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 lockdown in Italy, diagnostic and therapeutic procedures were limited to emergency and oncology patients, while outpatient procedures and clinical exams were temporarily suspended to limit virus diffusion and reallocate personnel in COVID-19 dedicated wards. 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 both adult and children (14.7%), drainage of abscesses of the head and neck (6.2%), and treatment of nasal bone fractures (2.1%). When comparing this data with that of the same period of 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

Introduction

The Severe Acute Respiratory Syndrome CoronaVirus-2 (SARS-CoV-2), also known as COVID-19, pandemic had dramatic effects on the healthcare systems of most countries worldwide. Italy, the second country for number of COVID-19-related deaths, also underwent profound changes, resulting in a major decrease of non-urgent outpatient diagnostic visits and exams as well as surgical procedures. As most disciplines, otolaryngology and head and neck surgery activity over the country underwent drastic changes. Since March 10, 2020, the first day of lockdown in Italy, diagnostic and therapeutic otolaryngology procedures were limited exclusively to emergency and oncology patients, while
outpatient procedures and clinical exams were temporarily suspended to limit virus diffusion and reallocate personnel in COVID-19 dedicated wards 5.

The aim of this work is to report and discuss the changes in the surgical activity of our otolaryngology unit, 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 was compared to the same period in 2019.

**Surgical activity in our otolaryngology unit**

During the COVID-19 pandemic, according to national regulations, only emergency and oncology patients 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 two weeks or direct exposure to SARS-CoV-2 were investigated before admission, with special attention to cough, fever and anosmia and dysgeusia 6. 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 7 and the contiguity of physician and patient during surgical procedures, personal protective equipment, including FFP2 masks covered by a surgical mask, cap and shoe covers, surgical goggles, glows and double gowns were used in the operating room by all personnel 8.

From March 10 to April 28, 2020, we performed 96 surgical procedures. They included 74 (77%) procedures for diagnosis and treatment of malignant tumors of the head and neck, 14 (14.7%) surgical procedures for the management of acute upper airway obstruction in both adult and children (tracheostomies, aspirated foreign body extraction, laryngeal postoperative bleeding), 6 (6.2%)
surgical interventions to drain abscesses of the head and neck (retropharyngeal, peritonsillar, parapharyngeal, submandibular, parotid and floor of mouth abscesses), and 2 (2.1%) surgical treatments of nasal bone fractures (Fig. 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 of them were diagnostic microlaryngoscopy procedures for laryngeal cancer (38 procedures, 51.4%), followed by total laryngectomies (7 procedures, 9.4%), parotid gland tumor surgery (7 procedures, 9.4%), endoscopic surgery for nasal and paranasal sinus cancer (6 procedures, 8.1%), oral cancer surgery (5 procedures, 6.8%), neck dissection (4 procedures, 5.3%), subtotal laryngectomies (3 procedures, 4.1%), thyroidectomies (2 procedures, 2.7%), rhinopharynx cancer endoscopic biopsies (1 procedure, 1.4%), and external ear canal carcinoma biopsy (1 procedure, 1.4%).

Figure 3 shows a comparison of this data with the same period of 2019. From March 10 to April 28, 2019, we performed 195 procedures. Most of them 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 surgical treatment (6.2%). Except for elective surgery, which has been suspended, the main changes were found for head and neck abscesses (a decrease of 68.4%) and for nasal bone fractures (a decrease of 83.3%).

Discussion

During the COVID-19 pandemics, the activity of our otolaryngology unit underwent profound changes still ensuring the diagnostic and therapeutic procedures for emergency and oncology patients. When comparing current data for emergency and oncology procedures to the same period of 2019, we noticed a 50.77% decrease of the overall number of surgical procedures, mainly due to the reduction of beds to avoid contagion (one 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 of nearly 70% during the pandemic. A possible explanation could be the interruption of non-urgent dental activities (endodontic treatment, implantology and dental extractions) for odontogenic abscesses 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.

Conclusion

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

References


**Figure Legends**

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

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

**Figure 3**: Comparison between surgical procedures performed in our unit during the pandemic and in during the same period in 2019.
Areas of surgical procedures during COVID-19 pandemic

- Head and Neck cancer
- Upper airway management
- Abscess
- Nasal bone fracture

Total = 96
Surgical procedures during COVID-19 pandemic

- Microlaryngoscopy
- Total laryngectomy
- Partial laryngectomy
- Parotidectomy
- Oral cancer surgery
- Neck Dissection
- Thyroidectomy
- EAC cancer biopsy
- Sinonasal cancer
- Rhinopharynx biopsy

Figure 2.
Surgical procedures: comparison between 2020 and 2019

- **ONCOLOGY**
  - Head and Neck cancer
  - Upper airway management

- **EMERGENCY PROCEDURES**
  - Abscess
  - Nasal bone fracture

- **SCHEDULED**
  - Elective surgery

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