Doctoral School in Health Sciences

With the title of manuscript

C.Z.U: *616.314.8-007-085.38(043.2)*

MOTELICA Gabriela

COMPLEX TREATMENT OF PATIENTS WITH PERICORONITIS

323.01 – STOMATOLOGY

Summary of Doctor of Medical Sciences Thesis

Chișinău, 2023

The thesis was developed at the Department of oral and maxillofacial surgery and oral implantology „Arsenie Guțan" State University of Medicine and Pharmacy „Nicolae Testemițanu".

Scientific coordinator
Chele Nicolae, Dr. habil. med. sci., university professor _____

Guidance committee members:

Șcerbatiuc Dumitru, Dr. habil. med. sci., university professor _____

Hîțu Dumitru, PhD med. sci., associate professor _____

Zănoagă Oleg, PhD med. sci., associate professor _____

The defense will take place at 27.09.2023 in the premises of USMF "Nicolae Testemițanu", bd. Ștefan cel Mare si Sfânt, 165, office 204 in the meeting of the Commission for public defense of the doctoral thesis, approved by the decision of the Scientific Council of the Consortium of 25.05.2023 (minutes no. 8).

The composition of the Commission for public defense of the doctoral thesis:

President:
Ciobanu Sergiu,
Dr. habil. med. sci., associate professor _____

Secretary:
Spinei Aurelia,
Dr. habil. med. sci., associate professor _____

Members:
Chele Nicolae,
Dr. habil. med. sci., university professor _____

Referenți oficiali:
Burlacu Valeriu,
PhD med. sci., university professor _____
Agop-Forna Doriana,
PhD med. sci., associate professor _____
Zănoagă Oleg,
PhD med. sci., associate professor _____
Cirimpei Vasile,
PhD med. sci. _____

Author:
Motelica Gabriela
_____

CONTENT

THE CONCEPTUAL CHARACTERISTICS OF THE RESEARCH

Relevance and importance of the topic. Pericoronitis (from the Greek peri- "around," Latin corona "crown," and -itis "inflammation"), also known as operculitis, is an inflammatory process of the surrounding soft tissues and the pericoronal sac of an impacted or partially erupted tooth. This pathology most commonly affects the lower third molar (Sayed N., 2019, Huang X. et al., 2020), with an incidence of 95% of cases [1]. In addition, it can be an etiological factor for other septic complications in the premaxillary soft tissues, bone tissue, regional lymph nodes, and distant areas (mediastinitis, cavernous sinus thrombophlebitis, etc.).

In the case of a problematic eruption of the lower wisdom tooth, determining the optimal treatment poses the dilemma of preserving or extracting the wisdom tooth. Most of the proposed methods for optimizing the treatment of patients with pericoronitis of the inferior wisdom teeth involve the use of new antibacterial, anti-inflammatory, desensitizing, and homeopathic medications (Blaeser B. F. et al., 2003; Shishkin G. B., 2008, Huang X., 2020), but tooth extraction remains one of the most common invasive procedures in dentoalveolar and maxillofacial surgery (Jerjes et al., 2010, Shoshani-Dror D. et al., 2018).

Although there is no evidence to support or refute the theory of extracting asymptomatic wisdom teeth (Mettes et al., 2012; Ghaeminia et al., 2016), the American Association of Oral and Maxillofacial Surgeons (AAOMS) fully supports the prophylactic extraction of these teeth capable of causing complications during the eruption (Lieblich et al., 2012). However, the National Institute for Health and Care Excellence (NICE) does not accept this concept of extracting asymptomatic third molars, which recommends wisdom tooth extraction only if it develops pathology (NICE, 2000).

Pericoronitis is the inflammation of the soft tissues associated with the partial eruption of the tooth crown and, in most cases, refers to mandibular third molars. Common symptoms and signs include pain, unpleasant odour, inflammation, and exudate occurring beneath the pericoronal tissues, with exacerbation due to trauma from the opposing tooth. These criteria, agreed upon by the National Institutes of Health (NIH) in 1980, are considered the most frequent reasons for the extraction of wisdom teeth [2].

The frequency of complications associated with the eruption of the third molar is significant and accounts for 56%. According to data from the specialized literature [3], the wisdom tooth is the primary cause of various inflammatory processes in the maxillofacial region in 17.7% of cases, and according to other opinions, in 23.64% of cases [4]. Moreover, the incidence of severe septic complications caused by this tooth is 2.5% [3].

However, the determinants of the occurrence of pericoronaritis remain definitively unclear. It is assumed that it is an association between the anomalies of eruption of the lower three molars and the penetration of microbial flora into the peridental spaces [5].

Some studies focusing on odontogenic infections have found that the most encountered microorganisms are facultative anaerobic gram-positive cocci of the Streptococcus genus. However, other investigations have demonstrated that the highest prevalence corresponds to gram-negative anaerobic bacilli, represented by black-pigmented species from the Porphyromonas and Prevotella genus, closely followed by anaerobic gram-positive cocci of the Peptostreptococcus genus and gram-negative anaerobic bacilli of the Fusobacterium genus [6].

Currently, the treatment of odontogenic infections is based on two fundamental elements: mechanical-surgical management and antibiotic therapy. In some cases, empirical antibiotic

prescribing is based on the patient's clinical condition. However, this approach often leads to incorrect treatment and can contribute to developing bacterial resistance within the body [7,8].

Even so, complications are not entirely overcome, as postoperative complications can occur after the extraction of wisdom teeth. Therefore, the use of different pharmacological remedies that can improve surgical procedure outcomes and patient comfort is welcomed.

Goal: To enhance the effectiveness of medical care for patients with pericoronitis by optimizing treatment methods.

Objectives:

1. Determine local predisposing factors involved in the development of pericoronitis of the inferior wisdom teeth.
2. Evaluate the clinical and radiological status of patients with pericoronitis of the lower third molars.
3. Study the microbiological spectrum and its sensitivity to different groups of antimicrobial drugs in patients with pericoronitis at the initial stage of treatment.
4. Provide comparative analysis of treatment methods for pericoronitis with and without the use of platelet-rich plasma.
5. Develop a treatment algorithm for patients with pericoronitis.

Research methodology synthesis and justification of proposed research methods. In order to achieve the purpose and objectives of the research, we aimed to conduct a prospective controlled clinical study to compare two surgical treatment methods for patients with pericoronitis of the lower third molars: standard tooth extraction and the use of autologous platelet-rich plasma before and after odontectomy. The comprehensive study was conducted on two groups of 60 adult patients aged between 18 and 40 years old. All patients included in the study were examined using the following research methods: analytical epidemiology, clinical-instrumental, and paraclinical investigations - laboratory tests (identification of the pathogenic germ and antibiotic sensitivity testing), radiological examination (orthopantomography and CBCT scan).

Theoretical significance of the research. Based on the analysis of the study variables, we observed the comparative effectiveness of treatment with platelet-rich autologous plasma and conventional odontectomy in terms of pain/comfort scores, trismus, Landry regeneration index, and facial edema. This research establishes, for the first time in the Republic of Moldova, rational measures for a staged treatment approach with conservative (medical) management prior to surgical intervention (conservative-surgical through operculectomy or surgical through odontectomy) for acute pericoronitis of the lower third molars, with the use of platelet-rich autologous plasma for tissue regeneration after tooth extraction.

Approval of thesis results. The study results were presented and discussed at the following national and international scientific forums: *National Scientific-Practical Conference with International Participation dedicated to the 90th anniversary of the birth of the distinguished scientist Nicolae Testemițanu.* Chisinau, Republic of Moldova, September 29, 2017; *Annual Scientific Conference of the Institute of Emergency Medicine for Young Specialists "Current Trends and Controversies in the Management of Medical-Surgical Emergencies"*. Chisinau, Republic of Moldova, November 10, 2017; *Congress dedicated to the 75th anniversary of the founding of the State University of Medicine and Pharmacy "Nicolae Testemițanu".* Chisinau, Republic of Moldova, October 21-23, 2020; *MedEspera Congress, May 12-14, 2022; Annual Scientific Conference of the State University of Medicine and Pharmacy "Nicolae Testemițanu"*, Chisinau, Republic of Moldova, October 19-20, 2016; *Conference dedicated to the Days of the State University of Medicine and Pharmacy "Nicolae Testemițanu"*. October 15-19, 2018, Chisinau,

Republic of Moldova; *International Medical Congress for Students and Young Doctors MedEspera,* September 24-26, 2020, Chisinau, Republic of Moldova; *Conference dedicated to the Days of the State University of Medicine and Pharmacy "Nicolae Testemițanu".* October 20-22, 2021, Chisinau, Republic of Moldova.

The approval of the thesis topic took place during the meeting of the Scientific Council of USMF "Nicolae Testemițanu" on 02.05.2017 (minutes no.3). Favourable opinion was issued on April 26, 2017, no.82. The Research Protocol for the thesis topic was approved by the Research Ethics Committee of the State University of Medicine and Pharmacy "Nicolae Testemițanu". Furthermore, the results were approved during the meeting of the Department of Oral-Maxillofacial Surgery and Oral Implantology "Arsenie Guțan" of the State University of Medicine and Pharmacy "Nicolae Testemițanu" on March 27, 2023 (minutes no.7).

Keywords: pericoronitis, lower third molar, dental impaction, platelet-rich plasma.

1. PECULIARITIES OF INFLAMMATORY PATHOLOGY ASSOCIATED WITH DENTAL ERUPTION

Chapter 1 is a synthesis of the literature in the field of dental surgery, designed to emphasize the actuality of the study. In subchapters 1 and 2, are described the ethiology and pathogenesis of pericoronitis of the inferior third molars, the occurrence of which is in a close relationship with the development and eruption of wisdom teeth, which can lead to various complications of local and general order. In subchapter 3 are described the determining factors in the occurrence of this pathology, represented by different groups of pathogenic microorganisms. In subchapter 4 are highlighted the clinical signs and symptoms of different forms of pericoronitis and the septic complications induced by this pathology are described in subchapter 5. In subchapter 6 are presented the options of surgical and drug therapy of patients with pericoronitis of the inferior wisdom tooth.

2. MATERIALS AND RESEARCH METHODS

2.1. General Characteristics of the Research

In this prospective controlled clinical study a total of 120 consecutive patients with ages ranging from 18 to 40 years old diagnosed with pericoronitis of the lower wisdom tooth were included in this prospective controlled clinical study, were selected from the University Dental Clinic No. 2 of the State University of Medicine and Pharmacy "Nicolae Testemițanu." All patients underwent clinical and paraclinical examinations, and after establishing the diagnosis and treatment plan, written informed consent was obtained from each patient. The patients were divided in two groups: study group (60 patients) and control group (60 patients).

Considering that the primary outcome of the thesis involves the comparative evaluation of the treatment results for acute pericoronitis using platelet-rich plasma (PRP) compared to the standard method, expressed in terms of regeneration time (days), which is a continuous variable, the appropriate statistical test will be a one-tailed t-test or a one-tailed Mann-Whitney test for independent groups. The selection of the statistical test will be based on the primary data analysis.

If the t-test is applied, the sample size is estimated to be 51 patients per group for $\alpha = 0.05$, $\beta = 0.2$ (power of test 0.8), and a medium effect size ($d = 0.5$) (Figure 1a). For similar parameters, the sample size in the case of a one-tailed Mann-Whitney test will be 53 respondents per group (Figure 1b). Thus, each research group will include minimum 53 respondents.

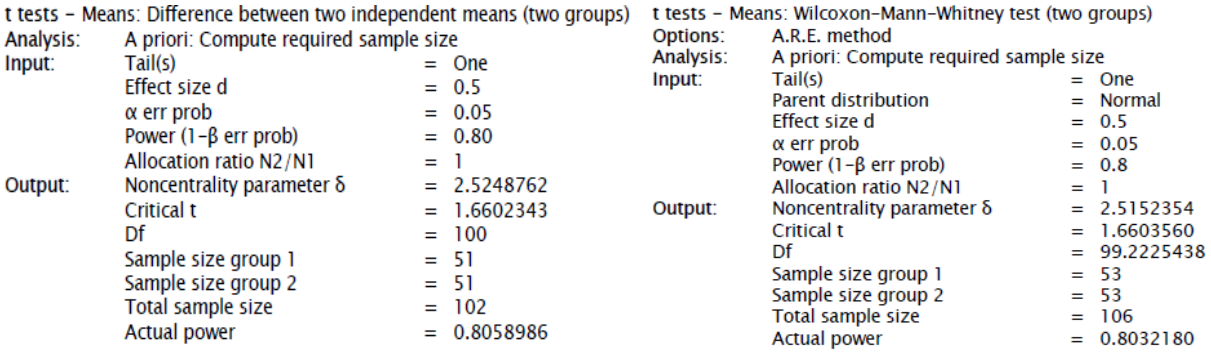


Figure 1. **Estimation of sample size for the unilateral t-test (a) and the unilateral Mann-Whitney test (b).**

The patients were included in the study based on inclusion and exclusion criteria, making the study more well-defined and focused on a specific representative group.

