



Dysphagia in Patients after Total Laryngectomy

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Abstract

Theoretical basis: Total laryngectomy is the surgical procedure in which the larynx is totally removed and the airway is interrupted, respiration being performed through a tracheal stoma resulting from bringing the trachea to the skin in the lower, anterior, cervical area. This provides a complete and permanent separation of the superior part of the airway from the inferior one, resulting in voice and smell loss. The *Aim* of the study is to determine the importance of dysphagia as eating disorder in patients after total laryngectomy. **Results:** Swallowing may seem to be a simple process, yet it involves complex stages. Difficulty in swallowing is called dysphagia, and it involves an inability to manage the entire process of eating food of normal consistency. Dysphagia, or impaired swallowing function, has been established as a predominant negative sequel following laryngectomy. The psychosocial aspects of dysphagia, which arise as a consequence of long-term swallowing dysfunction and their ultimate impact on a patient's quality of life have received minimal attention in the literature. Laryngectomy patients who presented with persistent dysphagia reported significantly higher levels of disability than those patients who could tolerate a normal diet. Laryngectomy patients with dysphagia reported that the prolongation of swallowing impairments following the postoperative phase had affected their ability to fulfill certain social, educational, and/or family roles; decreased their self-confidence and self-esteem; and resulted in poor ability to achieve their potential in certain situations. **Conclusion:** Dysphagia is very important complication in patients after total laryngectomy which can affect physical and mental recovery.

Key words: Dysphagia, total laryngectomy, complication

Literature review

Total laryngectomy is the surgical procedure in which the larynx is totally removed and the airway is interrupted, respiration being performed through a tracheal stoma resulting from bringing the trachea to the skin in the lower, anterior, cervical area. This provides a complete and permanent separation of the superior part of the airway from the inferior one, resulting in voice and smell loss. This surgery is addressed, mainly, to advanced laryngeal malignancy or malignancy of adjacent anatomical structures, but can be also practiced in the case of post-traumatic laryngeal stenosis, insurmountable by other methods or cases of benign, extensive tumours with malignancy potential (recurrent laryngo-tracheal papillomatosis). The skin incision used for total laryngectomy is the Gluck – Sorenson U-shaped incision. The starting point of the incision is located at the apex of the mastoid or lower, at the angle of the mandible, continued on the anterior border of the sternocleidomastoid muscle up to 1 – 2 cm above the upper edge of the sternal notch; it is continued symmetrically to the other side.^{1,2} If the tracheotomy has not been performed in a previous intervention, it will be performed immediately after lifting the cervical musculocutaneous flap. The next step is represented by the dissection of the lymph nodes, according to each case, which should be radical neck dissection, a modified radical neck dissection or a selective neck

dissection.^{2,3,4} After the dissection of the lymph nodes the strap muscles are sectioned at the level of the hyoid bone and mobilized in the inferior part of the neck until the end of the intervention when they will be used to cover the neopharynx, in multiple layers. After the disinsertion of the muscles from the surface of the thyroid cartilage is done, the pharyngeal constrictor muscles are cut from the posterior edge of the cartilage. A thick thread is passed through the thyro hyoid membrane and the larynx is tractioned to the inferiorly in order to expose the hyoid bone. The suprahyoid, infrahyoid muscles and connective tissue are cut using a scalpel, a classic bipolar cautery or radiofrequency. This creates a tunnel under the hyoid bone through which another thick wire is passed. The pharynx is addressed at the level of the original position of the hyoid bone. In order to access the endopharynx, a gap is created between the base of the tongue and the superior border of the epiglottis. The incision line follows the aryepiglottic fold and is united with the contralateral, symmetric one, on the superior border of the cricoid cartilage. The larynx is pulled downwards, resulting in a good exposure of the pharyngeal mucosa and facilitating the placement of the first pharyngeal mucosa sutures. Maximum attention should be paid to how the mucosal

edges are brought together so that its external parts come into contact only with portions of the same kind. During or after completion of the pharyngeal suture the nasogastric feeding tube is inserted. The trachea is cut obliquely, in an obtuse angle, from the lower edge of the tracheostomy, and the larynx is removed together with the underlying section of the trachea. The lower portion of the trachea is anchored at the suprasternal skin using non absorbable thick wires. The next step consists in suturing the prelaryngeal muscles, previously dissected with separate, absorbable threads. The anterior cervical flap is lowered and anchored to the trachea.⁵

