



# Emergencies in dental surgery during the COVID-19 pandemic

Stany nagłe w chirurgii stomatologicznej w czasie pandemii COVID-19

Karolina Wypych<sup>1,A-D</sup>✉, Klaudia Lulek<sup>1,B-D</sup>, Wojciech Świątkowski<sup>2,A,D-F</sup>, Mansur Rahnama<sup>2,E-F</sup>, Wojciech Pakaszewski<sup>1,D</sup>

<sup>1</sup> Student Scientific Circle at the Chair and Department of Dental Surgery, Medical University, Lublin, Poland

<sup>2</sup> Chair and Department of Dental Surgery, Medical University, Lublin, Poland

A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of article

Wypych K, Lulek K, Świątkowski W, Rahnama M, Pakaszewski W. Emergencies in dental surgery during the COVID-19 pandemic. Med Og Nauk Zdr. 2023; 29(1): 36–38. doi: 10.26444/monz/161036

## Abstract

**Introduction.** Patients' negligence and difficult access to healthcare have an impact on the worsening of emergency conditions, which require immediate treatment due to the possibility of exacerbation in a short period of time. Untreated intra- and extraoral abscesses can have serious consequences on the patient's health and in many cases are life-threatening conditions increasing risk of respiratory obstruction, thrombophlebitis, meningitis, mediastinitis and septicemia.

**Objective.** The aim of this study is to investigate the impact of the pandemic and the resulting impediments to accessing medical care on the incidence and type of emergencies in the Oral Surgery Department.

**Materials and method.** This was a retrospective study of 85375 patients aged 2 months to 90 years old with diagnosed intra- and extraoral abscesses before COVID-19 pandemic (2018,2019), and during pandemic (2020, 2021) in the Department of Oral Surgery of the Medical University in Lublin. The obtained results were statistically analyzed with the use of a computer program.

**Results.** The fewest patients were admitted in 2020, and the most in 2021, where we can already see the effects of the pandemic. Emergencies occurred most frequently in people aged 21–30, then 31–40. In 365 cases, tooth extraction was performed, and only in 28 cases, root canal treatment was attempted. Conclusions. Oral health service provision has been significantly affected by COVID-19. Patients came to their appointments too late, which in most cases resulted in the necessity of tooth extraction without attempting root canal treatment.

## Key words

oral surgery, dentistry, COVID-19, pandemic, abscesses

## Streszczenie

**Wprowadzenie i cel pracy.** Zaniedbania pacjentów i utrudniony dostęp do opieki zdrowotnej mają wpływ na pogorszenie stanów nagłych, które wymagają natychmiastowego leczenia ze względu na możliwość zaostrzenia w krótkim czasie. Nielezione ropnie wewnątrz- i zewnątrzustne mogą mieć poważne konsekwencje dla zdrowia pacjenta i w wielu przypadkach są stanami zagrażającymi życiu, zwiększającymi ryzyko niedrożności dróg oddechowych, zakrzepowego zapalenia żył, zapalenia opon mózgowych, zapalenia śródpiersia i posocznicy. Celem pracy jest zbadanie wpływu pandemii i wynikających z niej utrudnień w dostępie do opieki medycznej na występowanie stanów nagłych w zakładzie chirurgii stomatologicznej.

**Materiał i metody.** Podstawą niniejszej pracy było retrospektywne badanie 85 375 pacjentów w wieku od 2 miesięcy do 90 lat ze zdiagnozowanymi ropniami wewnątrz- i zewnątrzustnymi przeprowadzone przed pandemią COVID-19 (w latach 2018 i 2019) oraz w trakcie pandemii (w latach 2020 i 2021) w Zakładzie Chirurgii Stomatologicznej Uniwersytetu Medycznego w Lublinie. Otrzymane wyniki poddano analizie statystycznej za pomocą programu komputerowego.

**Wyniki.** Najmniejszą liczbę pacjentów przyjęto w 2020 roku, a największą w 2021 roku. Stany nagłe najczęściej występowały u osób w wieku 21–30 lat, a w następnej kolejności u osób w wieku 31–40 lat. W 365 przypadkach przeprowadzono ekstrakcję zęba, a tylko w 28 przypadkach podjęto próbę leczenia kanałowego.

