

## RETROSPECTIVE STUDY OF MORBIDITY IN PATIENTS WITH CYSTIC LESIONS OF THE JAWS

Ghenadie Cucu<sup>1,2</sup>, Nicolae Chele<sup>1,2,\*</sup>, Oleg Zănoagă<sup>1,\*</sup>

<sup>1</sup> Nicolae Testemițanu” State University of Medicine and Pharmacy, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery and Oral Implantology “Arsenie Guțan”, Chișinău, Republic of Moldova

<sup>2</sup> Institute of Emergency Medicine, Department of Oral and Maxillofacial Surgery and Oral Implantology “Arsenie Guțan”, Chișinău, Republic of Moldova

\*Corresponding authors: Oleg Zănoagă [oleg.zanoaga@usmf.md](mailto:oleg.zanoaga@usmf.md)

Nicolae Chele [nicolae.chele@usmf.md](mailto:nicolae.chele@usmf.md)

### Abstract

**Aim of the study:** A retrospective analysis of the morbidity of patients with jaw cysts admitted to the Department of Oral and Maxillofacial Surgery of the Institute of Emergency Medicine in Chișinău during the period 2010–2019. **Materials and Methods:** Medical records of 1,016 patients hospitalized between 2010 and 2019 with various cysts located in the oro-maxillofacial region were reviewed. **Results:** It was found that the proportion of patients with various cystic lesions located in the oro-maxillofacial region represented 7.2% (95% CI [5.6-8.8]) of the total number of hospitalized patients (14,034) during the evaluated period. **Conclusions:** Statistical data analysis showed that most cysts were of odontogenic origin (87.0%; 95% CI [84.9-89.1]), with a higher frequency of localization in the maxilla (56.5%; 95% CI [53.4-59.5]). Loco-regional anesthesia with potentiation was used significantly more often (98.1%; 95% CI [97.1-99.0]) than general anesthesia. The analysis of treatment methods applied in patients with jaw cysts demonstrated a high rate of cystectomy use (80.8%; 95% CI [78.2-83.4]).

**Keywords:** Maxillary Cysts, Statistical Data, Morbidity

### INTRODUCTION

The hard tissues of the oro-maxillofacial region are often the site of cystic formations that present various characteristics depending on their anatomopathological type, localization, and size. Maxillary cysts represent a heterogeneous group of intraosseous cavity formations lined by an epithelial membrane and containing liquid, semisolid, or gaseous material [1,2]. Among all jaw tumors and pseudotumors, 80-85% are odontogenic cysts, of which 95% are radicular cysts [3,4,5,6]. Most frequently, these formations develop as a result of dental caries complications, particularly chronic granulomatous apical periodontitis [2]. In other cases, they arise due to developmental disturbances of the enamel organ of the dental follicle [1,2]. The highest incidence of maxillary cysts has been observed predominantly in individuals aged 20-40 years [2,4,5].

These formations are of particular importance to the practicing dental clinician, both because of their long asymptomatic intraosseous evolution and the diagnostic and therapeutic challenges they present. Therefore, conducting a statistical study on the morbidity of patients with cysts located in the oro-maxillofacial region is considered highly relevant and significant.

### AIM OF THE STUDY

A retrospective analysis of the morbidity of patients with jaw cysts admitted to the Department of Oral and Maxillofacial Surgery of the Institute of Emergency Medicine in Chișinău during the period 2010-2019.

### MATERIALS AND METHODS

For the purpose of this study, the medical records of 1,016 patients hospitalized

with various cysts located in the oro-maxillofacial region in the Department of Oral and Maxillofacial Surgery (OMF) of the Institute of Emergency Medicine (IMU) in Chişinău during the period 2010–2019 were reviewed.

To conduct the retrospective analysis of morbidity among the patients included in the study, a questionnaire was developed containing information such as the medical record number from the IMU archive, the patient's name and surname, sex, age, place of residence, social status, final clinical diagnosis, mode and time of presentation, type of admission (emergency or elective), type of anesthesia, and the surgical intervention performed during hospitalization.

The study was designed as a retrospective analysis of cases involving maxillary cystic lesions diagnosed and treated between [insert years] at [institution name]. All cases with histopathological confirmation of odontogenic or non-odontogenic cysts and complete clinical, imaging, and surgical documentation were included.