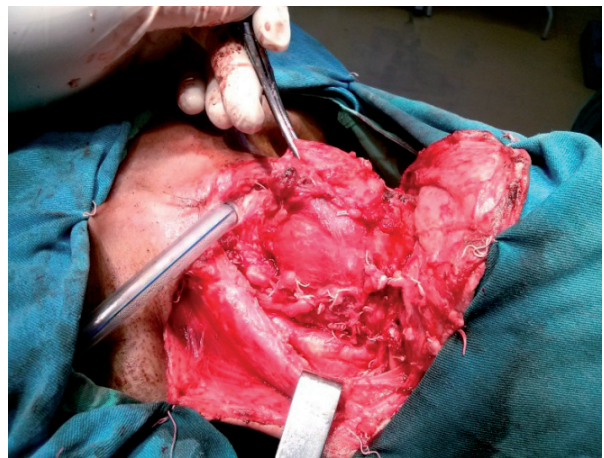


Fig. 1. Total laryngectomy



Fig. 2. Total laryngectomy

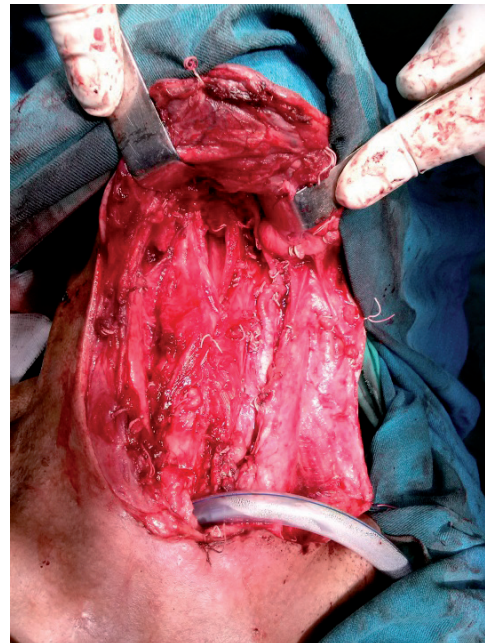


Fig. 3. Total laryngectomy

Swallowing may seem to be a simple process, yet it involves complex stages. It is a dynamic process of short duration, and is divided into four parts: the

preparatory phase, the oral phase, the pharyngeal phase, and the esophageal phase.⁶ The swallowing process begins with the voluntary movements of



the oral phase, and it continues in an involuntary manner, in the pharyngeal and esophageal phases. Difficulty in swallowing is called dysphagia, and it involves an inability to manage the entire process of eating food of normal consistency.⁷ Dysphagia has several causes: dysphagia of mechanical origin is generally due to trauma, or is a consequence of the resection of head and neck tumors.⁸

Laryngectomy patients do not necessarily complain of difficulty in swallowing. However, the small deviations resulting from the surgery may require modifications to the consistency of their food, in order to make it easier to eat. Thus, such patients usually prefer soft or liquid diets in order to facilitate the eating process, and tend to avoid certain types of food, particularly solids, that are more difficult to swallow, especially when there are mechanical dysfunctions associated. Such dietary changes may impair the patient's quality of life.

