

Reduction of otorhinolaryngological consultations due to the COVID-19 lockdown and its impact on disease progression

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Summary

OBJECTIVES: To compare consultations at the Otorhinolaryngological Department at a tertiary referral centre between the COVID-19 lockdown in 2020 and the same period in 2019, as well as to study the impact of deferring visits on disease progression.

METHODS: The emergency consultations during these time periods were analysed retrospectively. The effect of postponing appointments on disease progression was examined for 122 patients with chronic rhinosinusitis, for 50 patients with a benign tumour and for 22 patients with the diagnosis of a malignant tumour. To compare disease progression, patients with the diagnosis of a malignant tumour were matched to patients seen over the same period in 2019.

RESULTS: During the lockdown, a reduction of 44.1% in emergency consultations compared with 2019 was observed. The largest significant decrease of consultation numbers was seen for otitis media and for Eustachian tube dysfunction. Fewer patients with tonsillitis sought emergency assistance; however, no difference in frequency of abscesses was observed. Disease progression was seen in 44.4% of patients with chronic rhinosinusitis. In 2020, 18.8% of patients with the diagnosis of a malignant tumour showed disease progression, yet no difference from the previous year was observed.

CONCLUSION: Fewer emergency consultations took place during the COVID-19 lockdown; among others, there were fewer visits due to otitis media and tonsillitis. However, no change in the incidence of complications was noted. Almost 50% of patients with chronic rhinosinusitis showed disease progression, leading to prolonged suffering due to the rescheduling of appointments. The treatment of patients with the diagnosis of a malignant tumour was not affected by the postponement of consultations.

Introduction

So far, almost 202 million cases and over 4 million deaths have been registered worldwide since the outbreak of the

SARS-CoV-2 pandemic [1]. In Switzerland, more than 700,000 people have been tested SARS-CoV-2 positive, which translated into over 10,000 deaths directly linked to the disease [1]. Facing the spread of the pandemic towards western Europe in February 2020, the Swiss government, like most of the neighbouring countries, decided to impose a national lockdown. Thus, along with the call for social distancing, healthcare institutions were requested to postpone all non-urgent consultations, interventions and treatments, in order to spare medical resources (e.g., staff, infrastructure, consumables) [2]. However, besides the reduction of elective consultations and treatments, a marked decrease in emergency visits was observed [3–5]. Possible reasons for this development might be restriction of public life (working from home, closure of schools, ban of public events), but also patients' fear of contact with healthcare providers [2]. The aim of the present study was to investigate the emergency consultations at the largest otorhinolaryngological (ENT) department in Switzerland and to compare the prepandemic (2019) to the pandemic (2020) era. Furthermore, we aimed to assess the effect of postponing non-urgent appointments on disease progression of three particular otorhinolaryngological disease entities, namely chronic rhinosinusitis (CRS), and benign and malignant tumours.

Materials and methods

Study design and data collection

In this monocentric study at a tertiary referral centre we retrospectively reviewed the number of and reason for all consecutive emergency consultations at the Department of Otorhinolaryngology (University Hospital of Zurich, Switzerland) between 16 March 2020 and 26 April 2020 [2]. This period covers the time when healthcare institutions were requested to postpone all non-urgent consultations, interventions and treatments, in order to spare medical resources during lockdown in Switzerland.

Emergency consultations during the same period in 2019 served as a control group. These visits were grouped according to the diagnoses. For instance, consultations due to

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bacterial infections, acute pain or wound infections of the nasal region were summarised as other rhinological emergencies. The number of inhabitants and therefore the catchment area of our tertiary care hospital stayed largely unchanged over the years, consequently the population at risk of developing an emergency was unchanged. Hence, data between years are directly comparable. All data were retrieved from the clinical information system (KISIM) and systematically ordered in an Excel document. Duplicate data or unavailable medical records were excluded from the analysis. The emergency consultations were assessed for date of consultation, reason for consultation and grouped according to the diagnosis given by two independent examiners. A third examiner was consulted in cases of uncertainty (fig. 1).

