

Oral Surgery during Covid-19 Epidemic – Albanian Experience for Patient Management Attending Emergency Dental Services

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Abstract

Introduction: The first two cases of COVID-19 in Albania were confirmed on 8 March 2020 by the Institute of Public Health in Tirana. Strict containment measures were adopted by the Government, during the lockdown and a re-organisation of dental care services in Albania was implemented. The Ministry of Health and Social Protection in Albania decided to close all dental private clinics to decrease the risk of infection, while all dental treatments were performed by the specialised dental professionals of the public University Dental Clinic in Tirana. The aim of this study was to describe the characteristics of patients who accessed the Department of Oral Surgery of the University Dental Clinic and to report the preventive measures adopted during the lockdown period of 19 March to 18 May 2020.

Material and Method: Medical charts from individuals attending the Department of Oral Surgery of the University Dental Clinic in Albania were analyzed. This was a cross-sectional study, conducted in Tirana. For minimizing risk for infection to patients and dental healthcare personnel, several preventive strategies were adopted. Categorical variables were reported as counts and percentages, and differences between groups (men vs women) were evaluated with the chi-square test or Fisher's Exact test when appropriate. All analyses were performed using SPSS v. 26.0 (IBM, NY, USA).

Results: The study comprised 209 patients (90 females and 119 males), aged from 1 to 85 years old, presenting different dental and oral pathologies. According to the recommendations of the Ministry of Health and Social Protection in Albania, to avoid the spread of infection, University Dental Clinic took the measurements for a safety treatment for the patients and operators. Precautions, taken for operator, patient and environment are described. Inflammatory pathologies were the common reasons for patients visits in our Oral Surgery Department in this study because of periapical periodontitis, periodontal disease, dental abscess inflammatory pathologies of sinus and salivary gland, followed by dental trauma, bleeding and haemorrhagic epulis working in special conditions. A list of preventive actions adopted in Albania for dental practitioners during the COVID-19 emergency are described.

Conclusion: Based on the results of this study, we provided preventive measurements in the management of patients, operators and the environment. Recommendation proposed, could help to improve the quality of assistance for patients with dental disorders and reduce the risk of infection in dental setting during the COVID-19 pandemic.

Keywords: SARS-CoV-2; dental setting; Triage

1. INTRODUCTION

In December 2019, in Wuhan City, a severe form of pneumonia of unknown cause was detected [1]. This pneumonia infection has rapidly spread from Wuhan to other countries. Chinese researchers have quickly discovered

and isolated a novel Coronavirus (SARS-CoV-2) and announced a name for a new coronavirus disease called, by the World Health Organization (WHO), Coronavirus Disease 19 (COVID-19) [2] and increased the assessment of the risk of spread to “very high“ [3]. After

mitigating the epidemic in China, Italy became one of the most COVID-19 affected countries worldwide [4]. Due to its political, geographic and cultural similarities, Italy is one of the main economic partners of Albania. In fact, data show that the first index case identification in Albania was travel-related with Italy on 9th March 2020. The first two cases of COVID -19 in Albania were confirmed on 8 March 2020 by the Institute of Public Health in Tirana. After the first case identification, the number of cases in Albania is continually rising reaching the total number of 6.676 confirmed cases of COVID-19 with 205 deaths and overall Case Fatality Ratio (CFR) of 3% by 13 August 2020, ranking 74th country in the world in terms of the number of confirmed cases [5] . On 10th March 2020, schools and Universities were closed and a total lockdown was put in place two days after. Strict containment measures adopted by the Government established the limitation of people circulating outside their homes, social distancing, the closure of almost all commercial activities, remote working and home schooling using online Platforms [6]. COVID-19 has had a significant impact on dentistry in Albania due to the perceived risks associated with infection control and timely and early management of acute dental emergencies is important to avert patients from accident and emergency services and to avoid hospital admissions. Reorganisation of dental care services were performed in dental practices. Albania is a developing country undergoing many political and economic changes in an effort to become a member of the European Union. In Albania, Dental care is private, with the exception of emergency dental services and services provided in school to children up to age 18. Both of these public services are free. During lockdown in Albania, the Ministry of Health and Social Protection decided to close all dental private clinics to decrease the risk of infection and there was a suspension of routine dental care in the private practice. All dental treatments were performed by the specialised dental professionals of the public University Dental Clinic in Tirana that had remained open during the lockdown period from 19 March to 11 May. Due to the characteristics of dental setting, dental practitioners are the most exposed workers to the risk of being affected by COVID-19. It has been widely documented in the literature that common human to human transmission routes of SARS-CoV-2 include droplet (diameter $\geq 5 \mu\text{m}$) and aerosol (diameter