The treatment following surgery for the removal of cancer may often be radiotherapy. This may cause subsequent reactions such as necrosis of the tissue, edema of the larynx and fibrosis or hypertonia around the pharyngoesophageal and/or esophageal sphincter. The passage of the food products to the esophagus may thus be hindered because of the reduction in extent of the peristaltic movements.⁸ Along with the radiotherapy, it may be advisable to use a nasogastric tube, or even to modify the consistency of the food consumed. Weight loss occurs if the alterations persist or if there are acute complications in the irradiated tissue, which would generally consist of necrosis of the tissue.⁸

Dysphagia in total laryngectomy cases may be related to tumor recurrence,^{7,10} presence of a second primary tumor in the esophagus, rigidity of the pharyngeal musculature due to radiotherapy, formation of a pseudoepiglottis,¹¹ or regurgitation of food and uncoordinated contraction of the pharyngeal constrictor muscles.¹⁰

Dysphagia, or impaired swallowing function, has been established as a predominant negative sequel following laryngectomy.^{12,13,14,15,16} Despite this, few investigations have specifically examined the nature of the presenting dysphagia, including post-operative and long-term complications, patterns of recovery, or long-term dietary outcomes. In addition, the documented incidence figures for dysphagia following total laryngectomy are noted to vary widely from study to study. Presently, the incidence of dysphagia following total laryngectomy has been reported to range from 10% to 60%.¹⁷

The psychosocial aspects of dysphagia, which arise as a consequence of long-term swallowing dysfunction and their ultimate impact on a patient's quality of life have received minimal attention in the literature. The restoration of the ability to swallow and eat normally by mouth is critical for full social rehabilitation of patients,¹⁸ and the inability for some patients to return to a normal diet following surgery can have a negative impact on quality of life.¹³ Ackerstaff et al¹² evaluated the functional disorders and lifestyle changes following total laryngectomy and found that as many as 25% of patients report alterations to their diet, including avoidance of certain consistencies as well as modifications to their style of eating. Investigations have also shown that these monotonous dietary changes can often lead to reduced appetite and weight loss, which ultimately result in poor quality of life.¹³

Weight loss soon after surgery is often due to the period of adaptation experienced by the patient, because of the use of a feeding tube until rehabilitation has been completed and the patient returns to oral ingestion. During this period, the patient may also be given radiotherapy, which can cause swelling of the affected area, pain during swallowing, or xerostomia, among other complications.⁸

Since the impact of the removal of the larynx is enormous and not restricted to just one alteration, it is to be expected that patients might have several types of complaints, problems and compensation. There is also difficulty in communication, which is probably the function that is most jeopardized. Because of the communication difficulties, the importance of eating problems may be minimized in the eyes of patients and the attending team, even to the point of neglecting such alterations during consultations.

Laryngectomy patients who presented with persistent dysphagia reported significantly higher levels of disability than those patients who could tolerate a normal diet. Those patients with a perceived disability reported an inability to manage normal dietary consistencies, the need to implement compensatory strategies to facilitate their swallowing, or the dependence on additional nutritional supplements. For laryngectomy patients with persistent swallowing impairments, the results also reflected poor quality of life with the perception of higher levels of handicap and distress than the laryngectomy patients who experienced normal long-term swallowing function. Laryngectomy patients with dysphagia reported that the prolongation of swal-

lowing impairments following the postoperative phase had affected their ability to fulfill certain social, educational, and/or family roles; decreased their self-confidence and self-esteem; and resulted in poor ability to achieve their potential in certain situations. Considering that eating is a crucial component not only in sustaining nutritional needs, but also in socializing and enjoying lifelong traditions, all of these patients experienced impaired quality of life as a result of prolonged swallowing dysfunction.¹⁶ Furthermore, reduced quality of life was also evident in the increased reports of anger, frustration, embarrassment, concern, and withdrawal in laryngectomy patients with dysphagia, which was consistent with some reports that patients with cancer find eating to be more distressing than nourishing. Some patients who presented with the ability to manage a normal diet at follow-up and reported no

swallowing disability perceived that they continued to experience a mild level of handicap and distress related to their swallowing function. The interviews with these patients revealed that although the patients could manage a normal diet, compensations such as taking additional time to complete a meal or drinking increased amounts of liquids were viewed as negative changes. Other psychological and emotional issues (eg, the lack of „taste“ of foods) was also reported by some as still impacting negatively on the social and pleasurable aspects of swallowing and eating postsurgery. These findings demonstrate that even mild alterations to normal eating and swallowing behaviors can alter a patient's perceptions about their quality of life. They also highlight how levels of disability do not always correspond to the perceived levels of handicap and distress.¹⁹

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