

Effects of COVID-19 pandemic on head and neck oncology activity: the experience of our University Hospital

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Abstract. – OBJECTIVE: The COVID-19 pandemic has severely affected otolaryngology and head and neck activities, also involving diagnosis and treatment of patients with oncology diseases with consequent delays and tumor upstaging. The aim of this study was to describe the experience of our otolaryngology unit during the pandemic on patients with cancer of the head and neck, comparing data on anatomical site of origin and preferred treatment with pre-pandemic data.

PATIENTS AND METHODS: This study retrospectively analyzed the clinical records of patients treated for oncology disorders of the head and neck in the Otolaryngology Unit of the Policlinico Umberto I, Sapienza University of Rome, between March 10, 2020, and March 9, 2021. Data were compared with the same period of the previous year (March 10, 2019 - March 9, 2020).

RESULTS: During the pandemic, we treated 92 patients with malignant tumor of the head and neck, compared to 101 patients treated during the same period of 2019 (-8.91%). The most common anatomical sites of origin of the neoplasms were larynx, oral cavity, and oropharynx. Surgical approach was preferred in 57 patients (61.95%); non-surgical treatments were performed in 35 cases (38.05%). Compared to the same period of the previous year, we found a 12.90% decrease in the number of oncology patients undergoing surgery, while patients treated exclusively with non-surgical approaches increased by 18.42%.

CONCLUSIONS: Despite the impact of COVID-19 on the activity of our otolaryngology unit and on the whole healthcare system, diagnostic and therapeutic procedures for patients affected by malignancy of head and neck region were only minimally impacted.

Key Words:

COVID-19, SARS-CoV-2, Otolaryngology, Head and neck, Oncology, Cancer.

Introduction

The Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has caused dramatic effects on national health care systems worldwide^{1,2}. In Italy, the course of the pandemic has gone through various phases with profound changes in healthcare assistance, such as a radical decrease of non-urgent outpatient visits and of surgical procedures³. Similarly, otolaryngology and head and neck diagnostic and therapeutic activities underwent drastic changes and – during the initial months of the pandemic – were mostly limited to emergency and oncology cases⁴⁻⁶.

Even though spared by limits imposed by infection control measures, oncology diseases of the head and neck have also been impacted by the pandemic^{7,8}. In fact, patients avoided hospitals and visits resulting in diagnostic delays^{9,10} and, given the short tumor volume doubling time of head and neck cancer, in tumor upstaging¹¹.

In addition, measures to prevent contagion among healthcare providers led to changes in preferred treatment options, as surgery can involve direct airway manipulations and aerosol-generating procedures with potential contagion¹²⁻¹⁴. During the first months of the pandemic, when SARS-CoV-2 diagnostic tests were limited and vaccines were not available, some authors proposed to temporarily favor radiation and chemotherapy for head and neck neoplasms, wherever oncologic outcomes were equivalent to surgery¹⁵. For cases in which surgery was the only standard of care, it was suggested that head and neck oncologists should evaluate the magnified, COVID-19-specific multilevel risks of surgery

and risks of alternative therapies in the context of multidisciplinary discussion and shared decision-making¹⁵.

In this paper, we briefly describe the experience of our otolaryngology clinic during the pandemic for the diagnosis and treatment of patients with cancer of the head and neck, comparing data on anatomical site of origin and preferred treatment with pre-pandemic data.

Patients and Methods

This study retrospectively analyzed the clinical records of patients treated for oncology disorders of the head and neck in the Otolaryngology Unit of the Policlinico Umberto I, Sapienza University of Rome, between March 10, 2020, and March 9, 2021. Data were compared with the same period of the previous year (March 10, 2019 – March 9, 2020).

Data were sorted, for both time points, by anatomical site of disease and by treatment type (surgery, surgery + radiotherapy, surgery + radiotherapy + chemotherapy, radiotherapy alone, chemotherapy alone, radiotherapy + chemotherapy).

The study was conducted in accordance with the Declaration of Helsinki and with the regulations for retrospective studies of our hospital.

Statistical Analysis

Descriptive analysis was used for the main tumor characteristics and for treatment options. Prism Software version 8.3.1 (GraphPad Software LLC, La Jolla, CA, USA) was used to perform statistical analysis and prepare figures.

Results

From March 10, 2020, the first day of lockdown in Italy, to March 9, 2021, we treated 92 patients with malignant tumor of the head and neck. The anatomical sites of origin of the neoplasms were: larynx (n=41, 44.57%), oral cavity (n=10, 10.87%), oropharynx (n=10, 10.87%), salivary glands (n=9, 9.78%), hypopharynx (n=7, 7.61%), skin of head and neck (n=5, 5.43%), thyroid (n=4, 4.35%), nasopharynx (n=3, 3.26%), sinonasal tract (n=1, 1.09%), skull base and ear (n=1, 1.09%), cervical involvement from cancer of unknown primary origin (n=1, 1.09%). During the same period of the previous year (March 10, 2019 – March 9, 2020), we treated 101 patients with head and neck malignancies. The anatomical sites of origin of