$\leq 5 \mu\text{m}$) inhalation generated from coughs and sneezes of infected patients, as well as direct contact with oral, nasal and eye mucous membranes [7]. In addition, studies have shown that SARS-CoV-2 can be transmitted through saliva [8, 9, 10]. The dental practitioners routinely perform several aerosol-generating procedures due to the use of different tools, like dental high-speed turbine, spray handpiece, or piezoelectric scaler. These instruments largely increase the aerosol produced inside the work environment, thus exposing both clinicians and patients to the risk of infection [11]. Based on these considerations, all dentistry operators must always be diligent in protecting against the spread of viral disease, as well as note the importance of providing clear and easy guidelines to manage patients and make dental practice safe from any risk [12, 13]. The aim of this study was to examine the effect of COVID-19 outbreak on the Albanian dental setting and how this situation was managed by the Department of Oral Surgery of the University Dental Clinic in Tirana. In particular, the objectives were two-fold: to describe the characteristics of patients who accessed the Department of Oral Surgery of the University Dental Clinic and to report the preventive measures adopted.

2. MATERIALS AND METHODS

Medical charts from individuals attending the Department of Oral Surgery of the University Dental Clinic in Albania were analyzed. The Department is responsible for the dental care management of Tirana area, the main city and capital of Albania. Approximately a quarter of the country's population (900.000 citizens) lives in Tirana as it is the most important cultural, social and economic city of the country. The design of the study was cross-sectional and involved the participation of patients who accessed to the Department of Oral Surgery from 19 March to 18 May 2020. Main outcomes patients' measures were demographics (i.e. age, gender), health status (prevalence of comorbidities), dental, oral conditions and treatment procedures conducted. Ethical approval and written informed consent was obtained from all subjects before the study.

2.1. Statistical Analysis

Categorical variables were reported as counts and percentages, and differences between groups (men vs. women) were evaluated with the chi-square test or Fisher's Exact test when

appropriate. A P-value<0.05 was considered as statistically significant. All analyses were performed using SPSS v. 26.0 (IBM, NY, USA)

2.2. Preventive Strategies Adopted

For minimizing risk for infection to patients and dental healthcare personnel, several preventive strategies were adopted.

Measures for COVID-19 management adopted in Albania are divided in groups:

2.2.1. Operator Management

All operators followed the same preventive rules:

2.2.1.1. Use of Appropriate Personal Protective Equipment (PPE) For Dental Practitioners

SARSCoV-2 transmission predominantly occurs through airborne droplets. In this sense, the use of protective equipment, including gloves, masks, protective outerwear, protective surgical glasses, and shields, is strongly recommended to protect the eyes, oral, and nasal mucosa. Application of face masks (filtering face piece level 2 or 3), shields, surgical glasses, long-sleeved water-resistant gown, surgical cap, shoe cover were used.

2.2.1.2. Controlling and Maintaining Physical Distancing

Use of Plexiglas barriers at tills and counters as an additional level of protection for staff; floor markings inside the retail store were used of dentist operator. Hand hygiene is a critical measure for reducing SARS-CoV-2 transmission. It is crucial to perform thorough hand washing when coming into contact with patients and non disinfected surfaces or equipment; it is recommended to avoid touching eyes, mouth, and nose without having hands carefully washed. It is also advised to wash hands for at least 60 s, to use hand sanitizer with alcohol-based content of over 60% prior to wearing gloves, before and after each patient treatment.

2.2.2. Patient Management

Patient triage screening was the first step to identify suspected cases of COVID-2019 to avoid extended contact with a potentially infected patient altogether. Performing triage to investigate current health status and/or the presence of risk factors for COVID-19 development is strongly suggested when receiving patients. Triage was performed when

patients entered the clinic. To each visit, we checked the temperature with a touchless forehead thermometer as well as the oxygen level and pulse rate with an oximeter. Patients were screened using a prepared questionnaire. The set of questions aimed at investigating the risk of exposure to SARS-CoV-2 are reported in Table 1.