**Wnioski.** COVID-19 znacząco wpłynęła na świadczenie usług w zakresie zdrowia jamy ustnej. Pacjenci przychodzili na wizytę zbyt późno, co w większości przypadków skutkowało koniecznością usunięcia zęba bez próby leczenia kanałowego.

## Słowa kluczowe

chirurgia stomatologiczna, stomatologia, COVID-19, pandemia, ropnie

✉ Address for correspondence: Karolina Wypych, Student Scientific Circle at the Department of Dental Surgery, Medical University, Chodźki 6, 20-093 Lublin, Poland  
E-mail: karolinawypych98@gmail.com

Received: 22.11.2022; accepted: 08.02.2023; first published: 28.02.2023

## INTRODUCTION

The struggle with a new type of coronavirus (SARS-CoV-2) which originated from Wuhan, China, has been on-going in Poland for almost three years. Many patients, especially the elderly or those with systemic diseases, have postponed

a visit to the dentist for up to several months because of fear of contracting the virus. Another reason for the postponement of visits was difficult access to medical care due to the need to change the organization of work in the facilities. Some offices did not meet the safety guidelines and requirements of the sanitary regime, which resulted in not admitting patients in such numbers as before the start of the pandemic.

Regular follow-up visits would allow the implementation of treatment in the initial stages of caries and inflammation and, consequently, patients would avoid some of the surgical procedures. Currently, dentists are dealing with the consequences in the interruption in access to dental care; teeth that could have been endodontically treated in good time, are now being removed instead.

**OBJECTIVE**

The aim of this study was to search correlation between COVID-19 pandemic and increase in cases of emergencies, which require surgical treatment and to define in which group of respondents pandemic had the greatest impact (sex and age), location of the lesions and treatment applied.

**MATERIALS AND MERTHOD**

Patients’ medical records were collected from the database of the Department of Oral Surgery of the Medical University in Lublin and analyzed. ICD-10 classification was used to select all data concerning acute inflammations in the oral mouth and head and neck region (i.e. K04.7 and K12.2, codes used in clinical records in the case of all intra- and extraoral abscesses). The number of patients is shown in Figure 1. Analysis was conducted to compare the epidemiology of acute inflammatory conditions treated in the Department of Oral Surgery, before the COVID-19 pandemic of 2018 and 2019, and during the subsequent pandemic of 2020 and 2021. The research group included 85,375 people aged from 2 months to 90 years admitted to the Oral Surgery Clinic in 2018–2021.

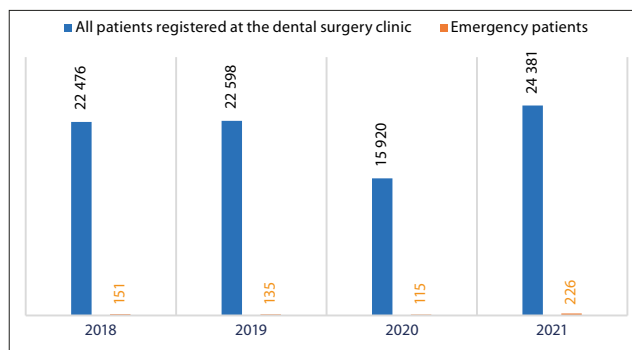
Statistical analysis was applied to the data contained in the patients’ medical records. The set of analyzed variables included: age, gender, date of admission to the clinic, local symptoms, general symptoms, localization of the lesion, coexistence of infiltration, diagnosis, and history of comorbidities. Statistical calculations were made with the use of computer programme Microsoft Excel.

**RESULTS**

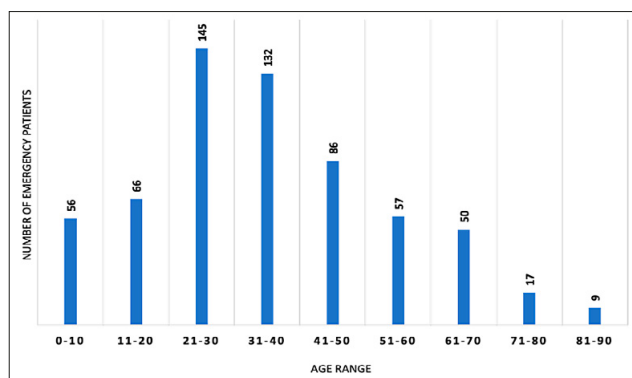
Restrictions in 2020 resulted in fewer patients being admitted to the Surgery Clinic than before the outbreak of the pandemic. Prior to 2018–2019 the pandemic, the number of patients registered in the Oral Surgery Clinic was 22,476 and 22,598. In 2020, the number of registered patients had decreased to only 15,920. After the introduction of vaccinations, the number of registered patients in 2021 increased to 24,381.