Inclusion criteria:

1. Presence of acute pericoronitis.
2. Age between 18 and 40 years.
3. Patients who provided informed consent.

Exclusion criteria:

1. Age outside the established limits.
2. Acute local or systemic pathologies that may affect the treatment outcome.
3. Cases where extraction of the lower third molar is not possible due to anatomical reasons.
4. Patients who do not comply with hygiene and prophylaxis conditions.
5. Patients with a history of predisposition to general allergies.
6. Request to withdraw from the study.
7. Refusal to participate in the research or unavailability for follow-up during the study.

2.2. Investigation Methods

The human sample was approached as a working methodology in several research directions: analytical epidemiology, clinical-instrumental and paraclinical-radiological examination, and microbiological sampling.

Preoperative clinical assessment. The patients included in the study underwent a preoperative clinical examination before simple randomization. The clinical examination was conducted according to the standard protocol.

Paraclinical methods. The paraclinical methods used radiological examination (orthopantomography and/or cone-beam computed tomography (CBCT)) and bacteriological examination.

The radiological examination was performed before the surgical intervention. The following parameters were assessed (Figure 2): the angulation of the lower wisdom tooth (Winter classification); the relationship with the ascending mandibular ramus and the relationship with the occlusal plane (Pell & Gregory classification); the relationship with the inferior alveolar nerve, root morphology, and the size of the follicular sac.

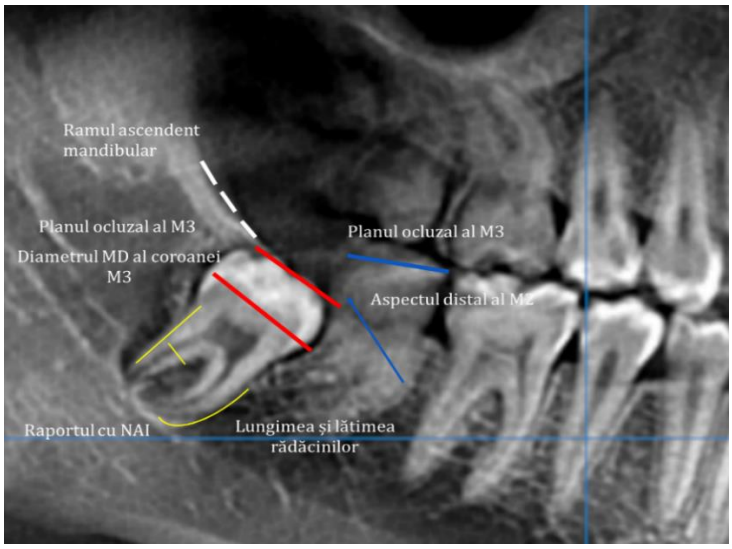


Figure 2**. Panoramic radiography section with assessment of parameters**

Bacteriological examination. An essential aspect of the research was the identification of the etiological spectrum of microbial agents involved in the collected serous or purulent samples in both patient groups. Therefore, the bacteriological examination unquestionably holds significant importance in achieving the proposed goal.

The microbiological research approach was made possible through collaboration with the MicroMed Medical Diagnostic Laboratory, ICS "Centrul de Diagnostic German" SRL in Chișinău, "Invitro Diagnostics" Medical Laboratory, and the Clinical Diagnostic Laboratory within the IMSP SCR "Timofei Moșneaga."

Sampling technique:

1. The patient is seated in the dental chair facing the light source, with the back of the head supported by the headrest.

2. The inflamed mucosa or purulent deposits covering the crown of the causative tooth (figure 3) are firmly swabbed and gently wiped with a sterile swab using a circular motion. Care is taken during the insertion and removal of the swab to avoid touching the base of the tongue and soft palate.

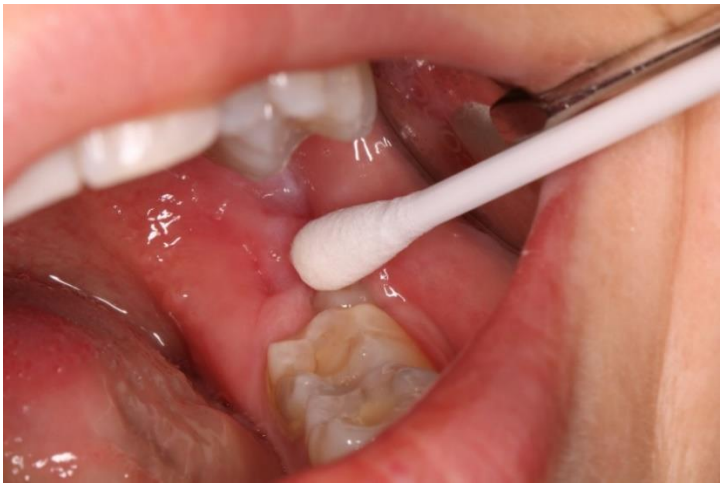


Figure 3. **Bacteriological sample collection**

3. The swab is inserted into the protective tube containing transport medium (Amies, Stuart, or Cary-Blair) (Figure 4), which is properly labeled and sent to the laboratory or placed in the transport medium until further processing.

Figure 4. **Sterile swab stick and tube with transport material**

4. The samples are transported to the laboratory within a maximum of 2 hours after collection. Although the swabs collected in tubes contain transport medium, which provides optimal conditions for maintaining the viability of microorganisms, the collected samples can be stored for up to 24 hours from the time of collection until inoculation. For a more reliable recovery of the targeted microorganisms, it is recommended that cultures be performed immediately upon arrival of the samples at the laboratory. The determination of antibiotic susceptibility was performed using the classic method - Disk diffusion method, which allows testing multiple antibiotics on the same plate, but the actual correlation rate with Minimum Inhibitory Concentration (MIC) is only 70-90% [9]. The interpretation of results (S-sensitive, I-intermediate, R-resistant) is done according to the EUCAST standard.

2.3. Treatment Methods

To determine the effectiveness of the administered comprehensive treatment, 120 patients aged 18-40 with acute pericoronitis of the inferior wisdom tooth were divided into two groups. Initially, during the first visit, bacteriological samples were collected from the serous or purulent exudate under the hood of the causative lower wisdom tooth.

- **Control group** - 60 patients who received standard surgical treatment: local anesthesia, instillation of the space under the operculum with antiseptic solutions. In cases where the pericoronal abscess is evident, an anteroposterior incision is made with a #15 scalpel blade for drainage, followed by lavage with antiseptic solutions (0.05% Chlorhexidine Solution). Antibiotic therapy is administered using broad-spectrum antibiotics, primarily from the penicillin group, such as Amoxicillin 875 mg with Clavulanic acid 125 mg, one tablet twice a day for a minimum of 5 days. Nonsteroidal anti-inflammatory drugs Ibuprofen 400mg) are prescribed at a dosage of one tablet twice a day for three days. The extraction of the causative tooth takes place after the resolution of the acute inflammatory phase, usually 2-4 days after conservative treatment (figure 5).

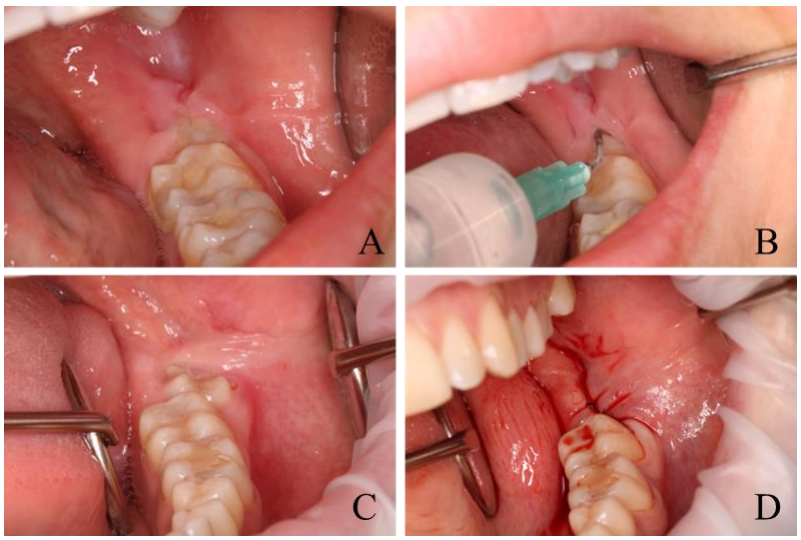


Figure 5. **Treatment stages for the control group (A. initial condition, B. lavage with antiseptic solutions, C. resolution of the acute phase, D. extraction of the causative tooth).**

- **Study group** - 60 patients in which the treatment was supplemented with the use of platelet-rich plasma (PRP) both during the initial treatment stage and post-extraction (Figure 6). The treatment method is patented.

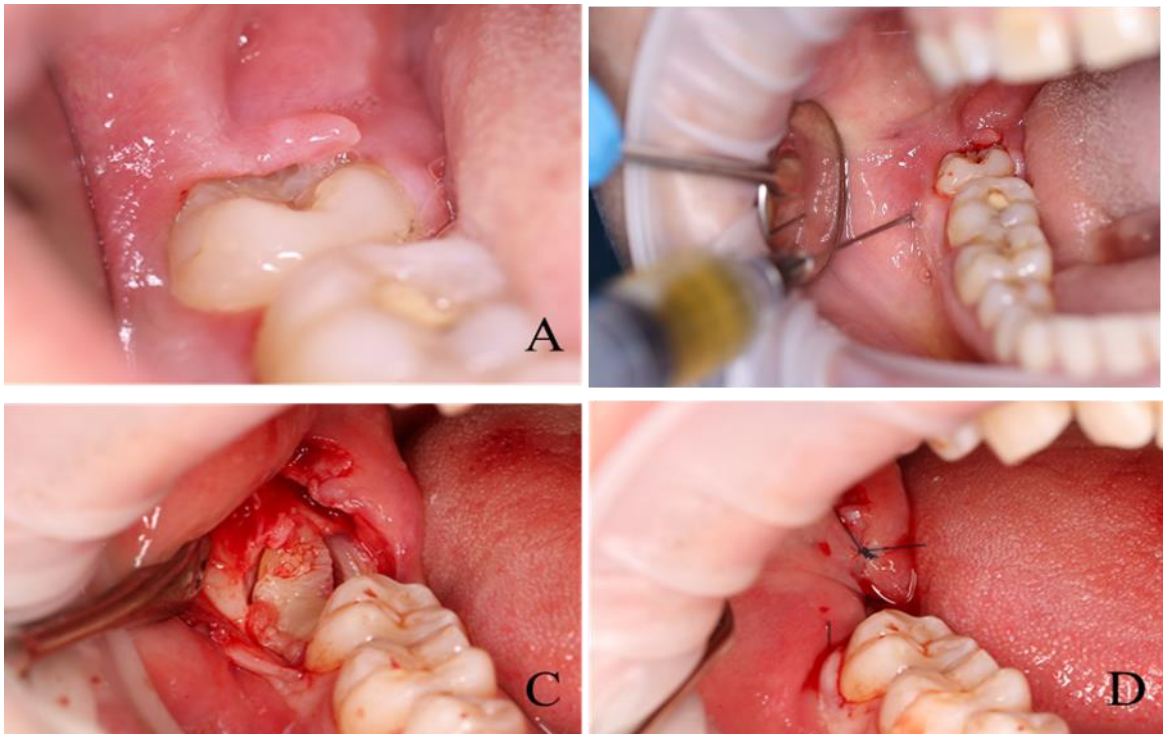


Figure 6. **Treatment stages for the study group (A. initial condition, B. pre-extraction use of PRP, C, D. tooth extraction and post-extraction application of PRF).**

2.4. Study Variables

Patients were examined using a standardized protocol at 1, 3, and 7 days after the intervention, where the following indices were determined:

• Identification of the collected microbiota (at the initial treatment stage).

• Determining antimicrobial agents susceptible to the analyzed microbiota (laboratory analysis).

• Assessment of the outcomes of conservative/surgical treatment of pericoronitis in correlation with the following indices:

- ✓ Pain/comfort score.
- ✓ Trismus (limited mouth opening).
- ✓ Regeneration index (Landry et al.).
- ✓ Facial swelling.

Pain

The decrease or absence of pain during post-treatment wound control under medication will be considered. The subjects were asked to mark the visual analogy scale (VAS) (Figure 7) to assess pain. Operationally, the VAS is usually a 100 mm horizontal line anchored with word descriptors at each end. Subjects were asked to mark the number on the scale that they felt represented their current perception of pain.