Table1. Triage questionnaire to evaluate patients' potential risk of SARS-CoV-2 infection

Have you had fever, cough, cold, breathing difficulties, muscle pain, loss of taste and smell, headache in the last 21 days?
Have you had contacts with infected individuals in the last 21 days?
Have you been in a previously quarantined area?
Have you had contact with individuals coming from a quarantined area?

- One clinic administrator responsible to properly identify for symptoms of COVID-19 among incoming patients. If symptoms are presented, the individual is prohibited from participating in treatment and the emergency service was notified. The physicians used clinical judgment to determine whether a patient who was presented for care has symptoms of influenza like illness or symptoms compatible with COVID-19 to make a decision regarding testing and to coordinate testing through public health laboratories. A hub COVID Centre situated at Oro –Maxillofacial Department at the University Hospital Centre “Mother Theresa“ in Tirana was identified to manage the patients with COVID 19.
- One nurse responsible for the temperature measurement of every person presented in the dental clinic. Individuals with a fever of above 37.5 degrees Celsius was not allowed to enter the dental clinic.
- One dental clinician responsible for the management of the patient.

2.2.3. Environment Management

Precautions were taken also for the environment control. Everything that came into contact with the patient (button, counters, chairs) has been disinfected using a 70 % ethyl alcohol solution. Waiting room was well ventilated and the toilets were equipped with soap and alcoholic gel solutions for hand disinfection as well as disposable wipes.

Operating area and all surfaces were disinfected using 70% ethyl alcohol solution before and after each treatment and were adequately ventilated.

Considering that aerosol-generating procedures represent the critical moment in the dental practice in the COVID-19, limitation of aerosol-producing procedures and high levels of suction was applied to minimize and to reduce as much as possible the production of aerosol/droplets during the procedure. Use of hand pieces were avoided when possible.

2.2.4. Treatment Classification

During pandemic diffusion of COVID-19, dental activities must be limited to the treatments that cannot be postponed and dental practitioners should perform only emergency treatments. Indeed, treatment should be effective and pragmatic, aimed at just the resolution of the emergency.

The treatments were classified in “urgent” and “non-urgent” categories, as following:

2.2.4.1. “Urgent” treatments were considered those that required intervention within 24 hours and immediate attention to relieve. They included:

- Uncontrolled bleeding
- Soft tissue infection with intra- and extra-oral swelling patient’s airways, abscess and localized bacterial infection
- Several dental pain from pulpal inflammation
- Pericoronitis
- Surgical post-operative osteitis
- Dental trauma
- Biopsy of abnormal tissue.

2.2.4.2. Non “urgent” treatments were considered those that required to be postponed and scheduled by the dentist. They included:

- Asymptomatic carious lesion
- Routine dental cleaning and preventive therapies
- Orthodontic treatment
- Prosthodontic treatment

3. RESULTS

The study included 209 patients (90 females; 43.1% and 119 males; 56.9%), with a mean age of 41.7 years. Demographic and health status

characteristics of patients are reported in Table 2.

Table2. Demographic and health status characteristics of 209 patients

		n	%	CI 95.0%	p-value
Gender	Female	90	43.1%	[36.5;49.8]	p= 0.02
	Male	119	56.9%	[50.2-63.5]	
Age	0-19	19	9.1%	[5.8-13.6]	p=0.025
	20-39	79	37.8%	[31.4-44.5]	
	40-59	69	33.0%	[26.9-39.6]	
	60-79	41	19.6%	[14.7-25.4]	
	80+	1	0.5%	[0.1-2.2]	
Good Health status	Yes	155	74.2%	[67.9-79]	p=0.03
	No	54	25.8%	[20.3-32.1]	

The children age group (0-19 years) represented 8% of the study population; the 20-39 age groups represented 38%, 40-59 comprised 33%, 60-79 represented 20% and 80+ consisted in 1% of the population study.

A gender disparity in the accessibility of patients to the department has been highlighted with a predominate rate of male individuals (57% male versus 43% female, as reported in Table 2). These differences were statistically significant (P=0,02).