Inclusion criteria comprised confirmed diagnosis, complete medical records, and surgical treatment performed in the same institution. Exclusion criteria included cases lacking histological confirmation, incomplete

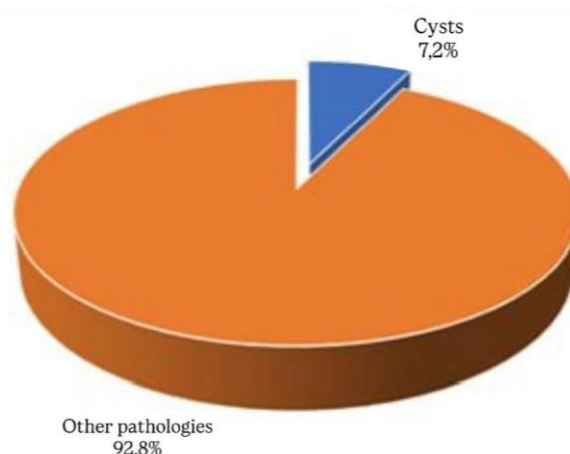
documentation, recurrent lesions treated elsewhere, or systemic conditions potentially affecting postoperative evolution (e.g., severe metabolic diseases, immunodeficiency).

Cysts were classified according to the World Health Organization (WHO, 2022) classification, distinguishing epithelial odontogenic, inflammatory, and non-odontogenic cysts. For each case, patient age, sex, lesion location, symptoms, diagnostic methods, treatment type, and postoperative outcome were analyzed.

For data collection, a database file was created in which all parameters considered for the study were entered. Microsoft Office 2010 Professional (Word, Excel, and PowerPoint) was used for data storage, analysis, and presentation.

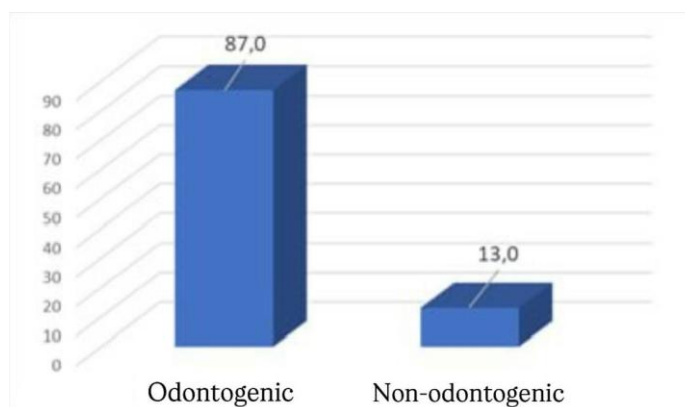
## RESULTS AND DISCUSSION

During the period 2010-2019, a total of 14,034 patients were hospitalized in the Oral and Maxillofacial Surgery Department of the Institute of Emergency Medicine, of whom 1,016 (7.2%; 95% CI [5.6-8.8]) presented with various cystic formations located in the oro-maxillofacial region (Figure 1).



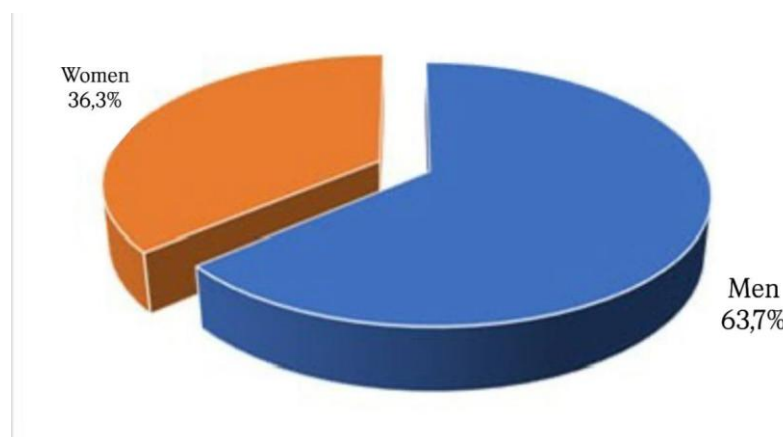
**Figure 1.** Frequency of cysts in hospitalized patients during the period 2010-2019, %

According to the analysis of the medical records of the patients included in the study, cysts of odontogenic etiology were observed more frequently-884 cases (87.0%; 95% CI [84.9-89.1]) - compared to cysts of non-odontogenic etiology - 132 cases (13.0%; 95% CI [10.9-15.1]). The results are presented in Figure 2.