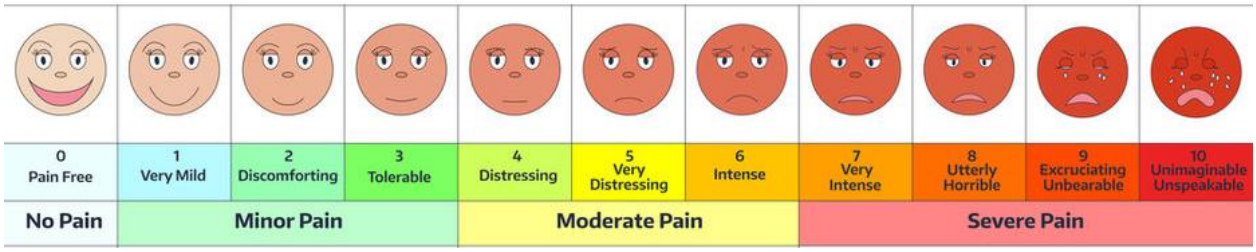


Figure 7. Visual Analog Scale (VAS)

Mouth Opening:

Subjects in the study groups were asked to open their mouths as wide as possible. Using a calibrated caliper in millimeters was measured the distance from the incisal edge of the upper incisors to the incisal edge of the lower incisors. The degree of mouth opening was measured for each patient on the first day (___cm), third day (___cm), and seventh day (___cm) under medication.

Regeneration Index (Landry et al.):

Grade 1 - Gingiva color ≥50% red, bleeding on palpation, presence of granulations, non-epithelialized, lack of epithelial tissue below the incision line.

Grade 2 - Gingiva color ≥50% red, bleeding on palpation, presence of granulations, non-epithelialized, with connective tissue below the incision line.

Grade 3 - Gingiva color ≥25% and <50% red, non-bleeding on palpation, absence of granulations, no exposed connective tissue below the incision line.

Grade 4 - Gingiva color ≥25% red, non-bleeding on palpation, absence of granulations, no exposed connective tissue below the incision line.

Grade 5 - Pale pink gingiva color, non-bleeding on palpation, absence of granulations, no exposed connective tissue below the incision line.

Measurement of postoperative facial edema

Postoperative edema is measured using a flexible tape measure or digital caliper regarding 3 planes (Figure 8): [10]

- ➢ AC line: Connects the posterior point of the auricular tragus to the lateral corner of the mouth.
- ➢ AD line: Connects the posterior point of the auricular tragus to the pogonion region of the skin.
- ➢ BE line: Connects the outer angle of the eye to the inferior point of the mandibular angle.

Facial edema results are calculated as the difference between preoperative edema (AC + AD + BE) and postoperative edema (AC + AD + BE).

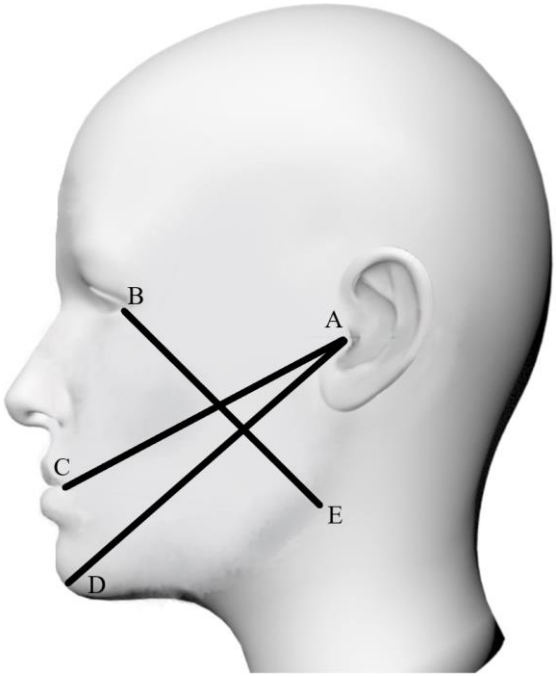


Figure 8. **Reference planes**

Edema, typically, compensates for the surgical injury and decreases between the 3rd and 4th postoperative day.

2.5. Methods of statistical data processing

The collected data were processed using IBM SPSS Statistics 26 software, being performed non-parametric tests Mann-Whitney U, Kruskal-Wallis, statistic methods Likelihood Ratio, Fisher Exact, Linear-byLinear Association.

3. TREATMENT OF PATIENTS WITH ACUTE PERICORONITIS OF INFERIOR THIRD MOLARS

3.1. General Results of the Study Groups

The study participants were divided into homogeneous groups based on age and biological gender. The distribution by biological gender (Table 1) showed that the majority of cases - 57.6% (95% CI 45.5, 69.0) were represented by females in the study group, while those in the control group accounted for 42.4% (95% CI 31.0, 54.5). The males included in the research were allocated to 59.3% (95% CI 46.0, 71.6) in the control group and 40.7% (95% CI 28.4, 54.0) in the group receiving complex treatment for acute pericoronitis of the lower third molars. The observed differences were not statistically significant (Pearson Chi-Square test with Continuity Correction = 2.727, df = 1, p = 0.099) as shown in Table 2.

Table 1. **Distribution by Biological Gender and Age of Statistical Units in the Groups**

			Groups	
			Control	Study
Gender	B	Count	32	22
		Row N %	59.3	40.7
		95,0% Lower CL	46.0	28.4
		95,0% Upper CL	71.6	54.0

	F	Count	28	38
		Row N %	42.4	57.6
		95,0% Lower CL	31.0	45.5
		95,0% Upper CL	54.5	69.0
Age, years	Minimum		17	18
	Maximum		46	40
	Mean		27	27
	Standard Deviation		7	5
	Median		25	26
	Percentile 25		22	23
	Percentile 75		30	31

Table 2. **Analysis of Distribution by Biological Gender in the Study Groups.**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.367	1	.067		
Continuity Correction	2.727	1	.099		
Likelihood Ratio	3.384	1	.066		
Fisher's Exact Test				.098	.049
Linear-by-Linear Association	3.339	1	.068		
N of Valid Cases	120				

In terms of the age of the study participants, as seen in Table 8, the youngest patients were 17 and 18 years old in the control and study groups, respectively. The most senior patients were recorded in the control group, with a maximum age of 46 years; in the study group, the maximum was 40 years. The mean age of those included in the study was identical at 27 years, and the medians were different, with 25 years in the control group and 26 years in the research group, but this difference is not statistically significant, as observed in Table 3.

Table 3. **Analysis of Age Distribution in the Study Groups.**

Total N	120
Mann-Whitney U	1906.000
Wilcoxon W	3736.000
Test Statistic	1906.000
Standard Error	189.967
Standardized Test Statistic	.558
Asymptotic Sig.(2-sided test)	.577

The similarity of age values among the patients included in the study can also be observed visually in Figure 9, where the distribution is similar except for two extreme values.

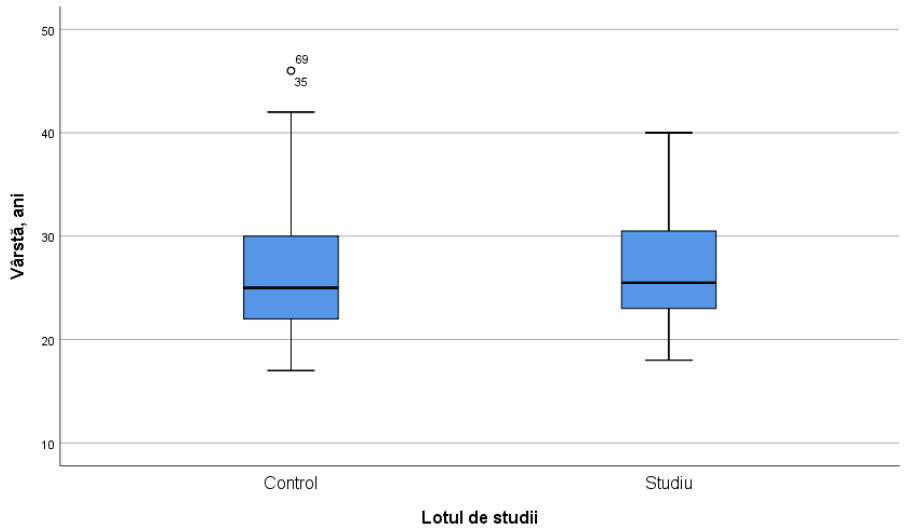


Figure 9. **Age Distribution in the Study Groups**

The distribution described by the presented figures confirms the data found in the specialized literature, where it has been established that difficulties related to the lower third molar eruption are characteristic of young individuals without a significant gender predilection.

To evaluate the degree of difficulty of tooth extraction expressed in various classifications, which will determine the surgical technique of third molar odontectomy, the recovery period, and the risk of intra- and postoperative complications, were recorded the following factors: angulation, relationship with the ascending mandibular ramus, relationship with the occlusal plane, root morphology, and the size of the follicular sac.

According to Pell and Gregory, the position of the tooth is divided into three classes based on the relationship of the third molar with the ascending mandibular ramus, which was recorded for all 120 participants. The distribution of these cases is illustrated in Figure 10.

Most participants, 73 cases from both groups (Table 4), had the mesio-distal crown diameter utterly free from the anterior border of the ascending mandibular ramus, falling into Class I. In the control group, the majority, 55% (95% CI 42.4, 67.1), fell into this class. In the study group, patients in the same category accounted for 66.7% (95% CI 54.2, 77.6) of the group. Cases in the control group classified as Class II accounted for 43.3% (95% CI 31.4, 55.9), while the number in the study group was 26.7% (95% CI 16.8, 38.8).

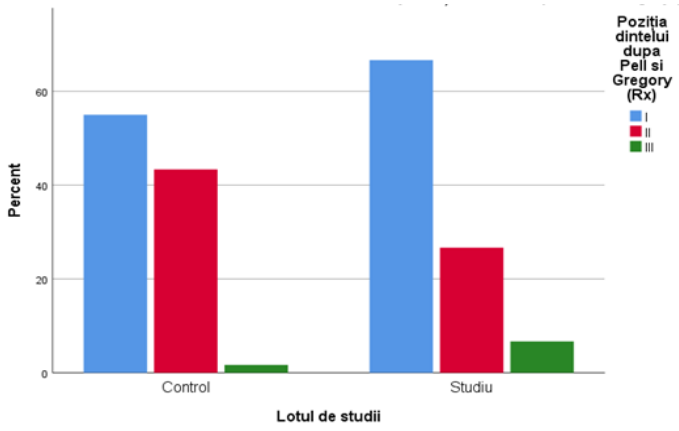


Figure 10. **Distribution based on the relationship of the third molar with the ascending mandibular ramus in the study groups.**

The fewest cases had the crown of the impacted molar entirely covered by the mandibular ramus. Such patients accounted for 1.7% (95% CI 0.2, 7.5) of the control group and 6.7% (95% CI 2.3, 15.1) of the study group.

Table 4. **Descriptive statistics according to the Pell & Gregory classification in the groups**

			Groups	
			Control	Study
Tooth position by Pell & Gregory (Rx)	I	Count	33	40
		Column N %	55.0	66.7
		95,0% Lower CL for Column N %	42.4	54.2
		95,0% Upper CL for Column N %	67.1	77.6
	II	Count	26	16
		Column N %	43.3	26.7
		95,0% Lower CL for Column N %	31.4	16.8
		95,0% Upper CL for Column N %	55.9	38.8
	III	Count	1	4
		Column N %	1.7	6.7
		95,0% Lower CL for Column N %	0.2	2.3
		95,0% Upper CL for Column N %	7.5	15.1
Tooth position by Pell & Gregory (Rx)_1	A	Count	44	48
		Column N %	73.3	80.0
		95,0% Lower CL for Column N %	61.2	68.6
		95,0% Upper CL for Column N %	83.2	88.6
	B	Count	16	8
		Column N %	26.7	13.3
		95,0% Lower CL for Column N %	16.8	6.5
		95,0% Upper CL for Column N %	38.8	23.6
	C	Count	0	4
		Column N %	0.0	6.7
		95,0% Lower CL for Column N %	.	2.3
		95,0% Upper CL for Column N %	.	15.1

Another aspect was the depth of the impacted tooth in relation to the occlusal plane of the molar aged 6 and 12. According to this criterion, patients in the control group had the level of the third molar categorized into two out of the three possible types. The majority of them, 73.3% (95% CI 61.2, 83.2), fell into Class A, while the remaining 26.7% (95% CI 16.8, 38.8) had the occlusal surface of the third molar between the occlusal plane and the vertical line of the second molar, categorized as Class B. In the control group, there were no patients classified as Class C according to the classification. The study group included patients from all three classes (Figure 11).

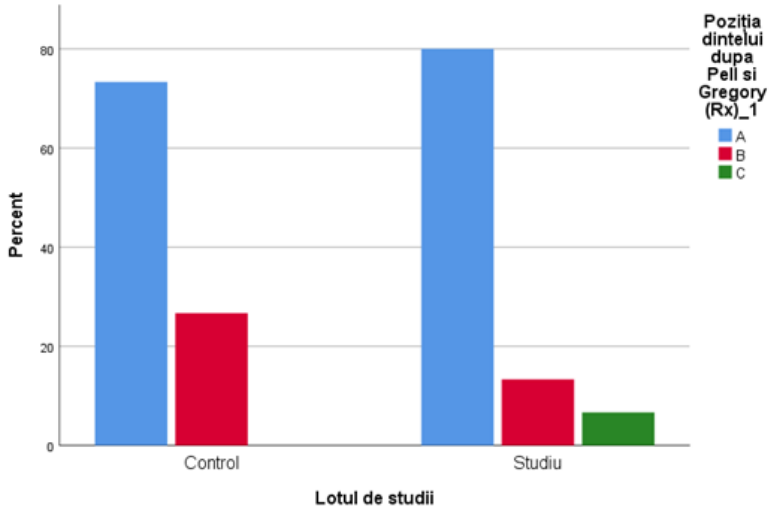


Figure 11. **Distribution according to the depth of the impacted tooth in relation to the occlusal plane of the permanent first and second molars in the study groups.**

According to the criteria of depth of the impacted tooth in relation to the occlusal plane of the first and second molars, we can say that the study groups were different (Table 5). The presence of third molars with the occlusal surface below the cervical line of the second molar in some patients in the study group is statistically significant (Pearson Chi-Square test = 6.841, df = 2, p = 0.033).