In the Oral Surgery Clinic, the largest group of patients were aged 21–30, then 31–40 and 41–50. Each year there were more male than female patients.

In 2021, there were many more cases of emergencies caused by difficult access to a dentist, and patients’ limitations

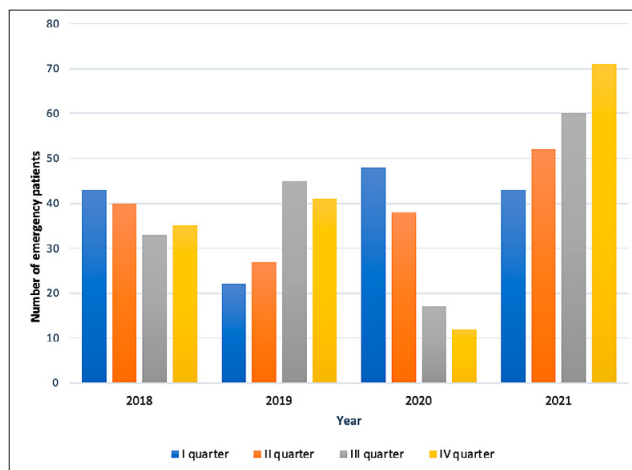


**Figure 1.** Number of patients admitted to the Department of Oral Surgery of the Medical University in Lublin in individual years



**Figure 2.** Number of emergency patients admitted to the Department of Oral Surgery Medical University of Lublin, considering age

and fears of contracting COVID-19 in previous years. Most emergency patients reported in the third and fourth quarters of 2021.



**Figure 3.** Number of emergency patients admitted to the Department of Oral Surgery of the Medical University in Lublin in individual years divided into quarters

Most often, the patients reported oedema and pain, with oedema occurring in 60.13% of patients with an emergency, and pain in 46.25%. Further local symptoms reported by patients were inflammatory infiltration, fistula with purulent exudation, and trismus (lockjaw); 26 patients presented with fever. Due to fact that in each year the most frequent symptoms were the above-mentioned, it was decided that the results are irrelevant?

An abscess incision was made in 459 patients, teeth were removed in 365 during the same visit, and in only 28 cases, primary or secondary endodontic treatment was attempted in each year.

Abscesses were more common in the mandible than in the maxilla. There were more abscesses in the maxilla and in the mandible on the left side, regardless of the year.

## DISCUSSION

Research shows that in 2018, before the COVID-19 pandemic, there were 22,476 patients at the Department of Oral Surgery in Medical University of Lublin, who required surgical treatment. During the outbreak in 2019, when the first case of SARS-CoV-2 was registered in Wuhan, province of Hubei in China, 22,598 patients were admitted to the Department of Oral Surgery of the Medical University in Lublin [1]. The first confirmed case of infection in Poland dates from 4 March 2020 [2], and during that year, 15,920 patients were admitted, indicating a smaller number of patients who sought dental help.

The attendance could be caused by the state of epidemic introduced on 20 March 2020, which introduced the state of lockdown, and the fear of infection. Researchers from a Swiss University Centre came to a similar conclusion [3]. In 2021, 24,381 patients were admitted to the Department of Oral Surgery of the Medical University in Lublin. It can be assumed that the reappearance of such a large group of people was caused by the introduction of the anti-COVID-19 vaccines. This was an extremely important breakthrough point of the pandemics, as demonstrated by the number of registered people in 2020 and 2021. On 27 December 2020, the first vaccinations began in Poland – stage zero of vaccination. During this time, healthcare workers who were most at risk of coronavirus infection could get vaccinated. This stage involved not only doctors but also the assistant staff and technical and administrative staff of medical institutions. Then, in March 2021, the National Immunization Programme was introduced which provided the possibility of vaccinating people aged 65 and over, patients with chronic diseases, the uniformed services and teachers during the first quarter of 2021. In the second quarter of 2021, the phase of population vaccination was initiated [4]. It can be concluded that with the increasing number of vaccinated people in 2021, in a particular quarter, the number of patients reporting to the Department of Oral Surgery in Medical University of Lublin successively increased (Fig. 3).

