



ISSN: 2230-9926

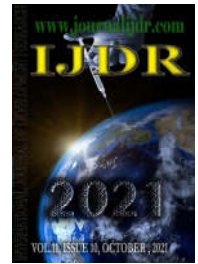
Available online at <http://www.journalijdr.com>

# IJDR

International Journal of Development Research

Vol. 11, Issue, 10, pp. 51126-51128, October, 2021

<https://doi.org/10.37118/ijdr.23037.10.2021>



RESEARCH ARTICLE

OPEN ACCESS

## ORGAN PRESERVATION SURGERY IN LOCALLY ADVANCED GLOTTIC CANCER: A CASE REPORT

Eduardo Antônio Barbosa de Andrade<sup>1</sup>, Dr. Marco Antônio Cruz Rocha<sup>1</sup>, Dra. Lia Mizobe Ono<sup>1</sup>,  
Luana Mattana Sebben<sup>2,\*</sup> and Juliana Costa dos Santos<sup>2</sup>

<sup>1</sup> Fundação Centro de Controle de Oncologia do Estado do Amazonas, Manaus, AM, Brazil

<sup>2</sup> Fundação Hospital Adriano Jorge, Manaus, AM, Brazil

### ARTICLE INFO

#### Article History:

Received 01<sup>st</sup> August, 2021  
Received in revised form  
16<sup>th</sup> September, 2021  
Accepted 04<sup>th</sup> October, 2021  
Published online 30<sup>th</sup> October, 2021

#### Key Words:

Head and Neck Neoplasms,  
Carcinoma, Squamous Cell,  
Neoplasm Staging,  
Glottis, Case Reports.

\*Corresponding author:  
Luana Mattana Sebben.

### ABSTRACT

**Introduction:** Laryngeal cancer tends to affect men over 40 years of age who have associated risk factors such as long-term smoking and alcohol consumption. About 2/3 of the lesions appear in the true vocal fold, which configures glottic cancer. Based on the TNM classification, the treatment of glottic cancer in the last decades has been defined with the objective of preserving a larynx and improving the quality of life without affecting the rates of survival, always considering the clinical and radiological data of each patient in order to achieve the best chance of cure and preservation of organ function. **Methodology:** This report was based on that analysis of medical records, diagnostic methods used and literature review. **Case description:** Male, 57 years old, complaining of dysphonia and coughing for 5 months, with smoking and alcohol use data. Videolaryngoscopy showed an ulcerative and infiltrating lesion in the left vocal fold with paralysis of the this fold, which was submitted to a biopsy that showed moderately differentiated squamous cell carcinoma. Staging was performed with imaging tests and clinical evaluation showed T3 glottic cancer. In view of the lateral predominance of the lesion, the recommendation of total laryngectomy was replaced by preservative surgery (partial frontolateral hemilaryngectomy) with therapeutic success and maintenance of laryngeal functionality for 2 years without recurrence of the tumor. **Conclusion:** The individualized treatment of laryngeal cancer is extremely important because the selection of specific cases of locally advanced tumors for the use of preservative techniques allows for the conservation of the organ with its functionality intact and maintains it free from disease.

Copyright © 2021, Eduardo Antônio Barbosa de Andrade et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Citation:** Eduardo Antônio Barbosa de Andrade, Dr. Marco Antônio Cruz Rocha, Dra. Lia Mizobe Ono, Luana Mattana Sebben and Juliana Costa dos Santos, 2021. "Organ preservation surgery in locally advanced glottic cancer: a case report", *International Journal of Development Research*, 11, (10), 51126-51128.

## INTRODUCTION

According to the Brazilian National Cancer Institute (Tipos de cancer, 2021), laryngeal cancer tends to affect men over 40 years of age who have associated risk factors such as long-time smoking and alcoholism, and it is one of the most common neoplasms of the head and neck region. Of the malignant tumors that occur in this area, about 25% are located in the larynx, and these represent 2% of all malignant diseases. In recent decades, treatment of laryngeal cancer has been defined with the aim of preserving the larynx and improving the quality of life without harming survival rates, while always considering the clinical and radiological data of each patient in order to achieve the best chances of cure and the preservation of organ function. The wide variability of reconstruction options available today gives head and neck surgeons the ability to resect tumors with larger margins than in the past and also obtain better functional results (Pignatari, Anselmo-Lima, 2018).

The standard vertical laryngectomy encompasses a series of procedures with the common characteristic of performing the vertical transection of the thyroid cartilage and resection of the extended glottis into the paraglottic space, resulting in removal of the vocal fold, neighboring subglottis, ventricle, band and aryepiglottic fold. When, in addition to these structures, the anterior commissure is also resected, the procedure is known as a frontolateral partial laryngectomy. In general, this procedure is recommended for patients in stage T1-T2; however, some authors consider that patients in stage T3 with fixation of the vocal fold caused by direct invasion of the tumor in the thyroarytenoid muscle may benefit from such a surgical modality.