Table 5. **The depth of the impacted tooth in relation to the occlusal plane of the first and second molars according to Pell and Gregory**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6,841a	2	,033
Likelihood Ratio	8,438	2	,015
Linear-by-Linear Association	,000	1	1,000
N of Valid Cases	120		

The observed difference, which makes this group more complicated in terms of the progression of the inflammatory process, the time required for the extraction procedure, and the degree of tissue damage during extraction, should be considered when comparing treatment outcomes.

The follicular space, which can serve as a conducive environment for bacterial proliferation, was measured in the patients of the two groups (Table 6).

Table 6. **Dimensions of the follicular space in the research groups**

		Groups	
		Control	**Study**
Follicular space, mm	Minimum	.10	.10
	Maximum	4.00	4.00
	Mean	1.14	1.06
	Standard Deviation	.94	.93
	Median	1.00	.93
	Percentile 25	.50	.10

	Percentile 75	2.00	1.66

In the control group, the size of the follicular space ranged from a minimum of 0.1 mm to 4.0 mm, with a mean size of 1.14 mm and a standard deviation of 0.94 mm. The median size of the recorded dimensions was 1.0 mm, and the values recorded in the control group were scattered between the 25th percentile with a value of 0.50 mm and the 75th percentile with a value of 2.0 mm.

Table 7. T**he follicular space in the research groups**

Test Statistics	
	Follicular space, mm
Mann-Whitney U	1685,500
Wilcoxon W	3515,500
Z	-,606
Asymp. Sig. (2-tailed)	,544

The patients in the study group had follicular spaces with dimensions within the same range as the control group, ranging from a minimum of 0.1 mm to a maximum of 4.0 mm. The mean size was 1.06 mm with a standard deviation of 0.93 mm, which was smaller than in the control group. The median size for patients in the study group was 0.93 mm, with the 25th and 75th percentiles equal to 0.1 mm and 1.66 mm, respectively. Figure 12 shows a concentration towards smaller sizes, but this difference is not statistically significant (Mann-Whitney U test = 1685.500, Wilcoxon W test = 3515.500, Z score = -0.606, p = 0.544) (Table 7).

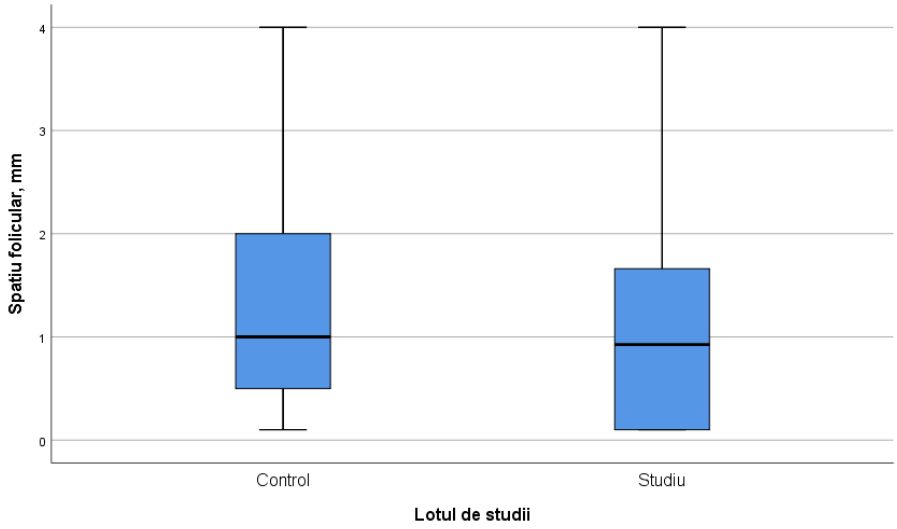


Figure 12. **Distribution of follicular space size in the research groups**

3.2. Evaluation of Study Variables Results in Groups

The patients in both groups were assessed based on several criteria: Regeneration Index (Landry et al.), postoperative pain and swelling, degree of mouth opening, postoperative wound appearance, and follicular space size.

The Regeneration Index (Landry et al.) showed moderate to high values of regeneration in both groups (Figure 13). Grade 3 of regeneration was observed only in patients from the group without postoperative platelet-rich plasma administration (table 8). These patients accounted for 3.3% (95% CI 0.7, 10.3) of the control group. Grade 4 of regeneration was observed in 90% (95%

CI 80.5, 95.7) of the control group cases and in 53.3% (95% CI 40.8, 65.6) of the research group patients.

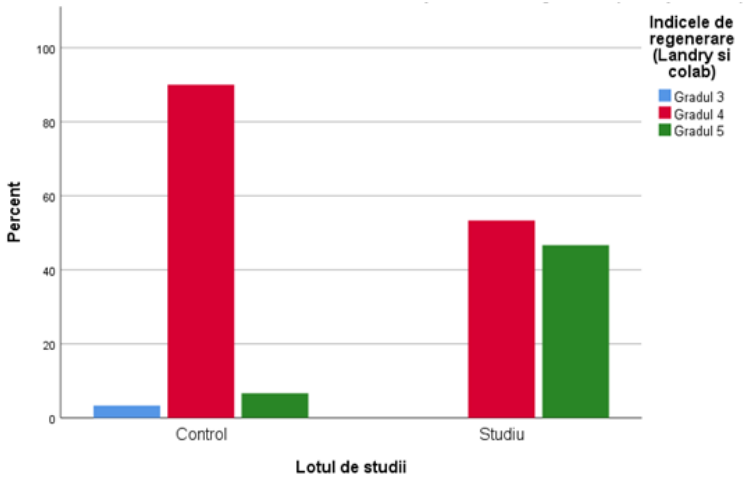


Figure 13. **Distribution according to the Regeneration Index (Landry et al.)**

The majority of individuals with the maximum regeneration index, accounting for 46.7% (95% CI 34.4, 59.2), were recorded in the research group. The maximum regeneration index 5 was present in only 6.7% (95% CI 2.3, 15.1) of those recorded in the control group, a frequency several times lower than that observed in the research group (Table 8).

Table 8. **Regeneration Index (Landry et al.) in the research groups.**

			Groups	
			Control	Study
Regeneration index (Landry et al)	Index 3	Count	2	0
		Column N %	3.3	0.0
		95,0% Lower CL for Column N %	0.7	.
		95,0% Upper CL for Column N %	10.3	.
	Index 4	Count	54	32
		Column N %	90.0	53.3
		95,0% Lower CL for Column N %	80.5	40.8
		95,0% Upper CL for Column N %	95.7	65.6
	Index 5	Count	4	28
		Column N %	6.7	46.7
		95,0% Lower CL for Column N %	2.3	34.4
		95,0% Upper CL for Column N %	15.1	59.2

The differences observed in figure 13 are not of a stochastic nature. The numbers presented in table 9 demonstrate the existence of a statistically significant difference between the results of using post-extraction platelet-rich plasma compared to the data from the control group of the given study (Pearson Chi-Square test = 25.628, df = 2, $p<0.001$).

Table 9. **Pearson Chi-Square test for the Regeneration Index (Landry et al.)**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25,628a	2	,000
Likelihood Ratio	28,712	2	,000

Linear-by-Linear Association	25,297	1	,000
N of Valid Cases	120		

Therefore, in the study group, there were more patients with higher values of the Regeneration Index. Clinically, this could suggest the beneficial effects of the applied technique in the current research, especially considering that the patients in the study group were different in terms of angulation according to the Winter classification described above and the tooth position according to the Pell & Gregory classification.

The relationship between the third molar and the ascending ramus of the mandible, as well as the depth of the impacted tooth relative to the occlusal plane of the permanent first and second molars, were observed separately for each recorded Regeneration Index (Landry et al.) in the research groups (table 10). As can be seen, the majority of patients in the control group, 24 individuals, were concentrated in the group of less complex extraction cases, belonging to group I A according to the Pell & Gregory classification, with a recorded Regeneration Index of 4 according to the Landry classification. They were followed by 16 cases from Group II A and 9 individuals from Group IIB, which were more challenging to approach than Group I and associated with the same Regeneration Index of 4. The maximum Index, 5, was observed in only 3 patients with the least traumatic position of the lower third molar (I A) and one with position II-A.

Table 10. **Tooth position according to Pell & Gregory for each recorded Regeneration Index in the research groups.**

				Groups					
				Control			**Study**		
				Regeneration index (Landry si colab)					
				Index 3	Index 4	Index 5	Index 3	Index 4	Index 5
				Count	Count	Count	Count	Count	Count
Tooth position by Pell & Gregory (Rx)	I	Tooth position by Pell & Gregory (Rx)_1	A	0	24	3	0	19	18
			B	2	4	0	0	1	2
			C	0	0	0	0	0	0
	II	Tooth position by Pell & Gregory (Rx)_1	A	0	16	1	0	6	4
			B	0	9	0	0	2	1
			C	0	0	0	0	1	2
	III	Tooth position by Pell & Gregory (Rx)_1	A	0	0	0	0	1	0
			B	0	1	0	0	1	1
			C	0	0	0	0	1	0

Compared to the control group, no patients with a Regeneration Index of 3 were recorded in the study group. The Index of 4 was observed in 19 individuals from Group I A, one from Group I B, 6 from Group II A, and 2 from Group II B. The series continues with patients who had increasing levels of complexity and trauma in extraction, reaching the most challenging group III C. The same trend was observed in patients receiving postoperative platelet-rich plasma, with a Regeneration Index of 5. Among them, 18 patients belonged to group I A, and 2 individuals had the position I B. Position II A was observed in 4 cases, II B in one case, and 2 patients had lower third molars in position II C. The maximum Regeneration Index, even in the case of a challenging extraction position (III B), was recorded in the study group.

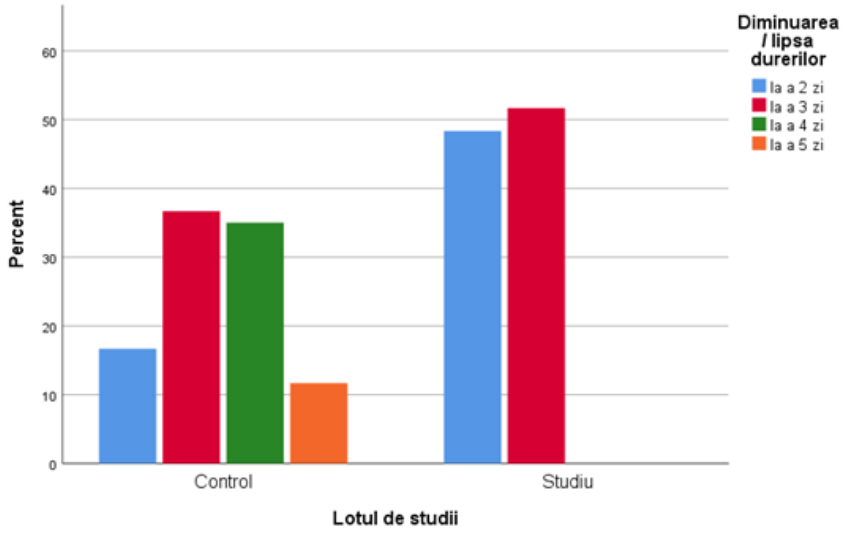


Figure 14. **Distribution based on the absence/reduction of pain in the research groups.**

The presence of pain and swelling at the 7th postoperative day yielded the following results as observed indicators. The numbers presented indicate no differences between the groups according to these indicators, as pain and swelling were absent in both the control and study groups after one week. To identify possible differences, the presence of these symptoms was measured at shorter intervals after extraction.

Postoperative pain disappeared within 2 to 5 days (Figure 15) for patients in the control group and, at the latest, by day 3 in the study group.

In the control group, pain diminished or disappeared on the 2nd day in 16.7% (95% CI 8.9, 27.6) of cases, and on the 3rd day in 36.7% (95% CI 25.3, 49.3) of patients. In contrast to the study group, 35.0% (95% CI 23.9, 47.5) of patients experienced pain relief on the 4th day, while 11.7% (95% CI 5.4, 21.5) had pain persisting until the 5th day after extraction.

Patients in the study group had pain that disappeared on the 2nd day in 48.3% (95% CI 36.0, 60.8), and in the remaining 51.7% (95% CI 39.2, 64.0), pain subsided by the 3rd day. No patients were recorded in the study group who experienced pain that did not diminish or disappear by the 4th or 5th day, and this finding is statistically significant in the current research, as shown in Table 11 (Pearson Chi-Square test = 38.785, df = 3, $p < 0.001$).

