The tooth extraction on the other side was performed after the postoperative complications were eliminated and the extraction site wound healed and the mouth opening was restored. The wound closure technique to be used in the tooth extraction was determined by the closed envelope method and the surgical procedure was completed using a different technique in the other tooth extraction.

The oral cavity was cleaned with an antiseptic solution before surgery and the surgical field was prepared in accordance with aseptic conditions. Demographic data, preoperative mouth opening, facial landmark measurements, data regarding the impacted tooth and the operation were recorded in the anamnesis form. Inferior alveolar block anesthesia was performed with direct technique using 3 cc articaine hydrochloride 80 mg- Epinephrine 0.010 mg/ampule (Maxicaine VEM, Turkey) with 27 gauge dental syringes. The same equipment and local anesthetic were used for buccal anesthesia. Winter type envelope flap was preferred using a scalpel tip of No. 15 in the surgeries. Following the incision, the full thickness flap was lifted to reach the extraction area. In teeth with bone retention, the bone was lifted with a 1.6 mm diameter steel rond bur, fissure bur, surgical micromotor operating at 40,000 rpm and serum irrigation, and then the teeth were exposed. Then, the teeth were extracted with the help of a bein elevator. Irrigation was performed with physiological serum to prevent the heat generated during the bone removal procedure from damaging the living tissues. Teeth that could not be extracted in one piece due to their position were divided and extracted with a surgical micromotor. After extraction, the dental follicle was removed from the alveolar region with the help of curettes and clamps. The extraction socket and the bottom of the

mucoperiosteal flap were irrigated with plenty of physiological serum to remove bone particles and tissue residues.

The tension-free wound lips were closed by selecting the wound closure technique with the closed envelope method and providing appropriate procedures. The wound closure technique determined as suture wound closure was determined as the relevant dental control group. After the extraction socket was cleaned and bleeding control was provided, the wound lips were prepared without tension. The surgical site was closed primarily with 3/0, 16 mm 3/8 round needle atraumatic silk sutures. Postoperative recommendations were informed to the patient verbally and in writing. For infection control, 1000 mg amoxicillin+clavunate containing medication was prescribed 2x1 for 5 days. For pain control, 600 mg ibuprofen group analgesic was prescribed and recommended to be used 2x1. Cold compress was recommended for the first 8 hours after the operation for edema control. Appointments were made for the patient to come for the 3rd day and 1-week check-ups after the procedure. When the patient came for the check-up 1 week later, his sutures were removed.

The extraction of the tooth to which cyanoacrylate tissue adhesive would be applied was also performed with the same protocol and the surgical site was closed with cyanoacrylate tissue adhesive (Periacryl 90). While applying the tissue adhesive, the wound site was isolated from blood and saliva with an aspirator and sponge. Periacryl 90 liquid tissue adhesive was dropped onto a sterile perforated tray. Tissue adhesive was drawn into the applicator with a sterile applicator. The wound lips were brought together and the tissue adhesive was applied in a single layer with the applicator. Care was taken to ensure a tension-free closure. After the application, 30 seconds were waited for polymerization. The wound site was checked and the operation was terminated. Appointments were made for the 3rd day and 1-week check-ups after the procedure. It was recommended that the wound site not be traumatized with a toothbrush for 48 hours.

Statistical Analyses

While evaluating the findings obtained in the study, NCSS (Number Cruncher Statistical System) 2020 Statistical Software (NCSS LLC, Kaysville, Utah, USA) program was used for statistical analyses. While evaluating the study data, quantitative variables were shown with mean, standard deviation, median, min and max values, and qualitative variables were shown with descriptive statistical methods such as frequency and percentage. Shapiro Wilks test and Box Plot graphics were used to evaluate the conformity of the data to normal distribution.

Student t-test was used in quantitative two-group evaluations showing normal distribution.

Mann Whitney-U test was used in the evaluations of variables not showing normal distribution according to two groups.

In intra-group comparisons according to follow-ups, Paired Samples test and Repeated Measures test were used in post hoc comparisons of variables showing normal distribution, and Bonferroni test was used.

Pearson Chi-Square test, Fisher's Exact test and Fisher Freeman Halton test were used in the comparison of qualitative data.

The results were evaluated at a 95% confidence interval and significance was at $p < 0.05$.