### CASE DESCRIPTION

The patient, F. J. M., 57 years of age, came as a referral from the city of IPIXUNA in the interior of the Amazonas state to the Oncology Control Center Foundation (FCECON) in Manaus with a complaint of

significant dysphonia that had evolved for 5 months. During the consultation, the patient presented with breathy voice and a sporadic cough. The patient was a smoker for eight years and an alcoholic for 5 years. During the investigation, videolaryngoscopy was performed, which showed an ulcero-infiltrative lesion in the left vocal cord with paralysis of the left vocal cord. In the propaedeutic exam, laryngeal biopsy was performed under laryngeal suppression where material was collected for biopsy and a moderate volume lesion (2-4cm) was observed, and which was restricted to the left hemilarynx without compromising the anterior commissure, but extending to the supraglottic larynx on the left arytenoid and aryepiglottic fold. The biopsy results confirmed a moderately differentiated squamous cell carcinoma (CEC G2). In the staging, contrast computed tomography showed an ulcerated, infiltrative lesion of 3.9 cm with its epicenter on the left lateral wall of the larynx invading the false and true vocal cords, as well as the laryngeal ventricle, thickening and invading the aryepiglottic fold, pyriform sinus and arytenoid cartilage, without apparent cricoid or subglottic involvement, without apparent extralaryngeal extravasation and without compromised lymph nodes. Anatomically it was staged as T2N0M0, but, in view of the clinical presentation and the referral laryngoscopy, new laryngoscopy was performed that corroborated the left vocal cord paralysis, functionally staging it as T3N0M0.

The initial operative proposal would be a total laryngectomy with bilateral prophylactic lateral cervical removal (II, III and IV), but it was agreed with the patient that there would be an initial effort in the procedure in order to try to evaluate the possibility of preserving the organ in view of its peculiar lateralized presentation. We then opted for the strategy of organ preservation and performed a left anterolateral partial laryngectomy. Reconstructive tactics were used with the pre-thyroid musculature, in which the sternohyoid and sternothyroid muscles were used as flaps for reconstruction of the neolarynx and contact surface for the preserved contralateral vocal cord (right) respectively. This achieved an adequately hermetic result, which was tested using bilateral suction drains. At the end of the procedure, a nasogastric probe was installed and a protective tracheostomy was created. The patient recovered satisfactorily from the procedure and physiological functions returned to normal, with no complaints. The patient was kept under observation in the ward and received speech therapy follow-up for swallowing of saliva and respiratory clearance for seven days. During this period, the monitoring of the suction drains was proved them to be successful, without loss of vacuum, without signs of fistulas and the result of the dimethylene blue test was negative, thus allowing the patient to retain the drains, and the patient was subsequently discharged.

The patient underwent an intense follow-up program by a speech therapy team, which entailed multiple weekly visits and training sessions for swallowing, air protection and phonation. The patient was able to maintain the occluded tracheostomy, with good phonation capacity and no significant aspiration about one month after the procedure, which later evolved to removal of the tracheostomy. On return, and after a biopsy, the patient was staged as glottic cancer T3N0M0 without extra-laryngeal involvement and without adverse characteristics. We opted for follow-up without any type of adjuvant, in accordance with international protocols. The patient currently is in his third postoperative year, without signs of disease, with full respiratory capacity without the tracheostomy, excellent feeding without a tube, with full ability to protect airways and without pulmonary sequelae, as well as good phonation with a breathy voice.

## DISCUSSION

Squamous cell carcinoma of the larynx represents about 90% of laryngeal neoplasms, and approximately two thirds of these arise in the region of true vocal fold, which makes the glottis the most frequent location for this type of neoplasm (Tipos de câncer, 2021). Although glottic cancer is associated with a lower risk of lymphatic spread and thus a better prognosis, laryngeal cancers continue to be diagnosed regularly at a locally advanced stage, despite the

emergence of dysphonia being an early sign of lesion. This leads to an impairment of laryngeal functions inherent to the tumor and also due to treatment (Pezzuto, 2015). In this reported case, the patient had dysphonic symptoms for 5 months, making the symptom an important factor for early diagnosis. However, surgical procedures that were historically drastically radical and non-preservative have progressively evolved into functional, preservative, but also curative techniques. Preservative laryngeal surgery involves a variety of procedures, including partial laryngectomy, which provides a better quality of life to the patient, avoiding dependence on prostheses and permanent aphonia. According to the anatomical site of the tumor and its extent, several types of open partial laryngectomy have been developed, and are aimed at appropriate tumor resection and preservation of laryngeal functions (Dawson, 2019). Based on the current principle of organ preservation in the treatment of laryngeal neoplasms, where the best oncological result with optimal functional preservation is the aim, non-surgical protocols, which involve chemotherapy and radiotherapy, especially with the advent of new techniques such as radiotherapy with modulated intensity (IMRT), have stood out and taken a position at the forefront of surgical procedures (Berwouts, 2016). Patients with early stage tumors benefit from the success of non-surgical approaches based on organ preservation, where chemoradiotherapy in patients with glottic cancer at T1 and T2 stages have shown better disease-free survival rate and better local control in relation to surgical intervention (6). Given the current preference for techniques based on organ preservation, total laryngectomy is still used in the treatment of lesions with extra-laryngeal extension in patients with precarious laryngeal function, pre-treatment and standard salvage therapy for recurrent tumors after preservative techniques (Bozec, 2020). The development of more accurate techniques for the diagnosis of laryngeal lesions has ensured a better selection of patients and has allowed the institution of more conservative surgical techniques. Since the 80s, it has become evident that in selected cases of locally advanced laryngeal neoplasms (stage T3-T4) total laryngectomy was no longer necessary, and can be replaced in very well selected cases by preservative surgeries that conserve the functionality of the organ, without significantly affecting survival rates (Mannelli, 2018).

In the classification of glottic cancer T3, there is a heterogeneous group of lesions that can paralyze vocal folds, invade paraglottic structures and anterior commissure T3 (Kim, 2018). In the reported case in question, the patient presented extralaryngeal involvement, with invasion of the arytenoid cartilage, and fixation of the vocal fold, caused by invasion of the paraglottic structures. The choice of non-surgical modalities in these patients is still controversial. This is due to the fact that the maintenance of local anatomy does not mean that the functionality will be preserved. An example of this is the case of glottic cancer T3 with fixation of the vocal cords indicating deep tumor invasion, in which preservative, non-surgical treatments, such as radiotherapy, do not preserve laryngeal function (fibrosis with loss of phonatory function), despite the permanence of the anatomical structure and thus a complete laryngectomy is traditionally recommended. Taking this into account, we have the reported case in which the patient presented a stage T3 glottic tumor with vocal fold fixation and arytenoid cartilage invasion, which initially would have required a total laryngectomy. However, when evaluating in detail the extent of the lesion, it was possible to use a preservative surgical technique (frontolateral partial hemilaryngectomy with a flap of pre-thyroid musculature), and we were thus able to preserve the laryngeal structure and maintain the functionality of patient. The patient has been free of disease for 3 years post-procedure and has his laryngeal functions (sphincter, phonatory and respiratory) preserved.

## CONCLUSION

The management of laryngeal cancer is extremely complex when trying to reconcile the best possible oncological results while maintaining the best post-treatment organ functionality. Although the emergence of preservative techniques aimed at conserving the organ has considerably changed the management of laryngeal cancer, older

techniques, such as total laryngectomy, are still an alternative in certain cases and in places where cutting-edge technologies are not yet available, and may benefit some patients. The selection of patients with glottic cancer that are locally eligible for the institution of preservative techniques has been extremely important, as was the case reported in question, where curative treatment was possible with maintenance of laryngeal functionality and better quality of life for the patient; however, we must emphasize the importance of individualization of each patient's treatment.

## REFERENCES

- Tipos de câncer | INCA - Instituto Nacional de Câncer [Internet]. [ Accessed on 10<sup>th</sup>April, 2021]. <https://www.inca.gov.br/tipos-de-cancer/cancer-de-laringe>
- PIGNATARI, ANSELMO-LIMA. Tratado de Otorrinolaringologia e Cirurgia Cérvico-facial da ABORL-CCF. Elsevier; 2018.
- Pezzuto F, Buonaguro L, Caponigro F, Ionna F, Starita N, Annunziata C, *et al.* Update on Head and Neck Cancer: Current Knowledge on Epidemiology, Risk Factors, Molecular Features and Novel Therapies. *Oncology*. 2015;89(3):125–36.
- Dawson C, Pracy P, Patterson J, Paleri V. Rehabilitation following open partial laryngeal surgery: key issues and recommendations from the UK evidence based meeting on laryngeal cancer. *J Laryngol Otol.*; 2019;133(03):177–82.
- Berwouts D, Swimberghe M, Duprez F, Boterberg T, Bonte K, Deron P, *et al.* Intensity-modulated radiotherapy for early-stage glottic cancer: IMRT for early-stage glottic cancer. *Head Neck*. April 2016;38(S1):E179–84.
- Chung SY, Kim KH, Keum KC, Koh YW, Kim S-H, Choi EC, *et al.* Radiotherapy Versus Cordectomy in the Management of Early Glottic Cancer. *Cancer Res Treat*. 15 de janeiro de 2018;50(1):156–63.
- Bozec A, Culié D, Poissonnet G, Dassonville O. Current Role of Total Laryngectomy in the Era of Organ Preservation. *Cancers*. 3 de março de 2020;12(3):584.
- Mannelli G, Lazio MS, Luparello P, Gallo O. Conservative treatment for advanced T3–T4 laryngeal cancer: meta-analysis of key oncological outcomes. *Eur Arch Otorhinolaryngol*. janeiro de 2018;275(1):27–38.
- Kim BH, Park SJ, Jeong W-J, Ahn S-H. Comparison of Treatment Outcomes for T3 Glottic Squamous Cell Carcinoma: A Meta-Analysis. *Clin Exp Otorhinolaryngol*. 1<sup>o</sup> de março de 2018;11(1):1–8.

\*\*\*\*\*