Table 11. **The absence/reduction of pain in the research groups.**

Chi-Square Tests (absence/reduction of pain)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	38,785	3	,000
Likelihood Ratio	50,015	3	,000
Linear-by-Linear Association	32,910	1	,000
N of Valid Cases	120		

Edema, as a typical result of the traumatic extraction procedure of the lower third molar, diminished/absent by the 5th day in the control group and by the 4th day in the group of patients treated with post-extraction platelet-rich plasma (Figure 15).

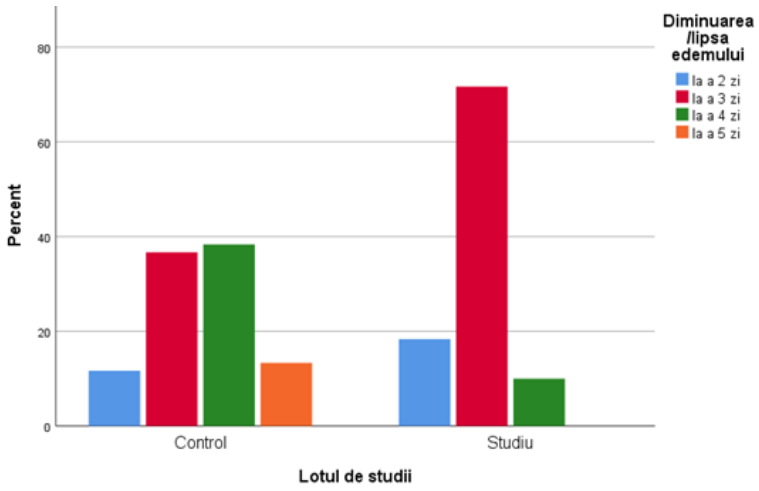


Figure 15. **Distribution of absence/diminishment of edema in the research groups.**

In the control group, edema diminished/disappeared on the 2nd day in 11.7% (95% CI 5.4, 21.5) of patients, on the 3rd day in 36.7% (95% CI 25.3, 49.3) of individuals, on the 4th day in 38.3% (95% CI 26.8, 50.9) of cases, and there were patients with edema on the 5th day, constituting 13.3% (95% CI 6.5, 23.6).

In the study group, even though the position of the lower third molars was surgically more challenging, in most patients, 71.7% (95% CI 59.4, 81.9), edema had already disappeared/diminished by the 3rd day after the extraction. Among the remaining patients, in 18.3% (95% CI 10.2, 29), edema disappeared or decreased on the following day of the intervention, and only in 10.0% (95% CI 4.3, 19.5) did edema diminish/absent by the 4th day. No patients were recorded with edema persisting until the 5th day, as in the group without post-extraction platelet-rich plasma application for the lower third molar extraction.

The differences observed in comparing the groups based on the criterion of edema reduction/absence have statistical significance (Pearson Chi-Square test = 25.639, df = 3, $p < 0.001$) (Table 12), which should be emphasized in the context of the current research, reaffirming the more challenging characteristics of the position according to Winter and Pell&Gregory for the study group.

Table 12. **The absence/reduction of edema in the research groups.**

Chi-Square Tests (absence/reduction of edema)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25,639	3	,000
Likelihood Ratio	29,528	3	,000
Linear-by-Linear Association	18,616	1	,000
N of Valid Cases	120		

The degree of mouth opening, which could be limited to 1 or 2 cm (Figure 16) due to pain, edema, or other factors, was another indicator monitored in the research groups.

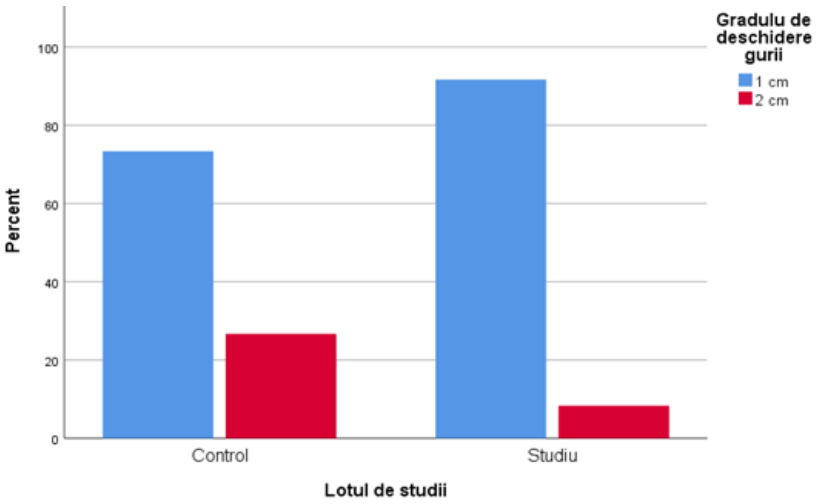


Figure 16. **Distribution of absence/diminishment of mouth opening degree in the research groups.**

Among patients without postoperative platelet-rich plasma application, mouth opening was limited to 1 cm in 73.3% (95% CI 61.2, 83.2) of observed cases, while in the remaining 26.7% (95% CI 16.8, 38.8) of individuals in this group, the opening was limited to 2 cm.

Table 14. **Absence/reduction of mouth opening in the study groups.**

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6,984	1	,008		
Continuity Correction	5,772	1	,016		
Likelihood Ratio	7,284	1	,007		
Fisher's Exact Test				,015	,007
Linear-by-Linear Association	6,926	1	,008		
N of Valid Cases	120				

In the study group, the limitation of opening to 1 cm constituted 91.7% (95% CI 82.7, 96.7), and for the remaining 8.3% (95% CI 3.3, 17.3) of patients, the opening was limited to 2 cm. Based on the indicator monitored in this case, according to the data in table 13, we can say that there was a statistically significant difference between the groups in the current research (Pearson Chi-Square test with continuity correction = 5.772, df = 1, p = 0.016).

Edema observed on the 3rd postoperative day was present as mild, moderate, or severe in patients in the control group (Figure 17) and only as mild or moderate in those with platelet-rich plasma applied after the lower third molar extraction.

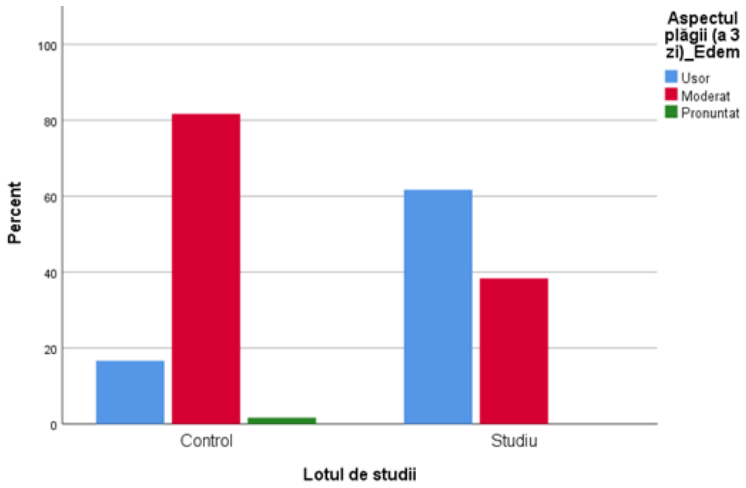


Figure 17. **Distribution of wound appearance on the 3rd day (Edema) in the study groups.**

Edema was easily observed in 16.7% (95% CI 8.9, 27.6) of patients in the control group, compared to 61.7% (95% CI 49.1, 73.2), who constituted most patients in the study group with mild edema. Moderate edema was recorded in most patients in the control group, accounting for 81.7% (95% CI 70.5, 89.8) of patients in this group. In contrast, in the study group, the percentage of patients with moderate edema on the 3rd day was 38.3% (95% CI 26.8, 50.9). Severe edema was observed in 1.7% (95% CI 0.2, 7.5) of patients in the control group, while no severe edema was observed in patients who received platelet-rich plasma.

The difference between the measured indicator values after applying the studied treatment is also evident in this case. The data from table 14 confirm the observed difference in the given situation (Pearson Chi-Square test = 25.900, df = 2, $p < 0.001$).

Table 14. **Absence/diminishment of edema in the study groups.**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25,900	2	,000
Likelihood Ratio	27,492	2	,000
Linear-by-Linear Association	25,603	1	,000
N of Valid Cases	120		

Another objective of the current research was to determine the pathogenic bacterial flora that can cause infection in the mandibular third molar in the patient groups. The results of the bacteriological analysis conducted are presented in Table 16.

In the control group, the most common causative factor of infection in the mandibular third molar was Streptococcus viridans, detected in the cultures of 37.9% (95% CI 22.1, 56.0) of patients. The second most common pathogen was Aerobic Streptococcus mitis, detected in 20% (95% CI 8.8, 36.7) of individuals in the control group. Ranking third was Streptococcus oralis with a relative frequency of 17.2% (95% CI 6.9, 33.7), followed by Streptococcus haemolyticus observed in 10.3% (95% CI 3.0, 25.1) of cases. Candida albicans was recorded with a relative frequency of 7.1% (95% CI 1.5, 21.0), followed by Streptococcus pneumoniae, Prevotella intermedia, and Actinomyces israeli, each with a frequency of 6.9% (95% CI 1.5, 20.3). Peptostreptococcus was observed with a relative frequency of 6.7% (95% CI 1.4, 19.7), while

Capnocytophaga gingivalis was identified in 3.6% (95% CI 0.4, 15.5) of respondents in the control group. Bacteriological examination revealed the presence of Escherichia coli, Streptococcus mutans, and Streptococcus sanguinis in 3.4% (95% CI 0.4, 15.0) of patients without platelet-rich plasma application.

Table 15. **Distribution of identified pathogens in the research groups.**

	Groups					
	Control			**Study**		
	Column, %	**95.0% Lower CL**	**95.0% Upper CL**	**Column,%**	**95.0% Lower CL**	**95.0% Upper CL**
Streptococus mitis (aerob)	20.0	8.8	36.7	16.7	6.7	32.7
Haemophilus parainfluensae	0.0			0.0		
Streptococus anginans	0.0			10.0	2.9	24.3
Streptococus viridans	37.9	22.1	56.0	33.3	18.6	51.1
Streptococus pneumoniae	6.9	1.5	20.3	3.3	0.4	14.5
Streptococus oralis	17.2	6.9	33.7	13.3	4.7	28.7
Streptococus constelatus	0.0			0.00		
Candida albicans	7.1	1.5	21.0	16.7	6.7	32.7
Escherichia coli	3.4	0.4	15.0	10.0	2.9	24.3
Streptococus haemoliticus	10.3	3.0	25.1	10.0	2.9	24.3
Streptococus mutans	3.4	0.4	15.0	16.7	6.7	32.7
Streptococus gingivalis	0.0			3.3	0.4	14.5
Prevotella intermedia	6.9	1.5	20.3	13.3	4.7	28.7
Streptococus hemoliticus	0.0			0.0		
Propionibacterium	0.0			3.3	0.4	14.5
Peptostreptococus	6.7	1.4	19.7	6.7	1.4	19.7
Fusobacterii	0.0			3.3	0.4	14.5
Actimomicet odontoliticum	0.0			3.3	0.4	14.5
Streptococus sanguinis	3.4	0.4	15.0	10.0	2.9	24.3
Veillonella	0.0			6.70	1.40	19.70
Actinomices israeli	6.9	1.5	20.3	0.0		
Capnocytophaga gingivalis	3.6	0.4	15.5	0.0		

In the study group, similar to the control group, the most common causative factor of infection in the mandibular third molar was Streptococcus viridans (table 15), observed with a relative frequency of 33.3% (95% CI 18.6, 51.1). These were followed by Aerobic Streptococcus mitis, Candida albicans, and Streptococcus mutans, which were detected in 16.7% (95% CI 6.7, 32.7) of cases.

Less frequently, Streptococcus oralis and Prevotella intermedia were detected in 13.3% (95% CI 4.7, 28.7) of patients in the study group. In 10% (95% CI 2.9, 24.3) of cases, the presence of each of the following pathogens was detected: Streptococcus haemolyticus, Escherichia coli, Streptococcus sanguinis, and Streptococcus anginosus. The same frequency of 6.7% (95% CI 1.4, 19.7) was observed for Peptostreptococcus and Veillonella. Streptococcus pneumoniae, Streptococcus gingivalis, Propionibacterium, Fusobacteria, and Actinomyces odontolyticus were present in 3.3% (95% CI 0.4, 14.5) of patients in the study group, with the latter four not being observed in the control group. Actinomyces israelii, Capnocytophaga gingivalis, Haemophilus

parainfluenzae, Streptococcus constellatus, and Streptococcus haemolyticus were not detected in the bacteriological examination of the study group.

To identify differences in the distributions of causative factors of mandibular third molar infection in the research groups, Pearson Chi-Square tests were calculated for each pathogen on the list (table 16). As can be seen, there were no statistically significant differences in any of the calculated cases.

