


# Effects of COVID-19 Pandemic on Otolaryngology Surgery in Italy: The Experience of Our University Hospital

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## Abstract

Otolaryngology and head and neck surgery underwent drastic changes during the COVID-19 pandemic. Since March 10, the first day of the lockdown in Italy, diagnostic and therapeutic procedures were limited to emergency and oncology cases, while outpatient procedures and clinical examinations were temporarily suspended to limit virus diffusion and to reallocate personnel into wards dedicated to COVID-19. In our otolaryngology unit, between March 10 and April 28, 2020, we performed 96 surgical procedures; they mainly consisted in diagnosis and treatment of malignant tumors of the head and neck (77%), management of acute upper airway obstruction in adults and children (14.7%), drainage of abscesses of the head and neck (6.2%), and treatment of nasal bone fractures (2.1%). When comparing these data with those of the same period in 2019 for emergency and oncology procedures, we noticed a drastic reduction of head and neck abscesses and nasal bone fractures, while oncology surgery remained stable.

## Keywords

COVID-19, SARS-CoV-2, otolaryngology, head and neck surgery

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The pandemic wrought by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), also known as coronavirus disease 2019 (COVID-19), has had dramatic effects on the health care systems of most countries worldwide.<sup>1</sup> Italy, the country with the second-most COVID-19-related deaths, has also undergone profound changes, resulting in a major decrease of nonurgent outpatient diagnostic visits and examinations as well as surgical procedures.<sup>2,3</sup>

As with most disciplines, otolaryngology and head and neck surgery activity over the country underwent drastic changes.<sup>4</sup> Since March 10, 2020, the first day of the lockdown in Italy, diagnostic and therapeutic otolaryngology procedures were limited to emergency and oncology cases, while outpatient procedures and clinical examinations were temporarily suspended to limit virus diffusion and to reallocate personnel into wards dedicated to COVID-19.<sup>5</sup>

The aim of this work is to report and discuss the changes in the surgical activity of the otolaryngology unit of the Policlinico Umberto I of Rome, Italy, belonging to the third-largest university hospital in Italy, during the pandemic. Particular attention was given to the number of procedures and type of surgery performed during the pandemic, and data were compared with the same period in 2019.

## Surgical Activity in Our Otolaryngology Unit

During the COVID-19 pandemic, per national regulations, only emergency and oncology cases were treated in our unit. Urgent conditions were represented by respiratory distress, epistaxis, head and neck abscesses, sudden sensorineural hearing loss, and acute vertigo attacks.

Surgical procedures performed in our unit during the pandemic principally consisted in tracheostomies; pharyngeal, nasal, and laryngeal oncology diagnostic biopsies performed as open surgery through microlaryngoscopy or endoscopy; and open head and neck oncologic procedures.

In all cases, specific COVID-19-related symptoms in the previous 2 weeks or direct exposure to SARS-CoV-2 was investigated before admission, with special attention to cough, fever, and anosmia and dysgeusia.<sup>6</sup> Also, a nasopharyngeal swab for SARS-CoV-2 was performed before hospitalization, and body temperature was measured before entering the operating room. Because of the potential transmission of SARS-CoV-2 through aerosol<sup>7</sup> and the contiguity of physician and patient during surgical procedures, personal protective equipment was used by all personnel in the operating room, including FFP2 masks covered by a surgical mask, cap and shoe covers, surgical goggles, gloves, and double gowns.<sup>8</sup>

From March 10 to April 28, 2020, we performed 96 surgical procedures: 74 (77%) for diagnosis and treatment of malignant tumors of the head and neck, 14 (14.7%) for the