The clinical characteristics of individuals are reported in Table 3.

Table3. Clinical characteristics of individuals

Disease name	Female		Male		Total		CI 95.0%	P value
	n	%	n	%	n	%		
Diabetes	1	3.6%	2	7.7%	3	5.6%	[1.6-14.1]	P=0.069
Hypertension arterial	19	67.9%	11	42.3%	30	55.6%	[42.3-68.2]	
Hypertension arterial & Diabetes	3	10.7%	2	7.7%	5	9.3%	[3.6-19.1]	
Coagulopathy	3	10.7%	4	15.4%	7	13.0%	[6.0-23.8]	
Cardiovascular diseases	0	0.0%	1	3.8%	1	1.9%	[0.2-8.3]	
Epilepsy	1	3.6%	3	11.5%	4	7.4%	[2.6-16.7]	
Pulmonary diseases	0	0.0%	1	3.8%	1	1.9%	[0.2-8.3]	
Vascular diseases	1	3.6%	1	3.8%	2	3.7%	[0.8-11.4]	
Hepatitis B	0	0.0%	1	3.8%	1	1.9%	[0.2-8.3]	
Total	28	100.0%	26	100.0%	54	100.0%		

The prevalence of clinical conditions among the study population was 25.8% (54/209), with a confidence interval between 20.3% and 32.1%]. No statistically significant difference between male and female comorbidities was observed (p=0.69). Hypertension arterial disease were the most commonly encountered disorder (14.3%), whereas among the patient reporting a disease (55.6%). The table 4 reported the distribution of oral and dental pathologies among study population. Out of 209 patients, 89 (43%) had dental abscess, 79 (37%) periodontal inflammation, 11 (5%) soft tissue infection, 30 others (15%) had bleeding (1.91%), epulis hemorrhagic (1.91%), pericoronitis (1.91%), acute arthritis (2.39%), osteitis (0.95%), sinusitis (0.47%), and acute sialoadenitis (1.47%). There was a statistically significant difference in the distribution of female and male patients for dental pathologies (the p-value = 0.02). Compared with men, women were less likely to have developed dental pathologies.

Table4. Distribution of dental and oral pathologies

Dental and oral pathologies	Male	Female	Total
Dental Abscess	40	49	89
Periodontal inflammation	36	43	79
Soft tissue infection	8	3	11
Dental Trauma	3	4	7
Bleeding	3	1	4
Epulis hemorrhagic	1	3	4
Pericoronitis	2	2	4
Acute arthritis	0	5	5
Osteitis	1	1	2
Sinusitis	0	1	1
Acute sialadenitis	2	1	3

Among the 209 patients, classified as a need for urgent treatment, different modalities of treatment were used for the management of dental and oral pathologies. Results are reported in Table 5. 47 patients were excluded from the study as their dental pathologies were not considered urgent.

Table5. Modalities of treatment

Type of treatment	n	%
Consultation	42	20
Dental Extraction	56	26.8
Draining	12	5.7
Trepanation, analgesic	6	2.87
Antibiotic therapy	85	40.6
Hemostasis	4	1.91
Laser	4	1.91
Total	209	100

The principles of treatment for cases with inflammatory pathologies was to establish antibiotic therapy (40.6%), tooth extraction (26.8%). Drainage of tissues spaces was performed by extra and intraoral incision. Trepanation was performed for the treatment of cases with acute periapical periodontitis in order to make the drainage of pus. Diode laser 980 nm was used for the excision of the cases with epulis hemorrhagic. It is a safe, quick and easy to perform method with very good healing results. Haemostasis was achieved using the technique of the packing the socket with absorbable cellulose and the application of self-absorbable sutures.

A summary of preventives measurements are described. In particular, table 6 reported a summary of the measures recommended at admission to dental service, before, during and after treatment.