Table 16. **Distribution of causative factors of infection in the research groups.**

Pearson Chi-Square Tests			
Pathogen	**Chi-square**	**df**	**Sig.**
Streptococus mitis	.111	1	.739
Haemophilus parainfluensae	.	.	.
Streptococus anginans	3.055	1	.080
Streptococus viridans	.136	1	.712
Streptococus pneumoniae	.388	1	.533
Streptococus oralis	.174	1	.676
Streptococus constelatus	.		
Candida albicans	1.238	1	.266
Escherichia coli	1.002	1	.317
Streptococus haemoliticus	.002	1	.965
Streptococus mutans	2.820	1	.093
Streptococus gingivalis	.983	1	.321
Prevotella intermedia	.669	1	.413
Streptococus hemoliticus	.		
Propionibacterium	.983	1	.321
Peptostretococus	.000	1	1.000
Fusobacterii	.983	1	.321
Actimomicet odontoliticum	.983	1	.321
Streptococus sanguinis	1.002	1	.317
Veillonella	2.001	1	.157
Actinomices israeli	2.142	1	.143
Capnocytophaga gingivalis	1.090	1	.296

In order to identify the pathogen species most frequently encountered in patients from both groups, the cumulative relative frequencies were arranged in descending order (Table 18). It was observed that Streptococcus viridans was identified in 35.6% (95% CI 24.3, 48.3) of the patients included in the study, followed by Streptococcus mitis with a cumulative relative frequency of 18.3% (95% CI 10.2, 29.5). The third most common pathogen had a cumulative relative frequency of 15.3% (95% CI 7.8, 26.0). In the final analysis, Candida albicans was also included, present in 12.1% (95% CI 5.6, 22.2) of patients from both combined research groups.

Among the patients included in the study with microflora detected in the oral cavity, the sensitivity to antibacterial and antifungal preparations was also analysed.

Bacterial flora was detected separately or in combinations with two or three types of microorganisms in 52 patients, and its sensitivity was tested against a larger number of antibiotic preparations. The maximum sensitivity was observed with the combination of Amoxicillin and Clavulanic Acid. In this combination, all bacteria detected either individually or in combinations of two or three pathogenic organisms showed sensitivity. The results align with the latest data in the specialized literature, which recommends Amoxicillin and Clavulanic Acid as an effective

combination for oral infections. The phenomenon of antibiotic resistance was also observed in the current research. Among patients in whom a single type of bacteria was detected in the oral cavity, in the majority of cases (80%, 95% CI 64.7, 90.6), they were resistant to Amikacin, followed by Gentamicin, to which 77.1% (95% CI 61.5, 88.6) were resistant, and Tobramycin with 68.6% (95% CI 52.2, 82.0) of patients showing resistance to the tested antibiotics. When two or three types of bacteria were identified in the oral cavity, the antimicrobial preparations with the highest resistance were primarily the same, making them not recommended for treating oral cavity infections.

4. SYNTHESIS OF THE OBTAINED RESULTS

Pericoronitis is an inflammatory-infectious pathology of the soft tissues surrounding the erupting tooth, most associated with lower wisdom molars. In turn, the impaction of the lower third molar develops due to insufficient space in the retromolar area, resulting in its retention [11].

Pericoronitis, a pathology frequently associated with the difficult eruption of the lower wisdom tooth, is characteristic of young individuals, with an average age of 27 years according to the current study, 25 years in the control group, and 26 years in the research group. However, this difference is not statistically significant, with no predominant sex preference (Borodulina II, Lantsova ES, 2007), a finding also reflected in the present study, where men accounted for 45% and women for 55% of the research participants. Therefore, the observed differences are not statistically significant (Pearson Chi-Square test with Continuity Correction = 2.727, df = 1, p = 0.099).

Physiologically, the oral cavity harbors a complex microbial ecosystem, predominantly consisting of species of Streptococci and Staphylococci [12]. Excessive accumulation of these bacteria in the space between the tooth crown and the surrounding soft tissues is a determining factor in developing the inflammatory-infectious process.

The occurrence of operculitis is also influenced by systemic factors because general pathologies affect the immune system and, consequently, the local statuses. Factors such as mental stress and upper respiratory tract infections can be transient. As an infectious condition, cases are prevalent during the cold season, often associated with a peak in respiratory infections [13]. These factors can directly affect the normal balance of oral microflora or indirectly through the reduction of passive self-cleansing and inhibition of active oral hygiene by the patient [1,14]. These assumptions are supported by the findings of this study, where patients predominantly sought treatment during the winter season, accounting for 40 visits in both groups (57.5%). The next most frequent visit season was autumn, when respiratory infections worsened, representing a risk factor [13,15] for 38 patients (31.66%) in the research groups. In spring, due to decreased immunity, the frequency of pericoronitis is higher [13], which is also reflected in our study, with 34 individuals seeking treatment (38.33%). Although the literature [1] suggests a connection between general changes related to stress (exams) and the immune system, which can contribute to the exacerbation of pericoronitis during the warm season, in our study, the fewest patients (6.66%) sought treatment during summer.

Although pericoronitis is an infectious process, in addition to the impact of the pathogen, a significant role is attributed to local morphological conditions. The position of the wisdom tooth, the shape and size of the operculum and follicular space has a substantial influence on the etiology of this process, as the thicker the pericoronal mucosa covering the tooth crown, the greater the predisposition to bacterial accumulation and initiation of the infectious process. The type of dental impaction, evaluated according to Pell & Gregory (1933) and Winter (1926) [16], is of relevance in the etiology of pericoronitis. 77% of individuals in both groups had vertically angulated third

molars, with the mesioangular position being the next most common. 60% of the researched patients had class I positions, according to Pell & Gregory, and class A accounted for 76%. In this regard, class A and class I places, according to Pell & Gregory, favor bacterial accumulation and the development of pericoronitis. At the same time, vertical impaction (Winter's classification) is associated with a significant risk factor [4,17]. In addition to the correlation between the position of the lower wisdom tooth and the occurrence of pericoronitis, it also influences the difficulty of its extraction [18]. In increasing order of difficulty of the odontectomy procedure, these positions are: mesioangular, horizontal, vertical, and distoangular [19]. Among these four positions, only three variants were observed in the patients of the current study, and the most challenging position was observed only in the study group, indicating that the chosen treatment method has outstanding benefits.

When these three possible positions are associated with impaction of the lower third molar, along with the involvement of the oral microbiota, the signs of inflammation are inevitable - pain, local temperature, hyperemia, swelling (edema), and functional disturbances [17].

Patients' first symptom is pain, which can be subjectively assessed using the visual analog scale (VAS). The pain starts locally and is limited to the soft tissues surrounding the erupting tooth. In most cases, in the initial stages, it is of moderate intensity [20], according to the current study. This intensity value was most frequently encountered in patients from both groups (63 individuals). Most patients who reported pain intensity of 4 points on the VAS were from the study group, constituting 57.1% (95% CI 44.8, 68.8). Respondents from the control group who rated their pain at the same level accounted for 42.9% (95% CI 31.2, 55.2).

As the inflammatory process progresses, the pain becomes pulsating and radiates toward the surrounding tissues and/or neighboring spaces (temporal, retro- and submandibular, auricular) [21]. In this study, radiating pain was observed in 59 patients, with 54.2% (95% CI 41.6, 66.5) belonging to the control group and 45.8% (95% CI 33.5, 58.4) to the study group. The pain usually intensifies over time and becomes more pronounced upon touch. It can also disrupt sleep, and its exacerbation during chewing can limit food intake. During the clinical examination, edematous and hyperemic soft tissues are observed above and around the tooth. In some cases, as a result of the progression of the inflammatory-infectious process, seropurulent or even purulent discharges can be observed from under the operculum [22].

The intensity and extent of edema and pain can force the patient to adopt a forced position of mandibular retroversion with the oral cavity slightly open. Additionally, the breakdown products of tissue and bacterial decomposition often lead to halitosis in the oral cavity, indicating the progression of the inflammatory process [10]. Halitosis was recorded in 66 patients, of which 59.1% (95% CI 47.0, 70.4) were from the study group and 40.9% (95% CI 29.6, 53.0) were from the control group. The observed difference is statistically significant, as demonstrated by the analysis results presented in Table 19 (Pearson Chi-Square test with Continuity Correction = 4.074, df = 1, p = 0.044).

Like any infectious pathology, in the case of a lack of treatment and disease progression, pericoronitis can be associated with the involvement of a purulent process (purulent pericoronitis). Suppose measures to evacuate the purulent collection should be taken in a timely clinical manner. In that case, the formation of an abscess in the pericoronal space can occur, with the purulent secretion tending to spread to neighboring spaces. The presence of multiple communication pathways between anatomical areas in the head and neck region facilitates the progression of infection from the region of purulent collection to adjacent spaces, such as the sublingual, submandibular, para- and retropharyngeal, pterygomandibular, and infratemporal spaces [21].

According to statistical studies conducted on a total of 213 patients with odontogenic infections who presented to the Department of Oral and Maxillofacial Surgery at IMSP IMU over six months in 2017, 78 of them were diagnosed with pathologies associated with pericoronal infection of the inferior wisdom teeth. The severity of the situation is reflected in the fact that 25 experienced post-extraction complications of an inflammatory-infectious nature related to the wisdom tooth, indicating non-compliance with the standard protocol for extraction of the lower third molars. This highlights the need for a staged protocol to extract the inferior wisdom teeth, especially in the presence of infections associated with this group of teeth.

Appropriate and early treatment is essential in managing pericoronitis, as it saves the patient from complications, reduces work disability, and ultimately eliminates or reduces the need for antibiotic prescription and the risk of developing antibiotic resistance [9,23].

Antibiotic therapy is a crucial stage and a controversial subject in the treatment of pericoronitis. Although the use of antibiotics leads to the development of resistance and a decrease in effectiveness over time, in cases of purulent pericoronitis, it is of great importance [9]. The infectious nature of this pathology and the possibility of infection spreading to neighboring spaces must be considered, which is why the balance leans towards the use of antimicrobial agents.

In the majority of cases of pericoronitis, the bacterial flora consists of aerobic and anaerobic microorganisms, hemolytic streptococci, and bacteria from the genus Prevotella, Veillonella, Bacteroides, and Capnocytophaga [15]. Many of these microorganisms are part of the normal oral microbial flora. Bacteriological examination revealed that Streptococcus viridans was identified in 35.6% (95% CI 24.3, 48.3) of the patients included in the study, followed by Streptococcus mitis with a cumulative relative frequency of 18.3% (95% CI 10.2, 29.5). The third most common pathogen had a cumulative relative frequency of 15.3% (95% CI 7.8, 26.0). Therefore, the microbial etiology of pericoronitis necessitates the empirical administration of antibiotics until antibiotic susceptibility results are obtained. Antibiotics such as Amoxicillin, Penicillin V, Metronidazole, followed by Amoxicillin in combination with Clavulanic Acid, have proven to be among the most effective in initiating empirical treatment [24]. Specialized studies argue that Amoxicillin in combination with Clavulanic Acid is one of the most active antibiotics against the microorganisms involved in the development of pericoronitis, as also demonstrated in the current study, with microorganisms showing sensitivity to Amoxicillin in combination with Clavulanic Acid in 100%, Penicillin G in 90%, and cephalosporin antibiotics in 80%. Antibiotics need to be prescribed in a dose that respects the minimum inhibitory concentration and for a well-determined period. In severe cases, the duration and dosage of antibiotic therapy may be adjusted according to the point, and sometimes combinations of antibiotics may be prescribed (e.g., Metronidazole + Amoxicillin).

For patients with allergies to penicillin, lyncosamides are alternative antibiotics with increased efficacy. Regarding Metronidazole, an important aspect is advising the patient to abstain from consuming alcohol during treatment.

The selection method for treating acute pericoronitis in lower third molars depends on multiple factors. However, one of the fundamental conditions for choosing the treatment approach is the position of the impacted tooth.

The radical surgical approach of lower wisdom tooth – odontectomy has some indications that are correlated with several parameters that need to be taken into account: the angulation of the lower wisdom tooth (Winter classification) and its relationship with the ascending mandibular ramus and occlusal plane (Pell & Gregory classification) [3]. According to this criterion, 73.3% (95% CI 61.2, 83.2) fell into Class A, while the remaining 26.7% (95% CI 16.8, 38.8) had the

occlusal surface of the third molar located between the occlusal plane and the vertical line of the second molar, and were classified as Class B. In the control group, no patients were classified as Class C according to the Pell & Gregory classification. The study group included patients from all three classes. Other criteria include the relationship with the inferior alveolar nerve and root morphology, which had similar distribution patterns, with most patients (88.95%) having fused roots. The size of the follicular sac is another criterion, with patients in this study having sac sizes ranging from a minimum of 0.1mm to a maximum of 4.0mm, with a mean size of 1.1mm. Last but not least, the type of pericoronitis is considered: acute, chronic, or chronic with acute exacerbation (the protocol will be described in practical recommendations).