The medical records of the chronic rhinosinusitis patients and patients with a benign or malignant tumours were as-

essed for date of the cancelled consultation, date of the rescheduled consultation, reason for rescheduling, diagnosis recorded and disease progression by two independent examiners (fig. 2). The study was approved by the Swiss Ethics Committee (ID: KEK 2020-00756). It was conducted in compliance with requirements of the independent ethics commission, the current Helsinki Declaration and Swiss law. All included patients signed the General Consent of the University Hospital Zurich. Patients without a General Consent of the University Hospital Zurich were excluded from the study.

The effect of postponing appointments on disease progression was examined using the medical records of patients whose consultations were cancelled because of lockdown restrictions. Therefore, the medical history of 122 patients with CRS (chronic rhinosinusitis without nasal polyps and chronic rhinosinusitis with nasal polyps) were studied and

Figure 1: The total number of emergency consultations between 16 March and 26 April, in 2020 and 2019 are shown. Patients were excluded if they had a follow-up visit wrongly labelled as an emergency consultation.

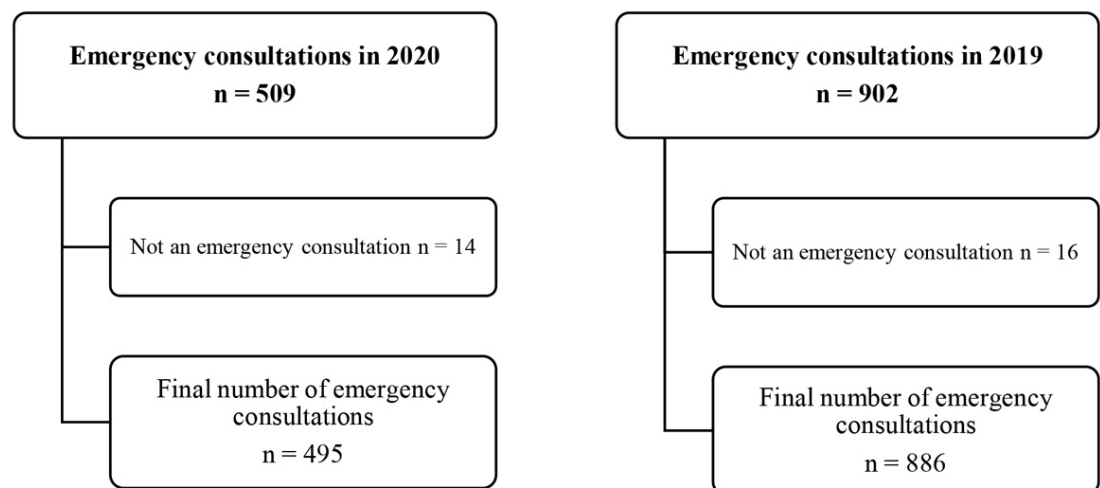
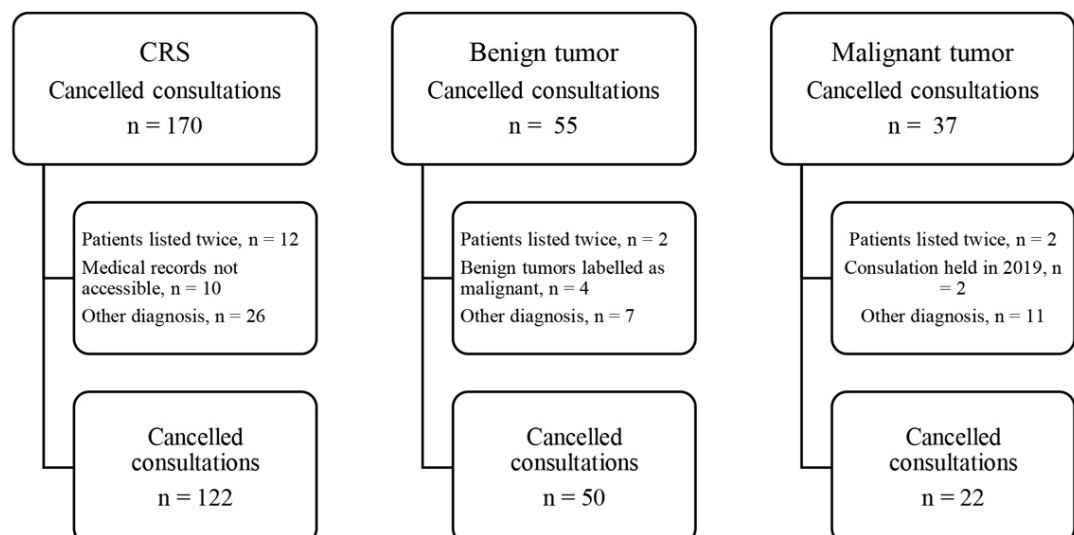


