

## Article

# Complications of tracheoesophageal bypassing with prosthetics after laryngectomy

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**Abstract:** Laryngectomy for laryngeal cancer is the treatment of choice in these patients. Rehabilitation of patients with voice impairment is not an easy task. For the purpose of rehabilitation, tracheoesophageal bypass (TEB) is performed. When examining patients with TPS, medical personnel must be protected by personal protective equipment. Patients with PSI are at high risk for aspiration pneumonia. In the context of the COVID-19 pandemic, patients after laryngectomy with tracheoesophageal bypass surgery with prosthetics need to be given special attention. When infected with SARS-CoV-2, these patients are at a special risk group. They need special conditions in the clinic – special care and rehabilitation.

**Keywords:** keywords. laryngectomy, rehabilitation, tracheoesophageal bypass, COVID-19, SARS-CoV-2

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## 1. Introduction.

The main method of treating patients with tumors of the upper respiratory tract is usually surgery [1]. Laryngectomy for laryngeal cancer is the treatment of choice in these patients [2]. However, this type of surgery is disabling as patients lose their voice. Rehabilitation of patients with impaired voice function is not an easy problem [3-6]. For the purpose of rehabilitation, tracheoesophageal bypass surgery (TEB) is performed [7].

## 2. TEB patients & COVID-19.

When performing TEB with prosthetics after laryngectomy, a number of complications are possible associated with the displacement of the prosthesis and / or its course [8]. Usually, these problems can be corrected on an outpatient basis. But in the context of coronavirus infection and with an increased risk of SARS-CoV-2, the patient and staff should be as safe as possible. Optimally, if in the examination room, forced ventilation with negative pressure and HEPA-filters are installed, which minimizes the risk of infection transmission [9].

## 3. TEB complications.

If the patient has a leak around the prosthesis, there is a risk of developing aspiration pneumonia, which can even have lethal consequences for the patient in the context of COVID-19. In the case of displacement of the prosthesis towards the trachea or esophagus, this can be diagnosed by X-ray, as well as using gastro- or tracheoscopy. It is advisable to start the study with standard X-ray images, and, if necessary, perform computed tomography (CT). Aspiration of the prosthesis into the airway is an absolute indication for urgent endoscopic intervention (regardless of the patient's COVID-19 status). It is prudent to treat all such patients as potentially infectious and to take all precautions to minimize the transmission of aerosol particles. When transporting to the operating room, it is necessary to cover the tracheostomy with a napkin, mask. Any attempt to use a filter or trachea tube in such a situation can further aggravate the cough and worsen the patient's condition.

When the patient's condition is stabilized, it is necessary to eliminate the complication as quickly as possible and, if possible, test for COVID-19. If there is a leak through the prosthesis, the patient should try to cope on his own at home. There are special plugs for the prosthesis ("like a key to a lock"), with which it is possible to block the lumen of the prosthesis. The flow will stop

immediately, but the patient will not be able to talk (aphonia will occur). The patient may be advised to eat thicker food, which can also reduce aspiration.

If the voice prosthesis has completely fallen out, then at home the patient can temporarily insert a rubber catheter or a special dilator into the shunt in order to stop aspiration (the patient should be taught these procedures in advance or informed about the possibility of their own implementation). After that, the patient, in a stable condition and in safety, can already see a doctor on an outpatient basis.

In the clinic, the patient should be tested for COVID-19. Before receiving the test results, it is better to let the patient go home, and in case of a negative result, after 48 hours, invite again and replace the prosthesis.

If the test for COVID-19 is positive, then such a patient should stay at home as long as possible and undergo special antiviral treatment. Only after complete recovery from infection is it recommended to carry out procedures for replacing the prosthesis. When working with COVID-positive patients, all staff and all procedures are advised to wear a PAPP respirator. If this is not possible, then use at least a respirator No. 95 and personal protective equipment (dressing gown, glasses, shoe covers).

#### 4. Conclusions.

In the context of the COVID-19 pandemic, patients after laryngectomy with tracheoesophageal bypass surgery with prosthetics need to be given special attention. When infected with SARSCoV-2, these patients are at a special risk group. They need special conditions in the clinic - special care and rehabilitation.

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