In the control group, one of the stages of the surgical treatment involves the use of platelet-rich plasma (PRP). This method, administered in injectable form preoperatively and as a fibrin clot postoperatively, aims to reduce post-treatment clinical signs such as pain, edema, trismus, and promotes local tissue regeneration.

Postoperative pain disappeared within 2 to 5 days in the control group patients and at the latest, within 3 days in the study group.

In the control group, pain decreased or disappeared on the second day in 16.7% (95% CI 8.9, 27.6) of cases, and on the third day in 36.7% (95% CI 25.3, 49.3) of patients. In contrast, the study group had 35.0% (95% CI 23.9, 47.5) of patients reporting pain relief on the fourth day, but there were also 11.7% (95% CI 5.4, 21.5) of patients who experienced pain until the fifth day after extraction.

In the study group, 48.3% (95% CI 36.0, 60.8) of patients had pain that disappeared on the second day, while in the remaining 51.7% (95% CI 39.2, 64.0), pain subsided on the third day. There were no patients in the study group who reported persistent or unresolved pain on the fourth or fifth day (Pearson Chi-Square test = 38.785, df = 3, $p < 0.001$).

Post-extraction edema decreased or was absent until the fifth day in the control group and until the fourth day in the group of patients treated with platelet-rich plasma after extraction.

In the control group, edema decreased or disappeared on the second day in 11.7% (95% CI 5.4, 21.5) of patients, on the third day in 36.7% (95% CI 25.3, 49.3), on the fourth day in 38.3% (95% CI 26.8, 50.9), and some patients still had edema on the fifth day, accounting for 13.3% (95% CI 6.5, 23.6).

In the study group, mouth opening was limited to 1 cm in 73.3% (95% CI 61.2, 83.2) of observed cases, while in the remaining 26.7% (95% CI 16.8, 38.8) of individuals, the opening was limited to 2 cm. In the study group, 91.7% (95% CI 82.7, 96.7) had a limitation of opening to 1 cm, and for the other 8.3% (95% CI 3.3, 17.3) of patients, the limitation was at 2 cm. According to the tracked indicator in this case, there was a statistically significant difference between the groups in the current research (Pearson Chi-Square test after continuity correction = 5.772, df = 1, $p = 0.016$).

The Regeneration Index (Landry et al.) recorded moderate to high values of regeneration in both groups. Grade 3 regeneration was observed only in patients in the group without post-extraction platelet-rich plasma administration. They accounted for 3.3% (95% CI 0.7, 10.3) of patients in the control group. Grade 4 regeneration was observed in 90% (95% CI 80.5, 95.7) of cases in the control group and in 53.3% (95% CI 40.8, 65.6) of patients in the research group.

The majority of individuals with the maximum regeneration index, accounting for 46.7% (95% CI 34.4, 59.2), were recorded in the research group. Grade 5 maximum regeneration was present in only 6.7% (95% CI 2.3, 15.1) of those recorded in the control group, a frequency that was several times lower than that observed in the research group.

In conclusion, correct selection of treatment and early diagnosis are essential in the management of pericoronitis (Annex 1).

5. GENERAL CONCLUSIONS

1. Local predisposing factors involved in the development of pericoronitis of the inferior wisdom teeth include partial dental impaction (combination of vertical position with Winter's classification and Type I relationship of the third molar with the ascending ramus of the mandible, as well as Type A depth of the impacted tooth relative to the occlusal plane of the molars aged 6 and 12).
2. The results of our research revealed that pericoronitis is frequently associated with the vertical position (76.66%) of the lower wisdom tooth according to Winter's classification and with Class I (60.83%) and Class A (73.3%) according to Pell & Gregory's classification. The average follicular space of the affected wisdom teeth was 0.99mm.
3. Analysis of the bacteriological examination of the purulent collection under the inflamed operculum of the inferior wisdom teeth revealed the most frequent presence of Streptococcus viridans (35.6%), Streptococcus mitis (18.3%), and Streptococcus oralis (15.3%). Antibiotic sensitivity testing demonstrated that the detected microorganisms exhibited maximum sensitivity (100%) to Amoxicillin in combination with Clavulanic acid.
4. Comparative analysis of treatment methods for pericoronitis with and without the use of platelet-rich plasma showed that the use of platelet-rich plasma contributes to the improvement of clinical signs in the postoperative period and promotes faster soft tissue regeneration, as evidenced by Grade 4 (53.3%) and Grade 5 (46.7%) according to the Landry et al. index.
5. The therapeutic algorithm for patients with pericoronitis guides practitioners in selecting the optimal treatment method while reducing the risk of post-extraction complications.

PRACTICAL RECOMMENDATIONS

Since acute and chronically exacerbated pericoronitis is most commonly present with inflammatory exudate, whether serous, purulent, or seropurulent, one of the fundamental premises for treating this clinical entity is to address the acute phase. This involves medical-conservative treatment, followed by either conservative surgical treatment through operculectomy or radical surgical treatment through the extraction of the causative tooth.

After establishing the diagnosis of acute pericoronitis, the primary goal is to halt the progression of the acute inflammatory phase, which involves the following steps:

1. Plexus anesthesia in the region of the lower wisdom tooth.
2. Detachment of the mucosal operculum and evacuation of the inflammatory infiltrate using compressive techniques and abundant irrigation with antiseptic substances (e.g., 0.05% chlorhexidine).
3. Local anesthetic injection with a vasoconstrictor (e.g., lidocaine with epinephrine) into the vestibular sulcus near the lower wisdom tooth.

Along with local treatment, systemic antibiotic therapy should be associated, prioritizing broad-spectrum antibiotics, especially from the penicillin group. Additionally, until the day of surgical treatment, the patient is recommended to:

1. Perform oral rinses with antiseptic solutions (e.g., 0.05% chlorhexidine).
2. Take nonsteroidal anti-inflammatory drugs (NSAIDs).

Regarding the surgical intervention, whether conservative or radical, the optimal timing (in days) is decided by the doctor once the local inflammatory signs have subsided (typically after 2-3 days of local medical treatment).

Radical surgical treatment (odontectomy):

1. Simultaneous peripheral trunk anesthesia of the mandibular nerve branches.
2. Incision and creation of a mucoperiosteal flap.
3. Access osteotomy (if necessary).
4. Extraction of the causal tooth.
5. Post-extraction wound revision.
6. Use of APT (antibiotic prophylaxis therapy).
7. Post-extraction suturing.
8. Application of an aseptic dressing.

Regarding post-extraction recommendations, they are as follows:

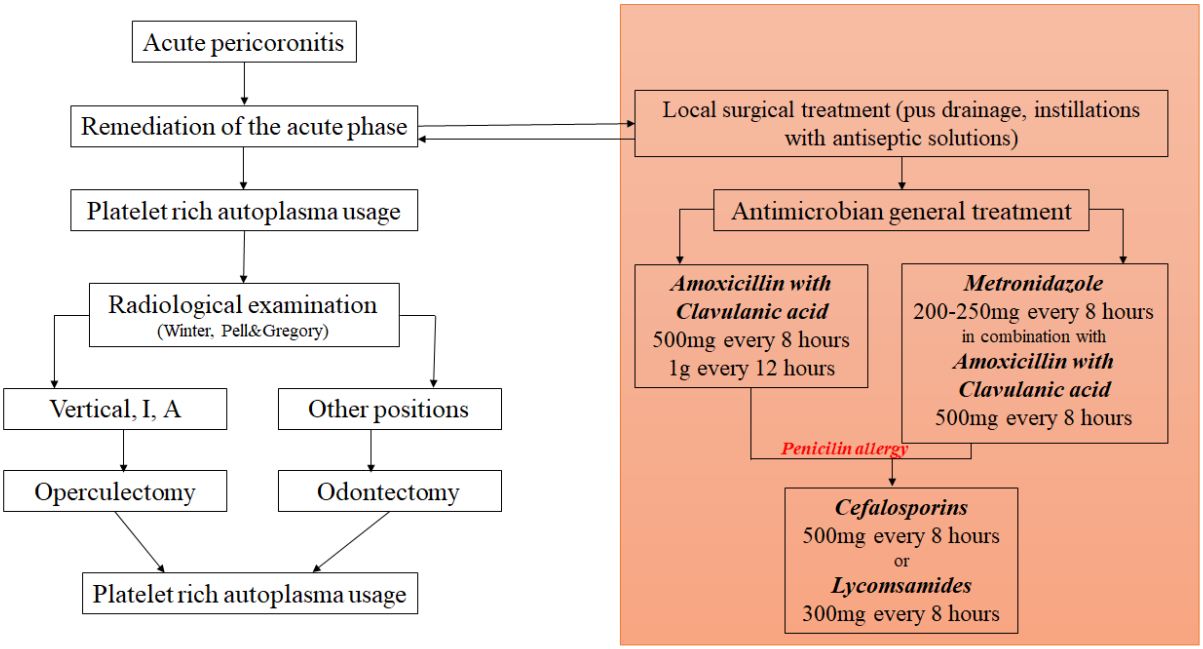
1. Oral rinses with antiseptic solutions (e.g., 0.05% chlorhexidine) for 3-4 days.
2. Use of NSAIDs (nonsteroidal anti-inflammatory drugs) for 3-4 days.
3. Consumption of food and liquids at an optimal temperature.
4. Attendance for a follow-up visit at 7 days postoperatively.

BIBLIOGRAPHY

1. Nitzan DW, Tal O, Sela MN, Shteyer A. Pericoronitis: a reappraisal of its clinical and microbiologic aspects. J Oral Maxillofac Surg [Internet]. 1985 [cited 2022 Nov 20];43(7):510–6. Available from: https://pubmed.ncbi.nlm.nih.gov/3859594/
2. American Association of Oral and Maxillofacial Surgeons. Approach to the Patient with Third Molars. 2016.
3. **Motelica G,** Mostovei A, Zănoagă O, Chele N. Frecvenţa pericoronaritei molarilor 3 inferiori în corelaţie cu vârsta și sexul pacienţilor. Med Stomatol. 2017 Sep 28;44(3):24–7.
4. Ye ZX, Qian WH, Wu YB, Yang C. Pathologies associated with the mandibular third molar impaction. Sci Prog [Internet]. 2021 [cited 2022 Nov 23];104(2). Available from: https://pubmed.ncbi.nlm.nih.gov/33913399/
5. Schmidt J, Kunderova M, Pilbauerova N, Kapitan M. A review of evidence-based recommendations for pericoronitis management and a systematic review of antibiotic prescribing for pericoronitis among dentists: Inappropriate pericoronitis treatment is a critical factor of antibiotic overuse in dentistry. Int J Environ Res Public Health [Internet]. 2021 Jul 1 [cited 2022 Nov 21];18(13):6796. Available from: /pmc/articles/PMC8296928/
6. Sixou JL, Magaud C, Jolivet-Gougeon A, Cormier M, Bonnaure-Mallet M. Evaluation of the Mandibular Third Molar Pericoronitis Flora and Its Susceptibility to Different Antibiotics Prescribed in France. J Clin Microbiol [Internet]. 2003 [cited 2022 Nov 21];41(12):5794. Available from: /pmc/articles/PMC308963/
7. Kanchan T, Chugh V, Chugh A, Meshram V, Shedge R, Patnana AK, et al. Age estimation using third molar maturation based on Demirjian's criteria. Leg Med (Tokyo) [Internet]. 2021 Nov 1 [cited 2022 Nov 23];53. Available from: https://pubmed.ncbi.nlm.nih.gov/34454321/
8. Staderini E, Patini R, Guglielmi F, Camodeca A, Gallenzi P. How to Manage Impacted Third Molars: Germectomy or Delayed Removal? A Systematic Literature Review. Medicina (Kaunas) [Internet]. 2019 Mar 1 [cited 2022 Nov 23];55(3). Available from: https://pubmed.ncbi.nlm.nih.gov/30917605/
9. Licker M. Curs de microbiologie specială [Internet]. Universitatea de Medicină și Farmacie, ‚Victor Babeș, din T, editor. Vol. 1. Timișoara: Editura „Victor Babeş"; 2020 [cited 2023 Feb 4]. 131 p. Available from: www.umft.ro/editura
10. Moisei M, **Motelica G**, Chele N. Eficacitatea medicației locale postextracționale la

