

# THE CONSEQUENCES OF COVID 19 IN PATIENTS WITH LARYNGEAL CANCER

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## ABSTRACT

**Background:** The global pandemic, triage and telemedicine have contributed to late diagnosis of patients with advanced carcinoma of the larynx. Warming and humidification of air in this type of patient are completely cut off and lost, which devotes to the occurrence of chronic lung disease.

**Aim:** Representing patients with laryngeal carcinoma who became infected with Covid 19, recognizing the severity of Covid 19 manifestation and its outcome.

**Material and methods:** University ENT Clinic in Skopje was Covid Center for treatment and care of patients with Covid 19. A total of 405 patients with moderate and severe clinical picture were hospitalized in the period from 2019 to 2021. There were 8 patients with laryngeal cancer.

**Results:** In all 8 patients auscultatory, oxygen saturation, CT scan presents massive interstitial pneumonia, typical of Covid 19. Four patients who survived had high oxygen saturation, low CRP and laryngectomy performed more than 10 years ago. The other four patient who failed the disease had low saturation, high CRP, and total laryngectomy which was performed not more than 4 years ago.

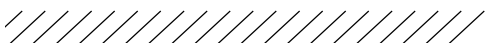
**Conclusion:** According to our experience, the reasons for the presented number of lethal outcome cannot be fully determined that is in line of the professional literature, which was confirmed in this case. It is estimated that a lack of tracheostomal warmers and humidifiers leads to increased mortality in cancer patients, especially in Covid 19 pandemic. Application of protection and rehabilitation protocols in these patients is necessary to improve the quality of life and reducing the risk factor for Covid disease 19.

**Key words:** Covid-19, advanced cancer, pneumonia, survival rate, tracheostoma

## INTRODUCTION

The routine, way and style of living have completely changed with the emergence of the pandemic Covid 19. The global pandemic, triage and telemedicine have contributed to the late diagnosis of patients with an advanced stage of the carcinomatous disease (1, 2). The terminal stage of the disease has significantly impaired the quantity and quality of life in those patients. Patients who are immunosuppressed, including oncology patients, have a higher risk of diseases with Covid 19 and are often

accompanied by concomitant comorbidities (3,4). In advanced stages of laryngeal cancer, it is necessary to provide a permanent tracheostomal opening. Thus, the upper respiratory tract is completely separated from the lower respiratory tract. The nose and its primary physiological function of mucociliary clearance, warming and moistening of the air in this type of patients are completely cut off (5,6). Covid 19 is strongly associated with rapid progression of acute respiratory distress leading to include intensive care and therapy. (7, 8, 9)



**MATERIAL AND METHODS**

University Clinic for Ear, Nose and Throat was a Covid center for the treatment and care of patients with Covid 19. Four hundred and five patients with medium and severe clinical symptoms were hospitalized in the ENT CLINIC Covid center. Of them, twenty-six were patients with oncological diseases. There were eight patients with laryngeal cancer.

In this retrospective study, we present patients with laryngeal cancer who required hospitalization. Inclusion criteria: nasal swab and tracheostomal opening for Covid 19 is positive, verified cancer of the larynx. Exclusion criteria: neoplasms of other origins, patients who have a positive smear during hospitalization. In each patient in the inclusion criteria we contain a statement indicating patient permission for using their data information and clearance by the institute research or ethics committee.

Daily measurements of vital parameters (blood pressure, pulse, temperature, saturation, respiration) were performed for each patient. Auscultation was performed every day. Complete laboratory analyzes of: degradation products, hematological, electrolyte, protein and enzyme status were performed every 2 days. Analysis of hemostasis and dimers was also carried out. Regarding imaging studies, chest CT or lung X-ray were performed in each patient. All patients underwent endoscopic evaluation through flexible and rigid tracheobronchoscopy as well as daily tracheobronchial lavages. From the medical detail records, we retrospectively tracked demographic, epidemiologic, clinical, and surgical information. The complete medical documentation in PHI UK for Ear, Nose and Throat is attached in ENT clinic. Throw-out that period; it had been completely document of each stage of the disease from the patients.