The pandemic and limitations in the availability of healthcare, and also the smaller group of patients who come for regular dental check-ups and conservative treatment, resulted in an increase in advanced medical conditions. Patients reported for an appointment with symptoms of intra- or extraoral abscesses, which are determined as an emergency in dental practice. This condition requires immediate surgical treatment. If left untreated, the infection could spread to the surrounding anatomic spaces, which may even result in obstruction of the upper respiratory tract. Lymphadenitis, mediastinitis and sepsis may also be the consequences of odontogenic infections [5].

In 2018, 150 people with an emergency were admitted to the Department of Oral Surgery in Medical University of Lublin, in 2019–136, in 2020–115, and in 2021–226 people.

It should be noted that there were significantly more patients with emergencies in 2021 compared to previous years. This could be a consequence of patients delaying appearance at the dentist's office due to epidemiological situations and fear for their relatives safety, as well as for their own. Moreover, there were also numerous restrictions related to movements, which could have resulted in both increased inflammatory oedema and pain in these patients [6]. According to research by Antonija Tadin et al., men provided themselves with worse care in the oral hygiene field, paid less attention to knowledge in this field, and also reported less frequently for follow-up visits to a dentist, which is confirmed in the current study. For these reasons, men were therefore the most frequent group of patients [7].

## SUMMARY

In 2021, almost twice as many emergency patients were admitted as in previous years, which allows us the conclusion that the pandemic contributed to the deterioration of the oral health of patients at the surgical clinic. As a consequence of the fact that the clinical condition of patients reporting to the Outpatient Clinic was at an advanced stage, the treatment also required more radical methods.

On 27 December 2020, the first person was vaccinated against COVID-19 in Poland. Along with the introduction of successive phases of the National Vaccination Programme by the State and a greater number of vaccinated citizens, the number of patients reporting for visits to the surgery clinic of the Medical University of Lublin also increased. This is confirmed by the fact that in 2020, 15,920 patients were admitted, and in 2021, after the first vaccination period, this number increased to 24,381. This perfectly underlines the fact that vaccines have resulted in a safe chance for return to normal life.

## REFERENCES

1. Alsharif W, Qurashi A. Effectiveness of COVID-19 diagnosis and management tools: A review. *Radiography (Lond)*. 2021;27(2):682–687. <https://doi.org/10.1016/j.radi.2020.09.010>
2. Gujski M, Raciborski F, Jankowski M, et al. Epidemiological Analysis of the First 1389 Cases of COVID-19 in Poland: A Preliminary Report. *Gujski M, et al. Med Sci Monit*. 2020;26:e924702. <https://doi.org/10.12659/MSM.924702>
3. Eggmann F, Haschemi AA, Doukoudis A, et al. Impact of the COVID-19 pandemic on urgent dental care delivery in a Swiss university center for dental medicine. *Clin Oral Investig*. 2021;25(10):5711–5721. <https://doi.org/10.1007/s00784-021-03872-1>
4. Andrzejczak-Grządka S, Czudy Z, Donderska M. Side effects after COVID-19 vaccinations among residents of Poland. *Eur Rev Med Pharmacol Sci*. 2021;25(12):4418–4421. [https://doi.org/10.26355/eur-rev\\_202106\\_26153](https://doi.org/10.26355/eur-rev_202106_26153)
5. Chiapasco M. *Chirurgia stomatologiczna*. 3rd ed. Edra Urban & Partner; 2020. p. 201–223.
6. Pylińska-Dąbrowska D, Starzyńska A, Cabała WJ, et al. Psychological Functioning of Patients Undergoing Oral Surgery Procedures during the Regime Related with SARS-CoV-2 Pandemic. *J Clin Med*. 2020; 9(10):3344. <https://doi.org/10.3390/jcm9103344>
7. Tadin A, Poljak Guberina R, Domazet J, et al. Oral Hygiene Practices and Oral Health Knowledge among Students in Split, Croatia. *Healthcare (Basel)*. 2022;10(2):406. <https://doi.org/10.3390/healthcare10020406>