**Figure 2.** Distribution of cysts according to etiology, %

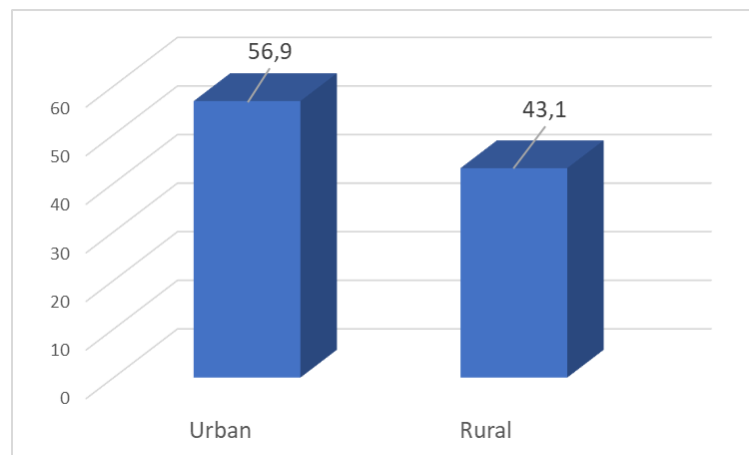
Among the 884 patients hospitalized with odontogenic cysts of the jaws, 563 were men (63.7%; 95% CI [60.5-66.9]) and 321 were women (36.3%; 95% CI [33.1-39.5]). Figure 3 shows the distribution of patients hospitalized with odontogenic cysts of the jaws by sex (%).



**Figure 3.** Distribution of patients hospitalized with odontogenic cysts of the jaws by sex, %

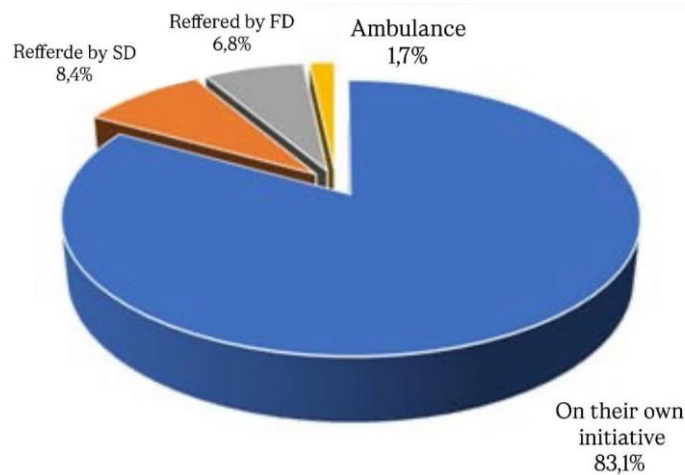
The age of the patients included in the study ranged from 17 to 85 years, with a mean of  $34.2 \pm 5.63$  years and a median of 35 years.

The urban population was more frequently affected by odontogenic cysts of the jaws - 503 individuals (56.9%; 95% CI [53.6-60.2]), while the rural population accounted for 381 individuals (43.1%; 95% CI [39.8-46.4]) (Figure 4).



**Figure 4.** Proportion of patients hospitalized with odontogenic cysts by living environment, %

Of the total number of patients with odontogenic cysts who sought care and were subsequently hospitalized at the emergency hospital during the evaluated period, 735 (83.1%; 95% CI [80.7-85.6]) presented on their own initiative, 74 (8.4%; 95% CI [6.5-10.2]) were referred by a specialized doctor, 60 (6.8%; 95% CI [5.1-8.4]) were hospitalized on the recommendation of their family doctor, and 15 (1.7%; 95% CI [0.8-2.5]) were transported by ambulance. Therefore, the distribution of patients hospitalized with odontogenic cysts of the jaws according to the mode of presentation is shown in Figure 5 and Table 1.



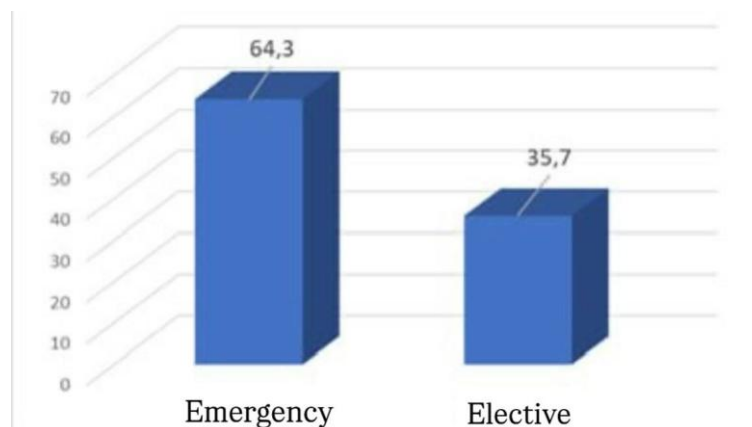
**Figure 5.** Distribution of patients hospitalized with odontogenic cysts of the jaws by mode of presentation, %