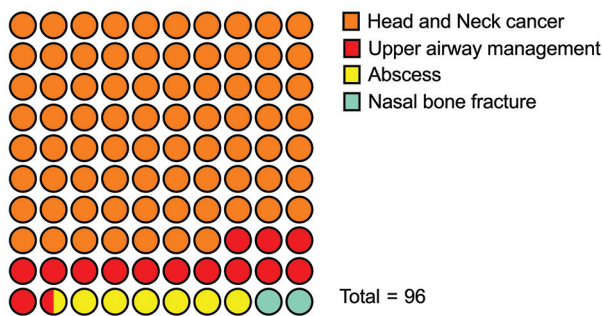
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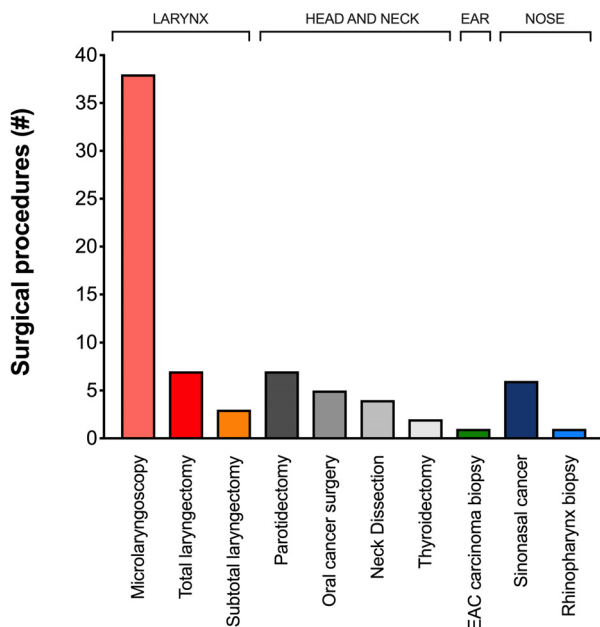
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### Areas of surgical procedures during COVID-19 pandemic



**Figure 1.** Dot plot showing the main areas of surgical procedures performed in our otolaryngology unit during the COVID-19 pandemic.

### Surgical procedures during COVID-19 pandemic

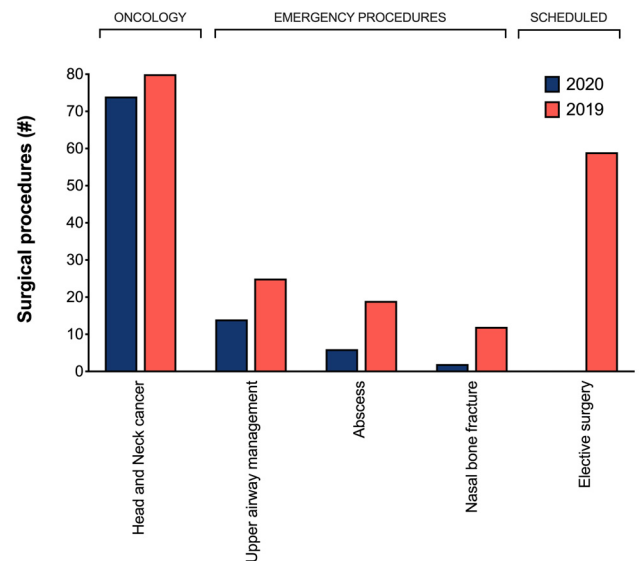


**Figure 2.** Oncologic surgical procedures performed in our unit during the pandemic (reference period: March 10 to April 28, 2020). EAC, external auditory canal.

management of acute upper airway obstruction in adults and children (tracheostomies, aspirated foreign body extraction, laryngeal postoperative bleeding), 6 (6.2%) to drain abscesses of the head and neck (retropharyngeal, peritonsillar, parapharyngeal, submandibular, parotid, and floor of mouth), and 2 (2.1%) for nasal bone fractures (**Figure 1**). Other emergency conditions encountered in our unit during this period, such as epistaxis, did not require surgery.