Figure 2: The total number of cancelled consultations between 16 March and 26 April 2020 are shown. Patients were excluded because of duplicate entries, incorrect medical documentation or other diagnosis. CRS = chronic rhinosinusitis.



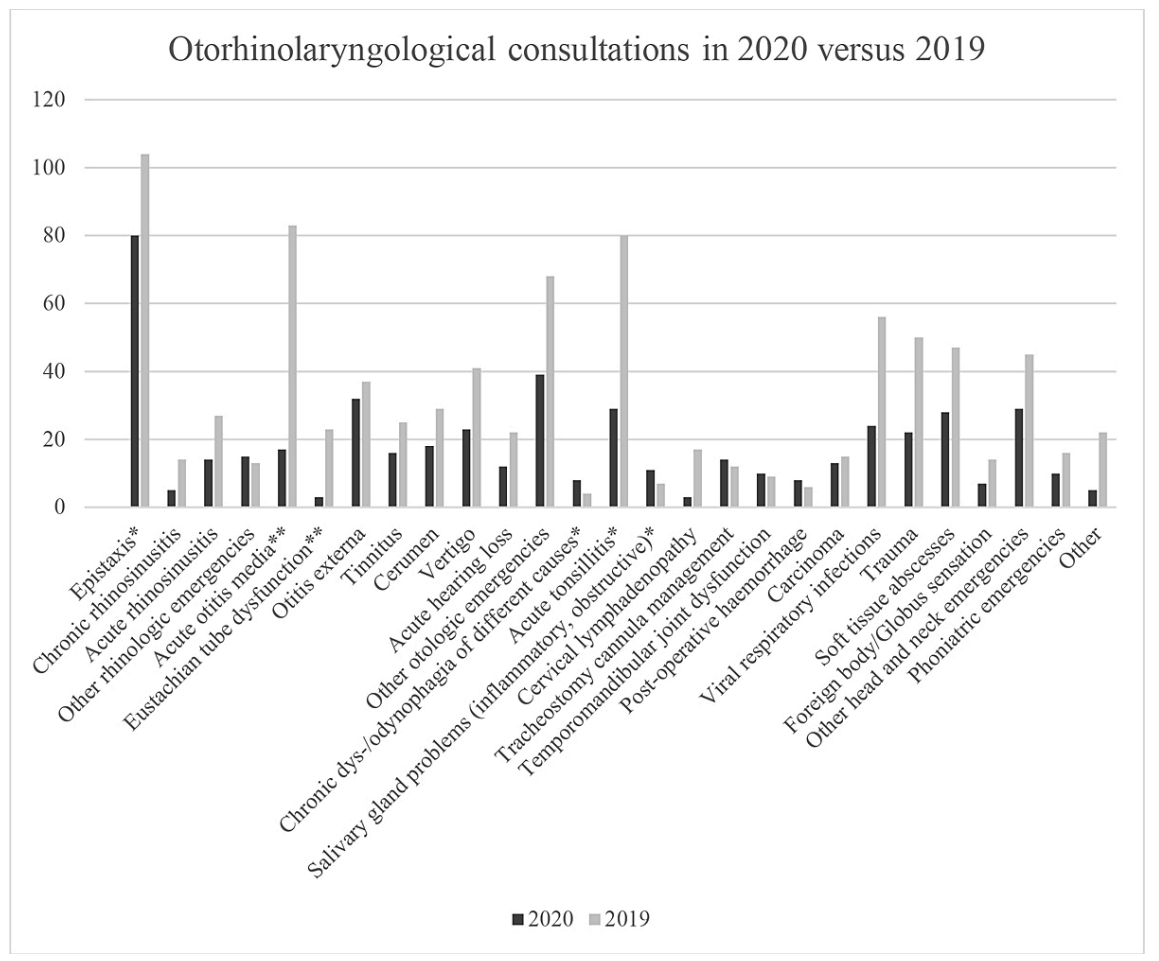
drugs. Two (2.2%) patients received both pharmaceuticals. Forty-seven of the CRS patients had nasal polyps. In 7/47 cases (14.9%) a higher NPS was seen at the rescheduled appointment. An increased score and a recommendation for a surgical approach was observed in 2/47 cases (4.3%). Two patients (4.3%) presented with an increased score and need for systemic steroids and one patient (2.1%) with a higher NPS and need for biological drugs. In 23/47 cases (48.9%) the NPS remained the same and in 12 (25.5%) patients the score improved.

Fifty-four patients were followed-up for a second time at the clinic. The scheduling of this follow-up was not influenced by lockdown restrictions. Of these 54 patients, 12 (22.2%) presented with disease progression. For five (9.3%) patients surgery was recommended, and three (5.6%) patients received systemic steroids. One (1.9%) patient received both therapies. Twenty-seven of the 54 patients had nasal polyps and in 3/27 cases (11.1%) an increased NPS was observed. The SNOT-20 Questionnaire [6] was sent to all 122 chronic rhinosinusitis patients and 31/122 (25.4%) patients returned the completed form. Of these 31 patients, 4/31 (12.9%) reported no to mild problems, 21/31 (67.7%) moderate problems and 6/31 (19.4%) moderate to severe problems. For none of these patients a SNOT-20 score before the pandemic was available.

Benign tumours

Fifty appointments of patients with benign tumours of the head and neck region were cancelled because of the lockdown in spring 2020. The characteristics of these benign tumours can be seen in table 2. Of these, 14/50 (28.0%) patients had requested the cancellation of the consultation themselves. Three (6.0%) patients would have been seen at the clinic for the first time. Of all 50 appointments, 44/50 (88.0%) were rescheduled, 2/50 (4.0%) patients did not require a new appointment, 2/50 (4.0%) appointment proposals were not responded to and 2/50 (4.0%) patients consulted the clinic for a different health issue. Of the 44 rescheduled visits, 37/44 (84.1%) took place with an average delay of 56 days (SD 70.0). Two patients were seen in an emergency consultation before their rescheduled appointment. Seven (15.9%) patients did not attend the rescheduled appointment. In 32/37 (86.5%) postponed visits, no disease progression was seen. In contrast, 5/37 (13.5%) patients showed signs of disease progression (a primary outcome): in 4/37 (10.8%) patients indication for surgery was established and 1/37 patient (2.7%) required a more extensive procedure as a result of postponement of the surgery during the lockdown. However, conversion into a malignant tumour was not found in any of these patients. Fourteen patients had a second follow-up appointment at the clinic, which was not delayed by lockdown restrictions. Of these, only 1 (7.1%) patient was bothered subjectively by the benign tumour and requested surgery.

Figure 3: The number of emergency consultations for each subtype presented as absolute numbers (sorted by organ). * p<0.05, ** p<0.01.



with 2020 this difference did not prove to be statistically significant.

Discussion

Main findings

In this retrospective study on consecutive ENT consultations we found a marked decrease in both, elective and emergency appointments, when comparing the lockdown period to the prepandemic era. Interestingly, no increase in complications (for instance peritonsillar abscess) was observed. Although almost 50% of all patients with chronic rhinosinusitis showed a progression of disease during the lockdown period, no negative impact on patients with malignant head and neck tumours was seen.

Emergency consultations

Our analysis revealed an extensive reduction (44.1%) in emergency patients during the lockdown in 2020, when compared with the same period in 2019. This finding is in line with previous studies [3–5, 7]. Elli et al. reported that the highest reduction of ENT emergencies was due to fewer traumatic injuries (e.g., nose fractures) and attributed this finding to the lockdown restrictions (ban of team sports, restrictions on personal transportation). A reduction in the consultations due to trauma was also observed in this study. However, most likely due to the small sample size, no significance was found.

The largest decrease was observed in consultations for acute otitis media and Eustachian tube dysfunction. Possible explanations for this finding are patient- and lockdown-related. Firstly, patients might have waited longer before consulting a doctor, due to fear of contact with healthcare providers. Secondly, since acute otitis media is often self-limiting, symptom reduction might have been achieved through at-home treatment measures and spontaneous healing [8]. Thirdly, the hygienic precautions implemented by the government to reduce the spread of SARS-CoV-2 could have decreased the incidence of viral and bacterial infections and therefore the number of middle ear infections. Fourthly, the remarkable reduction of air travel during this period could have contributed to the lower occurrence of Eustachian tube dysfunction [9]. Interestingly, in contrast, the frequency of otitis externa was higher in 2020 than in 2019, which strengthens the theory, as it is not a self-limiting disorder [10].

In spring 2020, fewer patients with acute tonsillitis sought assistance at our ENT emergency department, when compared with 2019. However, the number of patients with peritonsillar abscess was not different compared with the prepandemic era. On the one hand, this finding seems to support the theory that acute tonsillitis is often a self-limiting

disease and antibiotic treatment might not reduce the number of cases of quinsy [11, 12]. In times of increasing bacterial resistance due to frivolous antibiotic prescription, restrictive usage is an important aspect for future patient care [13]. On the other hand, the pathophysiology of peritonsillar abscess as a result of acute tonsillitis must be reconsidered, as it is not always a complication of acute tonsillitis [14].

Since the population at risk for all emergency visits was the same in both years, the absolute number of patients with epistaxis was reduced in 2020. Reasons for this might have been less exposure to risk factors such as traumatic injury, lockdown restrictions and reduced infections due to hygienic precautions [15]. Furthermore, the introduction of facemasks into everyday life leading to more moistening of the mucosa might have aided in reducing these cases.

More patients with chronic dysphagia or odynophagia of different causes were seen at the clinic in 2020. In the beginning of the lockdown in Switzerland, information about the symptoms of COVID-19 were partly inconsistent. In fear of having contracted the disease, a patient with dysphagia might have been less reluctant to visit an emergency department than patients with symptoms not associated with COVID-19.

Chronic rhinosinusitis

During the lockdown, disease progression was seen in almost 50% of chronic rhinosinusitis patients, whereas the analysis of a second follow-up appointment at the clinic, which was not affected by the lockdown restrictions, showed disease progression in only 22.2% of patients. As previous data showed a postoperative polyp recurrence rate of up to 40% within 18 months after functional endoscopic sinus surgery, revision surgery is indicated in about 10% to 20% of all chronic rhinosinusitis patients with nasal polyps within 5 years [16–18]. These findings underline the concept of chronic rhinosinusitis with nasal polyps as a chronic disease. However, regular follow-up appointments might lead to earlier intervention and therefore could reduce the period of suffering in patients with chronic rhinosinusitis.

Tumours

Overall, 13.5% of all patients with benign tumours in the head and neck region showed disease progression. To reduce the risk of COVID-19 infection, the focus in the management of patients with a benign tumour shifted towards evaluation of patients at risk for significant negative outcomes and recommendations were made to postpone appointments [19]. In this analysis, no conversion into a malignant tumour was observed, implying there was no effect of the delay on the nature of the tumour. On the other hand, nearly one fifth of patients with the diagnosis of a malignant head and neck tumour presented with disease

Table 3:

The 22 patients with the diagnosis of a malignant tumour affected by the lockdown in 2020. The site of the malignant tumour, the range of the T stage, the number of tumour recurrences and the range in years of the initial diagnosis are summarised (sorted by the number of patients suffering from the tumour).

Site of the malignant tumour	Head and neck skin cancer (non-melanoma) (n = 13)	Sinonasal (n = 3)	Pharynx and Larynx (n = 3)	Other (n = 3)
Range of T stage (lowest to highest T stage)	T1–T4	T2	T2–T3	T3
Tumour recurrence (n)	6	1		
Year of initial diagnosis (earliest to latest year)	2010–2019	2018–2020	2013–2019	2014–2020

Laryngoscope. 2009 Nov;119(11):2135–40. <http://dx.doi.org/10.1002/lary.20527>. PubMed. 1531-4995