**Table 1.** Distribution of the cohort of patients hospitalized with odontogenic cysts of the jaws by mode of presentation

|                                   | Abs. | P, % | CI 95%    |
|-----------------------------------|------|------|-----------|
| Presented on their own initiative | 735  | 83,1 | 80,7-85,6 |
| Referred by a specialized doctor  | 74   | 8,4  | 6,5-10,2  |
| Referred by a family doctor       | 60   | 6,8  | 5,1-8,4   |

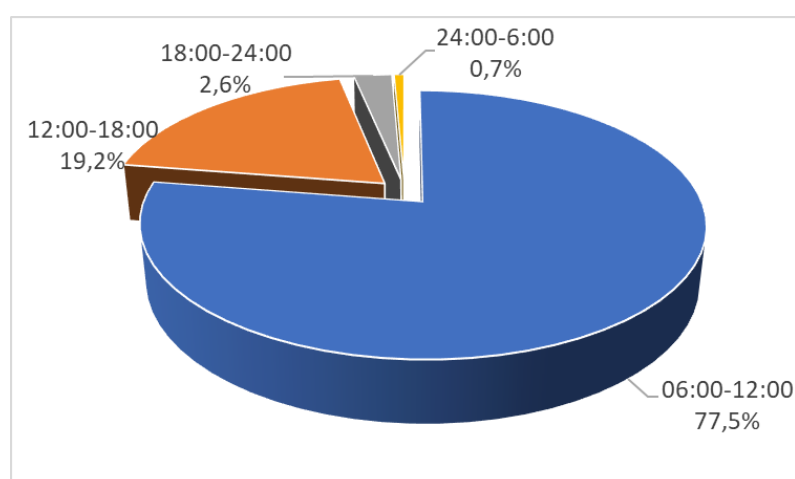
|                          |    |     |         |
|--------------------------|----|-----|---------|
| Transported by ambulance | 15 | 1,7 | 0,8-2,5 |
|--------------------------|----|-----|---------|

According to the type of hospitalization, 568 patients (64.3%; 95% CI [61.1-67.4]) with odontogenic cysts of the jaws were admitted urgently, while 316 patients (35.7%; 95% CI [32.6-38.9]) were admitted electively. The distribution of patients by type of hospitalization is shown in Figure 6.



**Figure 6.** Proportion of patients hospitalized with odontogenic cysts of the jaws by type of admission, %

According to the time of presentation of patients with odontogenic cysts, most cases occurred between 06:00 and 12:00 - 685 cases (77.5%; 95% CI [74.7-80.2]), followed by 12:00-18:00 - 170 cases (19.2%; 95% CI [16.6-21.8]). Between 18:00 and 24:00, 23 patients (2.6%; 95% CI [1.6-3.7]) were admitted, and between 24:00 and 06:00, 6 patients (0.7%; 95% CI [0.1-1.2]) presented. The results are shown in Figure 7 and Table 2.

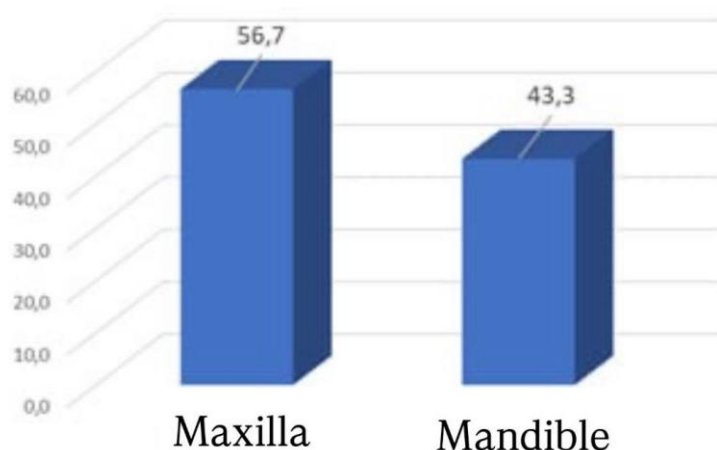


**Figure 7.** Distribution of patients hospitalized with odontogenic cysts of the jaws by time of presentation, %

**Table 2.** Distribution of the cohort of patients hospitalized with odontogenic cysts of the jaws by time of presentation