**Figure 2** shows details of the oncologic procedures performed in our unit during the pandemic. Most were diagnostic microlaryngoscopy procedures for laryngeal cancer ( $n = 38$ , 51.4%), followed by total laryngectomies ( $n = 7$ , 9.4%),

### Surgical procedures: comparison between 2020 and 2019



**Figure 3.** Comparison between surgical procedures performed in our unit during the pandemic and the same period in 2019.

parotid gland tumor surgery ( $n = 7$ , 9.4%), endoscopic surgery for nasal and paranasal sinus cancer ( $n = 6$ , 8.1%), oral cancer surgery ( $n = 5$ , 6.8%), neck dissection ( $n = 4$ , 5.3%), subtotal laryngectomies ( $n = 3$ , 4.1%), thyroidectomies ( $n = 2$ , 2.7%), rhinopharynx cancer endoscopic biopsies ( $n = 1$  procedure, 1.4%), and external ear canal carcinoma biopsy ( $n = 1$ , 1.4%).

**Figure 3** shows a comparison of these data with the same period in 2019. From March 10 to April 28, 2019, we performed 195 surgical procedures. Most were procedures for diagnosis and treatment of malignant tumors of the head and neck (41%), followed by elective surgery (30.3%), upper airway management (12.8%), head and neck abscess drainage (9.7%), and nasal bone fracture (6.2%). Except for elective surgery, which has been suspended, the main changes during the 2020 pandemic were found for head and neck abscesses (a decrease of 68.4%) and nasal bone fractures (a decrease of 83.3%).

### Discussion

During the COVID-19 pandemic, the activity of our otolaryngology unit underwent profound changes still ensuring the diagnostic and therapeutic procedures for emergency and oncology cases. When comparing current data for emergency and oncology procedures to the same period in 2019, we noticed a 50.77% decrease of the overall number of surgical procedures, mainly due to the reduction of beds to avoid contagion (1 patient/room), the reduction of available operating rooms and sessions, and the reallocation of nursing and support staff to COVID-19 wards. However, we observed a drastic reduction of head and neck abscesses and nasal bone fractures. In 2019, infectious abscesses represented a frequent cause of surgical urgency in our unit, while their number decreased nearly 70% during the pandemic. A possible explanation could

be the interruption of nonurgent dental activities (endodontic treatment, implantology, and dental extractions) for odontogenic abscesses<sup>9</sup> and the decreased number of tonsillitis following reduced interpersonal relationships during lockdown for peritonsillar abscesses. The drastic reduction of nasal bone fractures (nearly 85%) could be attributable to the cessation of sporting and recreational events and to the reduction of car accidents during the lockdown.<sup>10</sup>

## Conclusion

The COVID-19 pandemic had a drastic effect on the activity of our otolaryngology unit. Surgical activity was limited to emergency and oncology cases, with a severe impact on other conditions. As the current measures of the lockdown continue, it will be difficult to perform scheduled and new examinations in a timely manner, causing the risk of diagnostic delays with severe impact on patients' health.

## Author Contributions

**Massimo Ralli**, substantial contributions to the conception of the work, revising the work critically, final approval of the version to be published, agreement to be accountable for all aspects of the work; **Antonio Minni**, substantial contributions to the design of the work, revising the work critically, final approval of the version to be published, agreement to be accountable for all aspects of the work; **Francesca Candelori**, substantial contributions to the acquisition of the data, drafting the work, final approval of the version to be published, agreement to be accountable for all aspects of the work; **Fabrizio Cialente**, substantial contributions to the analysis of the data, drafting the work, final approval of the version to be published, agreement to be accountable for all aspects of the work; **Antonio Greco**, substantial contributions to the interpretation of the data, revising the work critically, final approval of the version to be published, agreement to be accountable for all aspects of the work; **Marco de Vincentiis**, substantial contributions to the interpretation of the data, revising the work critically, final approval of the version to be published, agreement to be accountable for all aspects of the work.

## Disclosures

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## Availability of Data and Materials

The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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