Table6. Preventive actions adopted in Albania for Dental Practitioners during the COVID-19 Emergency

Admission Management	
Patient admission into practise	admission to “ standby area “ provide adequate ventilation assure social distancing measure. discourage the presence of accompanying people
Patient triage screening	use of triage questionnaire to evaluate patients with 'Potential Risk of SARS – CoV-2 infection
Body temperature measurement	Assess potential presence of fever via contactless thermometer
Hand hygiene (for patient)	Use of hydroalcoholic solutions for hand disinfections
Before dental treatment	
Environment disinfection	use of 70 % ethylalcohol for the disinfection of all surfaces
Patient preparation	use of disposable shoe covers use for 1 minute of mouth rinse with 1 % hydrogen Peroxide
Clinical staff hand washing	Hand washing for at least 60 s and then hand disinfecting with 60 % hydroalcoholic solution
Clinical staff clothing	application of face mask FFP 2 , face shield, gloves , cap, protective waterproof clothing, shoe cover
During Dental treatment	
Instruments	preparation of all instruments in advance

Surfaces	total protection through disposable covers
Surface	total protection through disposable covers
Minimizing aerosol production	surgical aspiration system avoid when possible use of hand pieces instruments use of laser
After dental treatment	
Patient discharge	wear the mask immediately after the treatment prescription and advices given into the discharge remove the shoe covers
Ventilation	5-min air change
Personal protection	disinfection of shield with 70 % isopropyl alcohol
Hand hygiene	hand washing for at least 60 s and then 60 % hydroalcoholic solution application

4. DISCUSSION

This study reports a descriptive analysis of clinical and dental characteristics of patients who accessed the Department of Oral Surgery of the University Dental Clinic in Albania, a public central institution responsible for covering the emergency dental care and oral treatment during COVID emergency outbreak. Preventive measures adopted during this special period were also described.

In Albania, routine dental services were suspended during the COVID-19 lockdown from 13 March to 11 May to reduce and control virus transmission. The WHO advises that routine non-essential oral health care, which usually includes oral health check-ups, dental cleanings and preventive care, can– be delayed until there has been sufficient reduction in COVID-19 transmission rates from community transmission to cluster cases or according to official recommendations at national, sub-national or local level [14].

Regarding dental and oral pathologies, the Inflammatory diseases have the main incidence of in this study, similar to the findings of the literature [15, 16]. As it is reported in literature certain instances such as dental trauma and progressive fascial space infection warrant emergency surgical intervention [17, 18, 19]. Intraoral X-ray exams were limited due to the stimulation of saliva production, preferring extra oral exams such as panoramic radiography [20, 21].

The main challenges in dental healthcare are the difficulty in the identification of the infected patient and the treatment of asymptomatic patient [22, 23, 24, 25]. Ongoing surveillance is crucial to containing an epidemic. Surveillance includes screening, testing, tracking and monitoring the incidence of new cases [26, 27, 28, 29].

A study limitation was that the case identification of patients was not based on laboratory test but on pre-screening question declared by the patients and this is made difficult the real case identification. Moreover additional factors such as the incubation period, a possibly asymptomatic onset of the illness influence the accuracy of case identification. In order to decrease the risk to spread the infection, we took in consideration to identify the urgent need of the patient and focus on managing it with care, using clear and standardised preventive measurements. Also managing only one patient at a time, identifying compromised patients and applying short term appointments, using all the protective equipment for the operators, applying all the sterile preparations and disinfecting everything that could be in contact with the patient was very important. In this study even fearing the COVID-19 people had to seek surgical services when suffering from severe pain, swelling, bleeding or abscess.

5. CONCLUSION

The COVID-19 epidemic required an immediate re-organization of the local dental healthcare system. This paper described the two months' experience of the Albanian University School of Dentistry about the treatment of dental and oral pathologies into the development of infection prevention strategies during COVID-19 pandemic. In order to decrease the possibility of contagion, it will be necessary to implement robust preventive measurements in the management of patients, operators and the environment. Recommendation proposed could help to improve the quality of assistance for patients with dental disorders and reduce the risk of infection in dental setting during the COVID-19 pandemic. In order to decrease the spread of the infection and for successful treatment it is important that the surgeon and every dentist abide by the recent recommendations of health authorities. After the first phase of response to COVID-19, public health measures will be reviewed and it is expected to expand and increase non- COVID-19 urgent services.

CONFLICT OF INTEREST STATEMENT

There are no potential conflicts of interest or any financial or personal relationships with other people or organizations that could inappropriately bias conduct and findings.

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