pacienții cu molarul trei inferior inclus. Med Stomatol. 2018 May 1;46(1):68–73.
11. Menon RK, Gopinath D. Microbiology of postoperative infections after third molar surgery: A systematic review of case reports. World Journal of Dentistry. 2018.
12. Ribeiro MHB, Ribeiro PC, Retamal-Valdes B, Feres M, Canabarro A. Microbial profile of symptomatic pericoronitis lesions: a cross-sectional study. J Appl Oral Sci [Internet]. 2019 [cited 2022 Nov 23];28. Available from: https://pubmed.ncbi.nlm.nih.gov/31800877/
13. Qudah A. The predisposing factors of perlcoronitis of mandibuiar third moiars in a Jordanian population.
14. Caymaz MG, Buhara O. Association of Oral Hygiene and Periodontal Health with Third Molar Pericoronitis: A Cross-Sectional Study. Biomed Res Int [Internet]. 2021 [cited 2022 Nov 23];2021. Available from: https://pubmed.ncbi.nlm.nih.gov/33728338/
15. Sencimen M, Saygun I, Gulses A, Bal V, Acikel CH, Kubar A. Evaluation of periodontal pathogens of the mandibular third molar pericoronitis by using real time PCR. Int Dent J [Internet]. 2014 [cited 2022 Nov 21];64(4):200–5. Available from: https://pubmed.ncbi.nlm.nih.gov/24835305/
16. Pell GJ, Gregory GT. Impacted mandibular third molars: classification and modified technique for removal. Vol. 39, The dental digest. 1933. p. 330–8.
17. **Motelica G**, Chele N, Roșca L. Evaluarea influenţei florei microbiene in evoluţia şi tratamentul pericoronaritei acute. Med Stomatol. 2020;56(3):84–91.
18. Cho H, Lynham AJ, Hsu E. Postoperative interventions to reduce inflammatory complications after third molar surgery: review of the current evidence. Aust Dent J [Internet]. 2017 Dec 1 [cited 2022 Nov 24];62(4):412–9. Available from: https://pubmed.ncbi.nlm.nih.gov/28498604/
19. Nagata M, Ono N, Ono W. Mesenchymal Progenitor Regulation of Tooth Eruption: A View from PTHrP. Journal of Dental Research. 2020.
20. Shoshani-Dror D, Shilo D, Ginini JG, Emodi O, Rachmiel A. Controversy regarding the need for prophylactic removal of impacted third molars: An overview. Quintessence Int [Internet]. 2018 [cited 2022 Nov 21];49(8). Available from: https://pubmed.ncbi.nlm.nih.gov/30109309/
21. Tormes AK, De Bortoli MM, Júnior RM, Andrade ES. Management of a Severe Cervicofacial Odontogenic Infection. J Contemp Dent Pract. 2018;19(3):352–5.
22. Dhonge RP, Zade RM, Gopinath V, Amirisetty R. An Insight into Pericoronitis. Int J Dent Med Res | MAR-APR Dr Roshan P Dhonge. 2015;
23. Kay LW. Investigations into the nature of pericoronitis. Br J Oral Surg [Internet]. 1966 [cited 2022 Nov 23];3(3):188–205. Available from: https://pubmed.ncbi.nlm.nih.gov/5222538/
24. Zănoagă O, Frăsineanu D, Zgîrcea A, Mostovei A, Hachi G. Antibioticoprofilaxia in stomatologie la pacienţii cu risc sporit de endocardită infecţioasă. Med Stomatol. 2018;46(1):45–9.
25. Sirbu D, Racovita M, Chele N, **Motelica G.** Influence of the microbial factor in acute pericoronitis occurrence. Bull Acad Sci Mold Med Sci. 2021;70(2):179–84.

ANNEX 1. ALGORITHM OF TREATMENT IN ACUTE PERICORONITIS



INFORMATION REGARDING THE VALORIZATION OF RESEARCH RESULTS

at which the results of the researches for the doctoral thesis in medical sciences with the topic „Complex treatment of patients with pericoronitis" were presented

- **Monographs:**

1. Chele N., **Motelica G.** *Anestezia loco-regională în stomatologie și chirurgia OMF. Note de curs pentru studenții și rezidenții Facultății de Stomatologie*. Chișinău: S. n., 2020, 99 p. ISBN 978-9975-82-164-3.
2. Chele N., **Motelica G.** *Local-regional aneshtesia in OMF dentistry and surgery. Course notes for pentru students and residents of Dentistry Faculty*. Chișinău: S. n., 2020, 110 p. ISBN 978-9975-82-162-9.
3. Chele N., **Motelica G.**, Agop-Forna D. *Anestezia în stomatologie și chirurgia oro-maxilo-facială*. Chișinău: S. n., 2022, 195 p. ISBN 978-9975-57-331-3.
4. Chele N., **Motelica G.**, Zănoagă O., Slabari E. *Extracția dentară. Tehnici, accidente și complicații*. Chișinău: S. n., 2022, 143 p. ISBN 978-9975-57-332-0.

- **Articles in accredited national scientific journals:**
  - ✓ **articoles in category B journals**

5. **Motelica G.**, Mostovei A., Zănoagă O., Chele N. Frecvența pericoronaritei molarilor 3 inferiori în corelație cu vârsta și sexul pacienților. În: *Medicina Stomatologică.* 2017; 3(44): 24-27. ISSN 1857-1328
6. Zănoagă O., Croitor T., Mostovei A., **Motelica G.**, Chele, N. Tratamentul complex al pacienților cu pericoronarite acute. În: *Medicina Stomatologică.* 2017; 1-2(42-43): 36-38. ISSN 1857-1328

7. Zănoagă O., Mostovei, A., **Motelica, G.**, Nosaci, A., Chele, N. Chisturile odontogene ale maxilarelor. Date statistice. În: *Buletinul Academiei de Ştiinţe a Moldovei. Ştiinţe Medicale*. 2017; 2(54): 54-58. ISSN 1857-0011
8. **Motelica, G.** Risk assesment of pericoronitis in correlation with the position of the inferior third molar. In: *Moldavian Journal of Health Sciences,* 2022; 29(3): 39-43. ISSN 2345-1467

✓ **articoles in category B journals**

9. Moisei M., **Motelica G.**, Chele N. Eficacitatea medicației locale postextracționale la pacienții cu molraul trei inferior inclus. În: *Medicina Stomatologică*. 2018; 1(46): 68-73. ISSN 1857-1328
10. **Motelica G.**, Chele N. Evaluarea semnelor și simptomelor în incluzia molarului de minte. În: *Medicina Stomatologică.* 2019; 4 (53): 19-24. ISSN 1857-1328
11. **Motelica G.**, Chele N., Roşca L. Evaluarea influenţei florei microbiene în evoluţia şi tratamentul pericoronaritei acute. În: *Medicina Stomatologică.* 2020; 3(56): 84-91. ISSN 1857-1328
12. Beliniuc S., **Motelica G.** Coronectomia molarilor de minte: alternativa extracției dentare. În: *Medicina Stomatologică*. 2021, 3(59): 12-17. ISSN 1857-1328
13. Axenti C., **Motelica G.** Efectele utilizării plasmei bogate în trombocite în terapia plăgii postextracționale. În: *Medicina Stomatologică*. 2021; 3(59): 7-11. ISSN 1857-1328
14. Sîrbu D., Racoviță M., Chele N., **Motelica G.** Influența factorului microbian în apariția pericoronaritei acute. În: *Buletinul Academiei de Ştiinţe a Moldovei. Ştiinţe Medicale.* 2021; 2(70): 179-184. ISSN 1857-0011

- **Articles in international scientific collections:**

15. **Motelica G.**, Chele N. Device for excision of soft tissues in pericoronaritis. In: *The scientific bulletin addendum. The Official Catalogue of the "Cadet INOVA" Exhibition Research and Innovation in the Vision of Young Researchers,* 2022. Sibiu, România. 2022; 180-189. ISSN 2501-3157.
16. Babuci A., Catereniuc I., Zorina Z., Bendelic A., Botnari T., Stepco E., Lehtman S., Strisca S., Nastas L., **Motelica G.**, Procopenco O. Morphology and variability of the facial nerve trunk dependent on branching pattern, gender, anthropometric type and side of the head in Moldovan population. In: *Folia Morphol (Warsz)*. 2022 Oct 18. doi: 10.5603/FM. a2022.0088. Epub ahead of print. PMID: 36254108.
17. Babuci A., Catereniuc I., Zorina Z., Botnari T., Stepco E., Lehtman S., Nastas L., **Motelica G.** Connections of the facial nerve in human embryos. B: *Достижения морфологии: внедрение новых технологий в образовательный процесс и практическую медицину [Электронный ресурс]: сб. науч. ст., посвящ. 75-летию профессора П.Г. Пивченко.* Минск: БГМУ, 2022. 430. с. 1 электрон. опт. диск (CD-ROM). ISBN 978-985-21-1113-3. (стр.413-417).

- **Abstracts/theses submitted at national or international scientific conferences**

18. Chele D., **Motelica G.** The IIIrd molar postextractional complications, therapeutical and surgical prophylaxys. In: *Abstract book The 6th International Medical Congress for Students and Young Doctors MedEspera*. Chisinau; Republic of Moldova; 12-14 of may 2016, p. 310. ISBN 978-9975-3028-4-5.
19. Mostovei A., Topalo V., Chele N., Dabija I., Zănoagă O., **Motelica G.** Lateral sinus floor elevation and simultaneous implants placement in one surgical step. In: *The 27th Annual Congress of European Association for Osseointegration*, 11-13 October, 2018, Vienna, Austria.

Clinical Oral Implants Research. 2018, vol. 29, 17 (suppl.), 457, ISSN 0905-7161.

20. **Motelica G.**, Chele N., Roșca L. Assessment of the influence of microbial flora in acute pericoronitis evolution and treatment. In: *Culegere de rezumate științifice. Congresul consacrat aniversării a 75-a de la fondarea USMF "Nicolae Testemițanu",* Chișinău; 2020, p. 716. ISSN-978-9975-118-61-3.
21. **Motelica G.** Microbiology of mandibular third molar pericoronitis. In: *Abstract book The 8th International Medical Congress for Students and Young Doctors MedEspera*, Chisinau; 24-26 September 2020, pp. 336-337. ISBN 978-9975-151-11-5.
22. **Motelica G.**, Chele N., Rusu A. Device for excision of soft tissues in pericoronaritis. In: *The 14 th Edition of Euroinvent 2022. European exhibition of creativity and innovation*. Iași, România; 2022, p.174. ISSN 2601-4564.

- **Invention patents, patents, registration certificates, materials at invention salons**

1. Chele N., **Motelica G.**, Rusu A. *Dispozitiv pentru excizia ţesuturilor moi în pericoronarită*. Brevet de invenție MG 1539. 2021-06-30.
2. Chele N., **Motelica G.**, Rusu A. *Metodă de tratament al pericoronaritei*. Brevet de invenție MG 1540. 2021-06-30.

- **Participation with communications at scientific forums:**

✓ **National**

23. **Motelica G.** Frecvența pericoronaritei molarilor 3 inferiori în corelație cu vîrsta și sexul pacienților. *Conferința științifico-practică națională cu participare internațională consacrată aniversării a 90 de ani de la nașterea ilustrului savant Nicolae Testemițanu*. Chișinău, 29 septembrie 2017.
24. **Motelica G.** Influența factorilor de vîrsta și sex asupra apariției pericoronaritei molarilor trei inferiori. *Conferința științifică anuală a Institutului de Medicină Urgentă a tinerilor specialişti „Actualităţi şi controverse în managementul urgenţelor medico-chirurgicale"*. Chișinău, 10 noiembrie 2017.
25. **Motelica G.** Evaluarea influenței microbiene în evoluția și tratamentul pericoronaritei acute. *Congresul consacrat aniversării a 75-a de la fondarea USMF „Nicolae Testemițanu"*. Chișinău, 21-23 octombrie 2020.

✓ **International**

26. **Motelica G.** Odontectomia molarilor trei inferiori incluși. *Connect Dentistry summit Moldova România 2, Provocări şi performanţe în stomatology modernă*, 05-07 aprilie 2021, online.

✓ **National with international participation**

27. **Motelica G.** Tehnici atipice de extracție dentară. Key-note speaker, Congresul Medespera, 12-14 mai 2022.

- **Participation with posters in scientific forums:**

✓ **national**

28. **Motelica G.**, Chele N., Melnic S., Cheptanaru O., Ivasiuc I., Poștaru C. Influența factorilor de vârstă și sex asupra apariției incluziilor molarilor trei inferiori. *Conferința științifică anuală a IP USMF „N.Testemițanu",* Chișinău, 19-20 octombrie 2016.

29. **Motelica G.**, Chele N. Utilizarea PRP-lui în regenerarea plăgii postextracționale a molarului 3 inferior. *Conferința dedicată zilelor USMF „Nicolae Testemițanu”.* Chișinău, 15-19 octombrie 2018.
30. **Motelica G.** Microbiology of mandibular third molar pericoronitis. *The 8th International Medical Congress for Students and Young Doctors MedEspera*, Chișinău, 24-26 septembrie 2020.
31. Axenti C., **Motelica G.**, Chele N. Outcome of using platelet rich plasma in postextractional wound treatment. *Conferința dedicată zilelor USMF „Nicolae Testemițanu”.* Chișinău, 20-22 octombrie 2021.
32. Beliniuc S., **Motelica G.**, Chele N. Coronectomy of the wisdom teeth: the dental extraction alternative. *Conferința dedicată zilelor USMF „Nicolae Testemițanu”.* Chișinău, 20-22 octombrie 2021.

MOTELICA Gabriela

COMPLEX TREATMENT OF PATIENTS WITH PERICORONITIS

323.01 – STOMATOLOGY

Summary of Doctor of Medical Sciences Thesis

Approved for printing: Offset paper. Digital print. Pattern sheets: 2.1	Paper format: A4 Circulation: 25 ex. Order no.:

Typography

Str.

Tel.: