

Safety of Emergency ENT Procedures During COVID-19 Pandemic

A. Affendi¹, R. O'Sullivan¹, F. Kavanaugh^{1,2}, A. Dias¹, P. O'Sullivan¹, P. Sheahan¹, M.H. Khan¹

1. Otorhinolaryngology/Head and Neck Surgery (ORL-HNS) Department, South Infirmar-y-Victoria University Hospital, Cork, Ireland.
2. Royal College of Surgeons (RCSI).

Abstract

Aims

The aim of this study is to assess the safety of performing various emergency ENT procedures in a single institution during the COVID-19 pandemic and the impacts on patients and healthcare workers that potentially would have risen from aerosol generating procedures.

Methods

We retrospectively reviewed patients that underwent any ENT procedure in the ENT Casualty department of South Infirmar-y University Hospital Cork, from the month of December 2019 until April 2020. Patients were contacted via telephone call and symptoms of COVID-19 were enquire as per standard questionnaire. Two time periods were defined; Period 1 from 1st December 2019 to 28th February 2020 and Period 2 from 29th February to 23rd April 2020.

Results

332 patients were included in this study. 226 (80.1%) patients attended in Period 1 and 66 (19.9%) attended in Period 2. In Period 1, 12 (4.5%) patients reported COVID-19 symptoms within 2 weeks of attending and 5 (7.6%) patients reported symptoms in Period 2 of which, 2 of those underwent swabs. Both swabs were negative. None of the clinical staff developed COVID-19 during the study.

Conclusion

With appropriate PPE and social distancing measures, ENT Casualty services were safe to proceed during the COVID-19 pandemic.

Introduction

In December 2019, a novel coronavirus was reported in a cohort of patients with pneumonia in Wuhan, China (1). This novel disease would eventually be named as COVID-19 caused by the virus SARS-CoV-2 (2). COVID-19 spreads through respiratory droplets with patients presenting with symptoms such as fever, cough, dyspnoea and anosmia (3–5). However, patients may be asymptomatic (6). The risk of disease transmission from asymptomatic patients has been a particular concern for Otorhinolaryngologists (Ear, Nose and Throat (ENT) Surgeons), due to the need to perform examinations and procedures on the upper aerodigestive tracts and airway-connected cavities, which theoretically exposes them to a higher risk of contracting COVID-19, due to the maximum viral load residing in these areas (7).

The first case of COVID-19 in Republic of Ireland was reported on 29th February 2020. Since then, widespread postponement of non-emergency hospital appointments has taken place, and recommendations issued by numerous professional bodies advising deferral of non-time-critical encounters, to protect both patients and staff from infection (8).

Our ENT Casualty Clinics provide rapid access for patients with acute ENT presentations, covering both emergency and non-emergency cases. Our casualty department provides a wide variety of treatments and procedures to a vast number of the population. We included patients with fractured nasal bones, acutely discharging ears, nosebleeds, foreign bodies, and peritonsillar abscesses (quinsy) for this study, as these procedures were deemed aerosol generating procedures (AGP) (9). Attenders at ENT Casualty frequently require a side-room procedure for diagnosis or treatment of their symptoms. Due to Public Health advice and HSE guidelines it was recommended to defer appointments and avoid non-essential procedures, which impacted ENT casualty referrals.

In this study, we retrospectively reviewed patients that underwent emergency ENT procedures in a single institution during COVID-19 pandemic and patients were followed up to two weeks for any COVID-19 symptoms. Our aim was to assess the safety of these procedures for the patient and healthcare workers in the ENT casualty department and any impact on their health.

Methods

Patients who underwent any side room procedure or treatment in our ENT casualty department from the 1st of December 2019 up to May 2020 were included in this study. Two time periods within the study were defined. Period 1 was from 1st December 2019 to 28th February 2020 (prior to the first COVID-19 case in Ireland) and Period 2, from 29th February to 23rd of April 2020 (after the first COVID-19 case in Ireland). For patients seen before 30th March 2020, patient data were obtained by retrospective review of ENT Casualty records. Retrospective patients were identified by review of the ENT Casualty room log. For patients seen after 30th March, data were prospectively recorded. Patients were then followed up to two weeks after having a procedure in the ENT Casualty and were contacted via telephone call.

After obtaining informed verbal consent, a series of questions were asked as per questionnaire (Figure 1). Questions included if they had developed symptoms of COVID 19 within two weeks, whether they were tested for COVID-19, and if they needed to be self-isolated.

Figure 1: Questionnaire regarding COVID-19 symptoms post-procedure



Justifying ENT Procedures during COVID-19 Pandemic – Questionnaire

Verbal consent obtained

1. Type of referral
 - GP referral
 - Self-referral
 - Others, please state
2. Any type of local anaesthetics (LA) used? Eg. Injections, spray Yes No
3. Type of local anaesthetics (LA) used
.....
4. After seen in SIVUH, did you have any COVID symptoms within 2 wks Yes No
(Eg. Cough, shortness of breath, fever)
5. Any presenting symptoms
.....
6. If yes, were you swabbed? Yes No
7. If not, did you need to self-isolate? Yes No

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Data on community burden of COVID-19 in Cork was obtained from daily Department of Public Health press release on COVID-19 from GOV.ie website.

Personal protective equipment (PPE) in the ENT casualty was used as per local hospital and HSE guidelines. Standard personal protective equipment was used up to 16th of March. After 16th of March, full personal protective equipment including gown, visor, FFP2/3 mask, goggles and long gloves were used for all procedures.

Approval to carry out the audit was approved by the Hospital Data Protection Office. Verbal informed consent to participate in the study was obtained via the telephone call. As this was an audit, ethical approval was not required.

Results

Demographics

700 people underwent a procedure at the ENT Casualty Department during the study period. 332 (47%) were successfully contacted, consented to participate and were subsequently included in this analysis. 266 (80.1%) of participants attended the service during Period 1 and 66 (19.9%) during Period 2. 190 patients were female (57.2%), and median age was 49 (range 2-91 years old). Majority of the patients were referred by GP or other hospital emergency departments. There was a significantly greater proportion of patients referred by other hospital emergency departments in Period 2 than Period 1 (Table 1).

The most common procedures performed were microsuction of ears, flexible nasopharyngoscopy, and nasal cautery. There was a significant reduction in numbers of patients undergoing microsuction between period 1 and period 2, but no change in numbers of patients undergoing flexible nasopharyngoscopy (Table 2). 149 patients received local anaesthetic, by means of local topical anaesthesia in 138 patients. In Period 1, 109 (41%) patients received local topical anaesthesia and 27 (10.2%) patients received local infiltrative anaesthesia, including 30 (11.3%) patients who received both forms of local anaesthetics. In Period 2, 29 (44%) patients received local topical anaesthesia and 12 (18.2%) patients received local infiltrative anaesthesia with 6 (9.1%) patients receiving both forms. Local infiltrative anaesthesia was used in patients undergoing manipulation of nasal bone fracture and drainage of peritonsillar abscess (quinsy).

Demographics	Period 1 (% within group)	Period 2 (% within group)	P-value
Age	Median = 30	Median = 14	
Sex	Male = 155 (58.2%) Female = 112 (42.1%)	Male = 36 (54.5%) Female = 30 (45.5%)	0.59 0.62
Referrals source			
GP	142 (53.4%)	33 (50.0%)	0.68
Hospital	33 (12.4%)	16 (24.2%)	0.02
Others	91 (34.2%)	17 (25.8%)	0.19
Local anaesthetics	111 (41.6%)	38 (57%)	0.02

Table 1. Patient demographics

Procedures	Period 1 (% within group)	Period 2 (% within group)	P-value
Microsuction	110 (41.4%)	11 (16.7%)	0.0002
Flexible nasopharyngoscopy	59 (22.2%)	15 (22.7%)	>0.99
Nasal cautery	40 (15.0%)	16 (24.2%)	0.10
Foreign body removal	29 (10.9%)	9 (13.6%)	0.52
Manipulation of nasal bone fracture	19 (7.1%)	11 (16.7%)	0.03
Others	9 (3.4%)	4 (6.1%)	0.31

Table 2. Procedures performed between the two periods

COVID-19 Symptoms

In Period 1 (before COVID-19 first appeared in Ireland), 12 patients (4.5%) had COVID-19 symptoms within 2 weeks of attending the casualty department. 6 (50%) patients reported fever, 4 (33%) patients complained of having dry cough and 2 (16%) patients reported some fatigue symptoms. None of these patients with their symptoms self-isolated.

Among the cohort presenting Period 2, five (5) patients (7.6%) of the participants reported COVID-19 symptoms within 2 weeks of attending the Casualty department ($p=0.34$). 4 (80%) patients in this period reported having cough and dyspnoea and 1 (20%) patient complaint of nasal congestion. Out of 5 patients, 2 underwent swab testing. Both of these tests were reported as negative. Only 2 patients had to self-isolate for 2 weeks.

During the period of our study no medical, nursing, or care assistant staff working in the ENT casualty department contracted COVID-19 disease.

Community Cases

Figure 2 shows the daily number of cases in Cork during the Study period. The maximum daily number of cases occurred on 16th of April (87).

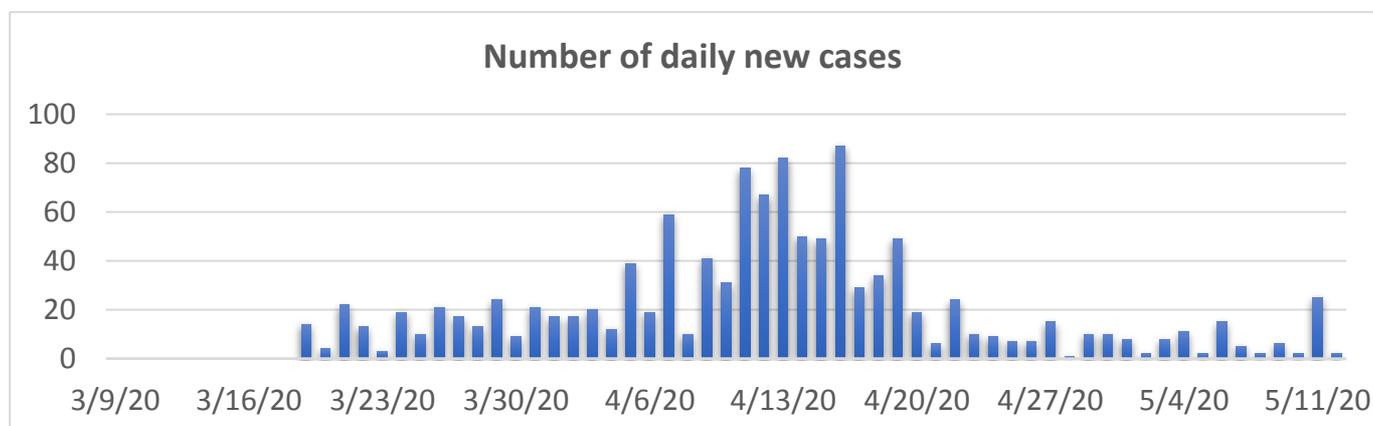


Figure 2. Number of daily reported cases Cork from 19th March 2020 till 12th May 2020.

Adapted from Department of Public Health press release on gov.ie. (10)

Discussion

The findings of this study are that in the cohort presenting after COVID-19's documented arrival in Ireland, only 5 (7.6%, $p=0.34$) of the participants reported COVID-19 symptoms within 2 weeks of attending. Of the 2 that underwent swabbing, both were negative. Of note, the symptoms in all five (5) patients were non-specific and may have been due to non-COVID-19 related illness. The percentage of patients with symptoms within 2 weeks of ENT Casualty attendance was not statistically significantly different in the time periods before and after the first confirmed cases of COVID-19 in Ireland. No staff member working in the ENT Casualty contracted COVID-19. This suggests that continuation of ENT Casualty services during the pandemic is safe with appropriate PPE available to staff, patient awareness and social distancing measures in place as per HSE and hospital guidelines.

There is a difference in the median age between these periods; with Period 1 being 30 years and 14 in Period 2. This is largely due to the majority of the older patients that needed ears microsuction were postponed during the height of the pandemic. A systematic review concluded that COVID-19 were uncommon in children and children with COVID-19 showed a milder course compared to adults. They hypothesize that repeated viral infections in children could boost their immune system in response to COVID-19 (11) .

The institution's protocol regarding COVID-19 guidelines were observed from Period 2. These included a screening area for COVID-19 symptoms prior to attending the department, facemasks for all attending patients, social distancing in waiting areas, hand sanitizers and a minimum of 15 minutes gap between appointments and allowing only one parent to attend with a child. For healthcare workers, it was mandatory to wear full personal protective equipment (PPE) including FFP2/3 mask, goggles during procedures that involves examining upper aerodigestive tract, strict hand hygiene was practiced and flexible nasopharyngoscopy was performed via video-stack system. A separate side room was designated in the event of more than one acutely ill patient arriving together.

There are some limitations to this paper. The possibility that Sars-CoV-2 was present in Ireland before the first documented Irish case cannot be confidently excluded due to free global travel. There was a difference in the number of patients between Period 1 ($n=266$) and Period 2 ($n=66$). Finally, 3 out of 5 patients who developed symptoms in Period 2 did not undergo swabbing, and so we cannot confidently exclude that they did not contract COVID-19.

On the other hand, strengths of this study is the relatively large number of patients undergoing procedures in Period 2, after the arrival of COVID-19 in Ireland, and during the height of the pandemic in Cork.

Our study advocates that with appropriate PPE, patient screening tools, public awareness, social distancing measures and adhering to HSE guidelines provision, ENT emergency procedures and treatment can be delivered safely during this COVID-19 pandemic. As a frontline health care delivery worker, it is imperative to observe health care guidelines in order to protect the vulnerable and our own families. These results will help to formulate our department strategic planning for possible future waves of the pandemic.

Declaration of Conflicts of Interest:

The authors have no conflicts of interest to declare.

Corresponding Author:

Adrinda Affendi,
ORL-HNS Department,
South Infirmar-y-Victoria University Hospital (SIVUH),
Cork.
Email: adrinda.affendi@gmail.com

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