

Evaluation of the effects of azithromycin and platelet-rich fibrin on wound healing after surgical removal of mandibular third molars

Submission date 20/05/2026	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 22/05/2026	Overall study status Completed	<input checked="" type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 21/05/2026	Condition category Oral Health	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

Plain English summary of protocol
Not provided at time of registration

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Additional identifiers

Study information

Scientific Title

Cytomorphometric, immunological, and clinical analysis of the effects of azithromycin and platelet-rich fibrin on postoperative wound healing following surgical extraction of impacted mandibular third molars

Acronym

APRIM Study

Study objectives

This study was conducted to evaluate the influence of azithromycin and platelet-rich fibrin (PRF) on postoperative inflammatory parameters and healing outcomes after extraction of impacted mandibular third molars, relative to routine treatment, by means of cytomorphometric, immunohistochemical, and clinical evaluations.

Ethics approval required

Ethics approval required

Ethics approval(s)

1. approved 20/02/2024, Ethics committee, Medical Faculty, University of Niš (Blv. Dr Zorana Đinđića 81, Niš, 18000, Serbia; +381184226644; info@medfak.ni.ac.rs), ref: 12/1760-1/2-5

2. approved 19/01/2024, Ethics committee, Clinics Of Dentistry Niš (Blv. Dr Zorana Đinđića 52, Niš, 18000, Serbia; +381184226216; stomatolog_nis@kzsnis.rs), ref: 14/1-2023-3/EO

Primary study design

Interventional

Allocation

Randomized controlled trial

Masking

Blinded (masking used)

Control

Active

Assignment

Crossover

Purpose

Health services research, Supportive care, Treatment

Study type(s)

Health condition(s) or problem(s) studied

Surgical extraction of impacted mandibular third molar

Interventions

Participants were randomly allocated into three study groups using computer-generated randomisation. Group assignments were placed in sequentially numbered, sealed opaque envelopes, which were opened at the time of intervention allocation.

Intervention description

Control group:

Participants received standard postoperative therapy consisting of oral amoxicillin 500 mg every 8 hours for 5 days following surgical extraction of vertically impacted mandibular third molars (standard protocol).

PRF group:

Following extraction and socket debridement, platelet-rich fibrin (PRF) prepared from autologous venous blood was placed into the extraction socket. Participants additionally received standard postoperative oral amoxicillin therapy (500 mg every 8 hours for 5 days).

PRF + azithromycin group:

Participants received a single prophylactic oral dose of azithromycin (1 g) one day before surgery. Following extraction and socket debridement, PRF prepared from autologous venous blood was placed into the extraction socket. Standard postoperative oral amoxicillin therapy (500 mg every 8 hours for 5 days) was also administered.

PRF preparation protocol:

Twenty millilitres of venous blood were collected into sterile tubes without anticoagulant and centrifuged at 1300 rpm (200 × g) for 14 minutes using a fixed-angle rotor centrifuge. The PRF clot was isolated and placed into the extraction socket within 15 minutes after centrifugation.

Intervention Type

Procedure/Surgery

Primary outcome(s)

1. Cytomorphometric changes (area, IntDen, AR, StdDev, Min, Max, Perim, Circ, FeretX, FeretY, and roundness) measured using exfoliative cytology with Papanicolaou staining and ImageJ morphometric analysis at baseline and postoperative day 7
2. Immunologic observation in cervical fluid samples measured using an ELISA at preoperative and postoperative
3. Microbiological findings measured using PCR analysis at preoperative and postoperative

Key secondary outcome(s)

1. Postoperative pain measured using a Visual Analogue Scale (VAS) at postoperative days 3 and 7
2. Postoperative edema, assessed via standardized facial reference point distances (tragus–gonion and tragus–oral commissure) measured using manual linear measurements with a flexible measuring tape at baseline and postoperative day 7
3. Wound healing measured using the Landry Healing Index at postoperative days 3, 7, and 14

Completion date

03/02/2026

Eligibility

Key inclusion criteria

Vertically impacted third molars that are radiographically diagnosed according to Winter's classification

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Upper age limit

50 years

Sex

All

Total final enrolment

124

Key exclusion criteria

1. Allergies to penicillin or lidocaine
2. Chronic systemic diseases
3. Cystic lesions
4. Infections around the impacted third molar, odontomas, or syndromes affecting the orofacial region

Date of first enrolment

03/04/2024

Date of final enrolment

29/09/2025

Locations

Countries of recruitment

Serbia

Sponsor information

Organisation

Medical Faculty, University of Niš

Funder(s)

Funder type

Funder Name

University of Niš

Alternative Name(s)

Univerzitet u Nišu, Универзитет у Нишу, University of Nis, University of Niš

Funding Body Type

Government organisation

Funding Body Subtype

Universities (academic only)

Location

Serbia

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Other files			21/05/2026	No	No
Statistical Analysis Plan			21/05/2026	No	No