**RESULTS**

University ENT Clinic in Skopje was Covid center for treatment and care of patients with Covid 19. A total of 405 patients with moderate and severe clinical picture were hospitalized in the period from 2019 to 2021. There were 8 patients with laryngeal cancer.

Diagram 1: contribution of patient in Covid 19 intensive care unit.



In this retrospective study, we showed eight patients with laryngeal cancer infected with COVID 19 who needed to be hospitalized. Middle aged of the patient was 70 years old. None of the patient have provox prothesis. Four patients underwent total laryngectomy, block dissection and radiotherapy an average of 7 years ago, and the other four patients underwent tracheotomy with verified laryngeal cancer an average of 6 months ago. Seven patient were male gender and only one patient was female gender. At the moment when patients were hospitalized at the ENT clinic, two patient have had saturation 95 % and the other six patient below 90%. In terms of symptomatology: one patient diarrhea, 5 patients fever and dry cough, 1 patient throat and chest pain, 1 patient bleeding from the tracheostomal opening.

Table 1. Signs and symptoms

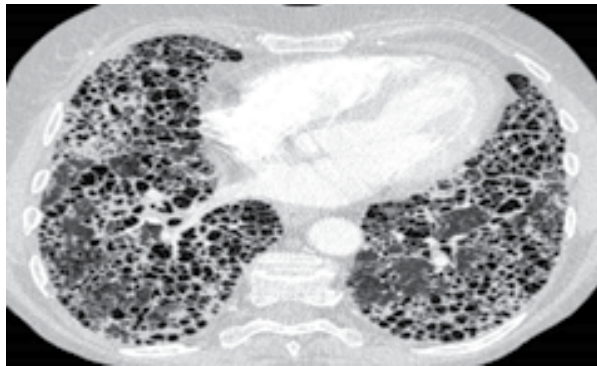
Signs and symptoms	1	2	3	4	5	6	7	8
diarrhea	x							x
fever	x	x	x	x	x			x
Dry cough	x	x		x	x	x	x	
Bleeding through tracheostoma						x		
Pain in throat				x	x		x	x
Pain in chest						x	x	

Regarding the endoscopic evaluation, a flexible endoscopic evaluation along the tracheostomal opening was realized and performed in all patients. Aspiration of secretion and removal of crusted masses was performed in all patients.

Our patients had accompanying comorbidities: 3 patients had diabetes mellitus type 2, 1 obesity, 1 operated on

the abdominal aorta, 1 after previous infarction, 1 after empyema of the pleura, 1 after malignant melanoma of the forearm. Regular control laboratory analyzes were carried out, where they are followed in detail: we have an increase in d dimers in all patients. Patients with a fatal outcome of the disease have a deterioration of the electrolyte, protein, and enzyme status as well as degradation products. In all 8 patients, pneumonia typical of Covid 19 was observed, in 2 it was with a milder clinical picture. In all 8 patients with laryngeal cancer who had a tracheostomal opening, auscultatory findings, saturation, CT or chest X-ray findings were in favor of massive interstitial pneumonia, typical of Covid 19 .

icture 1: CT scan COVID 19 pneumonia from out patient I.G



Immediately on admission, oxygen support through a tracheostomal opening and aerosol administration of mucolytics was carried out in all patients. Broad-spectrum parenteral antibiotic therapy, anticoagulant, gastroprotective, multivitamin therapy, corticotherapy A tracheobronchial aspirate was taken for microbiological analysis, to rule out a possible superinfection, but it turned out to be negative in all patients (13).

Picture 2: laryngeal carcinoma, from our patient ENT ambulance



n all patients, during their hospitalization, tracheobronchial controls were performed to evaluate whether the given therapy gives progress in relation to the local finding, whether there is airway obstruction as well as the removal of crusted changes. All patients underwent aspiration of secretions and removal of crustose masses through tracheobronchial trunk.