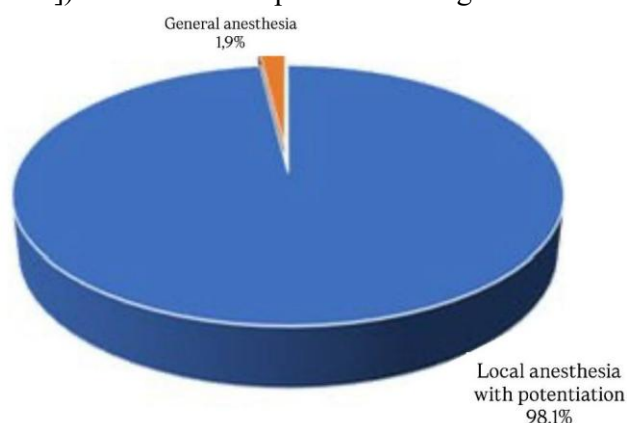
| Time of presentation | Abs. | P, % | CI 95%    |
|----------------------|------|------|-----------|
| 06:00-12:00          | 685  | 77,5 | 74,7-80,2 |
| 12:00-18:00          | 170  | 19,2 | 16,6-21,8 |
| 18:00-24:00          | 23   | 2,6  | 1,6-3,7   |
| 24:00-6:00           | 6    | 0,7  | 0,1-1,2   |

Depending on the location of the cystic formation, odontogenic cysts were more frequently found in the maxilla - 501 cases (56.7%; 95% CI [53.4-59.9]). In the mandible, odontogenic cysts were less common, occurring in 383 cases (43.3%; 95% CI [40.1-46.6]) (Figure 8).



**Figure 8.** Distribution of patients hospitalized with odontogenic cysts of the jaws by affected jaw, %

In the majority of cases, 867 patients (98.1%; 95% CI [97.2-99.0]) underwent surgical treatment of odontogenic cysts under local anesthesia with potentiation. General anesthesia was used in 17 patients (1.9%; 95% CI [1.0-2.8]). These data are presented in Figure 9.



**Figure 9.** Distribution of patients hospitalized with odontogenic cysts of the jaws by type of anesthesia, %

The most frequently performed surgical procedure in patients hospitalized with odontogenic cysts of the jaws was cystectomy, carried out in 714 cases (80.8%; 95% CI [78.2-83.4]). Less frequently, incision with drainage of superinfected cysts and cystotomy (marsupialization) were performed.

To provide a broader context for the findings, the discussion should be expanded by including comparisons with other international studies evaluating the incidence and typology of maxillary cystic lesions. Recent research from Europe and Asia (2020–2024) reports a similar predominance of odontogenic cysts (80–90%), but with notable differences in site distribution and gender ratio, likely related to genetic variation, local infectious factors, or unequal access to dental care [7, 8].

Possible explanations for the differences observed in the present study include patient access to specialized services, diagnostic imaging availability, and socioeconomic conditions affecting the timing of diagnosis.

Clinically, these results emphasize the importance of early detection and well-planned surgical intervention, as well as the need to strengthen oral health education and preventive screening programs. Furthermore, aligning local data with international evidence could support standardization of treatment protocols and improve access to specialized care [9, 10].

This study presents several limitations that should be considered when interpreting the results. First, the retrospective design relies on existing clinical and histopathological records, which may involve incomplete data or recording biases (e.g., missing medical history or long-term follow-up).

Moreover, the sample size originates from a single university center, which may limit the population representativeness and the

generalizability of findings to broader populations.

Another limitation is the absence of advanced statistical analysis assessing correlations between variables (sex, age, location, histological type), which could have provided more robust epidemiological insights.

Future multicentric, prospective studies with larger sample sizes, complex statistical modeling, and integration of genetic or environmental factors are needed to better define the etiopathogenesis and clinical patterns of maxillary cystic lesions.

## CONCLUSIONS

1. The frequency of patients with various cystic formations located in the oro-maxillofacial region was 7.2% (95% CI [5.6-8.8]) of the total number of patients (14,034) hospitalized in the OMF surgery department during 2010-2019.
2. Statistical analysis of the medical records of patients hospitalized with cystic formations found that the majority were of odontogenic origin (87.0%; 95% CI [84.9-89.1]), more frequently located in the maxilla (56.5%; 95% CI [53.4-59.5]).
3. Loco-regional anesthesia with augmentation was used significantly more often (98.1%; 95% CI [97.1-99.0]) than general anesthesia.
4. Analysis of treatment methods applied to patients with jaw cysts demonstrated a higher rate of cystectomy utilization (80.8%; 95% CI [78.2-83.4]).

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