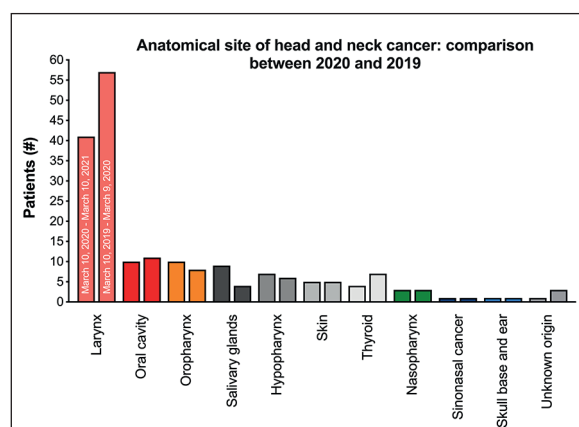


Figure 1. Anatomical site of origin of head and neck cancer in patients treated in our otolaryngology unit between March 10, 2020, and March 9, 2021 (first bar). Data are compared with the same period of the previous year (March 10, 2019 - March 9, 2020) (second bar).

the neoplasms were: larynx (n=58, 57.43%), oral cavity (n=11, 10.89%), oropharynx (n=8, 7.92%), hypopharynx (n=6, 5.94%), skin of head and neck (n=5, 4.95%), salivary glands (n=4, 3.96%), nasopharynx (n=3, 2.97%), cervical involvement from cancer of unknown primary origin (n=3, 2.97%), thyroid (n=1, 0.99%), sinonasal tract (n=1, 0.99%), and skull base and ear (n=1, 0.99%) (Figure 1).

Figure 2 shows the therapeutic approach of each case after a multidisciplinary discussion between head and neck surgeons, oncologists, and radiotherapists. From March 10, 2020, to March

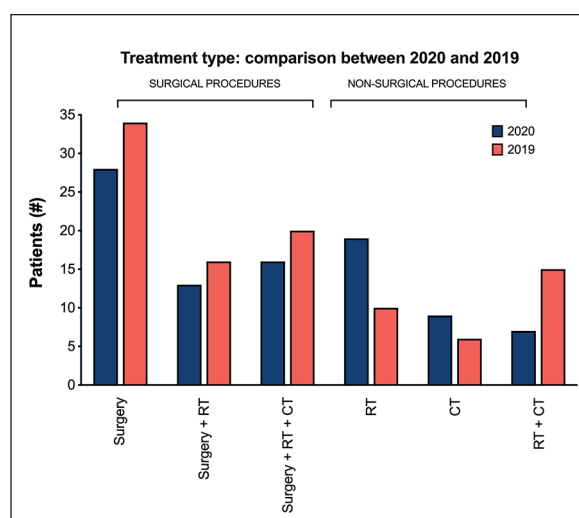


Figure 2. Treatment type for patients with head and neck cancer treated in our otolaryngology unit for period March 10, 2020 - March 9, 2021. Data are compared with the same period of the previous year (March 10, 2019 - March 9, 2020). RT: Radiotherapy; CT: Chemotherapy.

9, 2021, the surgical approach alone was preferred in 28 patients (30.43%) and was associated with radiotherapy in 13 (14.13%) or radio-chemotherapy in 16 (17.39%); radiotherapy alone was performed in 19 cases (20.65%), chemotherapy in 9 (9.78%) and combined radio-chemotherapy in 7 cases (7.61%). During the same period of the previous year (March 10, 2019 – March 9, 2020), the surgical approach alone was preferred in 34 patients (33.66%) and was associated with radiotherapy in 16 (15.84%) or radio-chemotherapy in 20 (19.80%); radiotherapy alone was performed in 10 cases (9.90%), chemotherapy in 6 (5.94%) and combined radio-chemotherapy in 15 cases (14.85%).

Discussion

During the pandemic, the activity of our otolaryngology unit underwent profound changes¹⁶. We experienced a reduction of surgical activity for many reasons, including a decrease of beds to avoid contagion (one patient/room) and of the number of operating rooms and surgical sessions, as well as the reallocation of nursing and support staff to COVID-19 wards^{16,17}. This was accompanied by a severe reduction of outpatient diagnostic procedures.

Within this setting, diagnosis and treatment of head and neck cancer represented a relevant issue for patients' health and safety^{12,15,18-20}. However, when comparing our pandemic and pre-pandemic data, we noted only an 8.91% decrease of the overall number of oncology patients treated by our unit (101 vs. 92 patients). This confirms that oncology activity in our unit was preserved, although our hospital was converted into one of the most important regional reference points for COVID-19 patients¹⁶ leading to the referral of most patients to non-COVID-19 hospitals.

Treatment options for head and neck cancer have also been affected. During the pandemic, we noted an increase of patients treated with non-surgical approaches, such as radiotherapy or chemotherapy compared to those undergoing surgery. In details, we found a 12.90% decrease in the number of patients treated with a first-line surgical approach in 2020 compared to 2019, while patients treated exclusively with non-surgical approaches increased by 18.42%. Our findings are consistent with the literature. A recent study from the COVIDSurg Collaborative¹⁸ evaluated 1137 consecutive patients with head and neck

cancer in 26 countries and reported evidence of surgical de-escalation for oropharynx and larynx tumors. For these neoplasms, nonsurgical therapy was favored, especially during the initial phases of the pandemic. However, with the advent of vaccines and improvement of infection control practices, the authors concluded that head and neck surgery may be considered safe for patients during the pandemic even when it is lengthy and complex. This is significant because many concerns about patient safety raised in many guidelines²¹⁻²³ appear not to be reflected by outcomes²³, even for those who have comorbidities or require complex reconstructions¹⁸.

Conclusions

Despite the impact of COVID-19 on the activity of our otolaryngology unit and on the whole healthcare system, diagnostic and therapeutic procedures for patients affected by malignancy of head and neck region were only minimally impacted. When equivalent, non-surgical approaches were slightly preferred, especially during the first months of the pandemic.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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