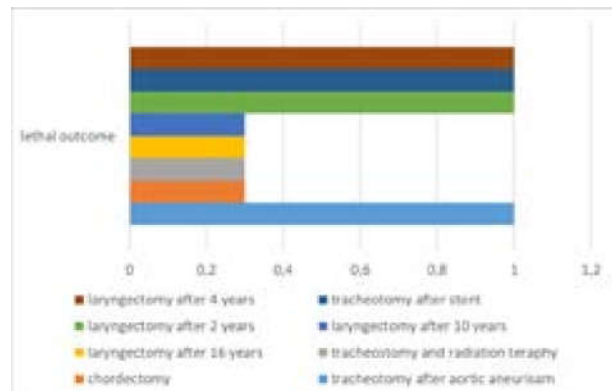
Rigid bronchoscopy was required in 5 patients. The biopsy material from 1 patient in terms of histopathological verification showed erosive chronic inflammation.

On average patient have had hospital day stay for 9 to 14 days.

Two patients, one patient underwent chordectomy, and the other patient underwent radiation therapy as a therapeutic modality, with a milder clinical picture and a good outcome of the disease. Two patients after surgical treatment of total laryngectomy with bilateral block dissection more than 10 years ago, managed to survive the disease. Two patients, after operative treatment total laryngectomy with bilateral block dissection, which was performed no more than 4 years ago and two tracheotomized patients, with accompanying comorbidities aortic aneurysm and stent at admission with low saturation 83% and high SRP 130, failed to survive the disease.

Patients with a lethal outcome of the disease have high rate of electrolyte, protein, enzyme status and degradation products as well as low saturation, prolonged hospital stay and massive crustose change along tracheobronchial trunk.

Table 2: The lethal outcome and the type of the patient after treatment



## DISCUSSION

In patients with a tracheostomal opening, the risk of infection multiplies. Aerosols with their dissemination fall directly on the trachea and lower respiratory tract. There are recommendations for post-operative care in the world, but there was still no official protocol for their care. The Covid 19 pandemic is an enigma whose consequences we have yet to describe.(10, 11, 12) Although patients with laryngeal cancer represent a relatively small group of subjects, our experience is necessary to continue to understand the consequences of Covid 19 on this group of patients regardless of their treatment and outcome of the disease (13, 14,15).

In our retrospective study, we presented 8 patients with inflammation of the tracheobronchial trunk, development of interstitial pneumonia and its manifestation. These patients also have concomitant comorbidities that further influence the further outcome of the disease.

Covid 19 develops crusted changes along the tracheobronchial stem that obstruct the breathing lumen. Management of tracheobronchial tree obstruction through bronchoalveolar lavage and rigid tracheobronchoscopy to establish an airway is mandatory (16). Panderno et al in their report of 2 laryngectomy patients presented respiratory distress with bilateral pneumonias and tracheal inflammations (17). In the study of Fernández, it shows us that daily flexible tracheobronchoscopy reduces the risk of acute airway obstruction by preventing the development of bilateral pneumonias and further deterioration of the outcome in this group of patients (18). Weger showed signs of tracheobronchitis in covid 19 patients detected by lung scintigraphy (19).

The patient in who had bleeding from the tracheostomal opening, is the same patient in whom the biopsy material shows us erosive strong horn inflammation, biopsy material which is typical for covid 19. His fatal outcome also confirms the seriousness of approach in this group of patients.

## CONCLUSION

The Ear, Nose and Throat Clinic had the opportunity, in a multidisciplinary approach of anesthesiologists and pulmonologists, to provide adequate care for this type of patients (20,21). According to the professional literature, and it is confirmed in our experience, it is not possible to fully determine the reasons for a high percentage

of fatal outcome in this group of patients (22). It is estimated that the lack of tracheostomal warmers and air humidifiers leads to increased mortality in oncology patients, especially in the conditions of the Covid 19 pandemic (23,24). Compliance with the recommendations for protection in terms of social distance, regular hygiene of the tracheostomal opening and the vocal prostheses, as well as the application of a mask and protection of the tracheostomal opening are necessary (25). Application of protection and rehabilitation protocols for these patients in pandemic conditions is necessary to improve the quality of life and reduce the risk factor of getting sick with Covid 19 (26).

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