

SUPRATRACHEAL LARYNGECTOMY WITH TRACHEOCRICOHYOIDOEPIGLOTTOPEXY: FUNCTIONAL AND EPIDEMIOLOGICAL OUTCOMES OF SWALLOWING

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INTRODUCTION AND OBJECTIVE

Laryngeal squamous cell carcinoma accounts for 5% of all tumors diagnosed worldwide, with a significant incidence in men aged 55-65 years. Supratracheal partial laryngectomy (PSTL) is a current alternative for surgical control, traditionally prescribed for the treatment of laryngeal tumors with subglottic extension of intermediate / advanced stages. Its reconstruction is, among variations, by a tracheocricohyoidoepiglottopexy (THEP). In cases, the resection is broader than is necessary for the technique, adding the nomenclature of the procedure and extended term. The studies on supra-linear laryngectomy extended in reconstruction are scarce, the present ones are emphasized as surgical techniques with little or no deepening in terms of results. The present study aims to characterize the population submitted to the PSTL in THEP reconstruction and to evaluate functional aspects of swallowing.

METHOD

This is a cross-sectional observational study to evaluate the epidemiological aspects and functional alterations of patients under treatment of laryngeal neoplasms at the National Cancer Institute (INCA), located in the city of Rio de Janeiro, Brazil. Patients of both sexes, enrolled in the Head and Neck Surgery Section of the Hospital of Cancer I (HCI/INCA), from September 1995 to July 2017, diagnosed with laryngeal neoplasm and submitted to the extended PSTL in THEP reconstruction, were included.

Patients were excluded if they had an active disease at the time of the evaluation, less than 18 years old, those who did not sign the informed consent form, those who were not located, those who died and those who underwent another surgical procedure in the laryngeal region after extended PSTL.

This study was approved by the Research Ethics Committee of the institution, number 26331314.2.0000.5274. For mapping the epidemiological aspects, a study of the medical records of each individual and consultation of the surgical system of the determined period was carried out.

Videofluoroscopy of swallowing (VFD) was used for dynamic, objective and quantitative analysis of swallowing. The examinations were performed with the Siemens Axion Remote Controller X-ray Icons MD (Serial Number 13020) and the analyzes were performed according to the Videofluoroscopic Deglutition Evaluation protocol, based on Logemann (1998), and adapted by the Speech and Hearing Therapy of the Head and Neck Service of the Hospital das Clínicas of the Faculty of Medicine of the University of São Paulo. Contrast was offered in glass using dilutions of Barium Sulphate (SB) 100% Bariogel®, Mineral Water and Resource® Thicken Up Clear. The evaluation was made by offering three consistencies: (1) liquid in 5ml (2.5ml water + 2.5ml SB), 10ml (5ml water + 5ml SB) and 20ml (10ml water + 10ml SB); [2] semiliquid in 5ml SB, 10ml SB and 20ml SB; (5ml SB + 1.2g Thickener), 10ml (10ml SB + 2.4g Thickener) and 20ml (20ml SB + 3.6g Thickener). For standardization of the test, due to the existence of edentulous individuals, no food was offered in the solid consistency. The subjects were placed in lateral view, being as close as possible to the table top and the intensifier, thus avoiding distortions of the fluoroscopic image.

The National Outcomes Measurement System of the American Speech-Language Hearing Association (ASHA NOMS) was used as a subjective and complementary instrument of oral ingestion analysis since it is widely accepted in the evaluation of oropharyngeal dysphagia and is based on clinical observation, whose scores vary from 1 (less functional) to 7 (normal). Its usual application is as a guide to the appropriate nutritional strategy at the time of evaluation, however, it does not represent an objective and quantitative tool of the symptom.

RESULTS

Ten male patients were evaluated, with ages between 52 and 83 (average of 68 ± 8,459) and median of 69; 80% smokers and alcoholics at diagnosis; 50% had a family history of cancer; 90% presented histological type epidermoid carcinoma. With regard to staging, T1 10%, T2 60%, T3 30%. One patient (10% of the sample) required a permanent tracheostomy and none required alternate feeding routes (Table 1).

The videofluoroscopic findings demonstrated that: only 30% of the patients in the group had aspiration at the moment of the evaluation; 100% presented stasis on tongue base; 30% stasis in posterior pharyngeal wall; 80% stasis in vallecula; 80% stasis in arytenoid (s); 40% stasis in upper esophageal sphincter; and 80% stasis in pyriform recesses (Table 2). All the aspirative patients had ages greater than 65 years, 67% of whom had a family history of cancer and stasis in almost all aspects evaluated. The results found in the ASHA NOMS Scale showed that all patients in this study are exclusively in oral nutrition and hydration, namely: 50% in level 7; 20% at level 6; 20% at level 5; and 10% at level 4.

Table 1 - Demographic and Clinical Variables.

Variables	Patients (n=10) n(%)
Gender	
Male	10(100)
Female	0(0)
Age related to May 2018	
≤ 65	2(20)
≥ 65	8(80)
Scholarity	
Illiterate	0(0)
≤ 8 years	2(20)
≥ 8 years	8(80)
Family history	
Yes	5(50)
No	6(60)
Smoking at diagnosis	
Yes	8(80)
No	2(20)
Ethnicist at diagnosis	
Yes	8(80)
No	2(20)
T1	1(10)
T2	6(60)
T3	3(30)
T4	0(0)
Clinical Staging	
I	1(10)
II	6(60)
III	3(30)
IV	0(0)
Histological Type	
Epidermoid Carcinoma	9(90)
Others	1(10)
Permanent Tracheostomy	1(10)

Table 2 - Detailed results of Videofluoroscopy of Deglutition.

Patient (n=10)	ASHA NOMS	Aspiration	Stasis*					
			Arytenoid (s)/ Penetration	Posterior Pharynx wall	Vallecula	Language Base	Upper Esophageal Sphincter	Piriformes Recess
1	7	1	1	1	1	1	1	1
2	7	1	1	0	1	1	1	1
3	4	1	1	0	1	1	1	1
4	7	0	1	0	1	1	0	1
5	5	0	1	1	1	1	1	1
6	7	0	0	0	1	1	0	1
7	6	0	1	0	1	1	0	1
8	6	0	1	0	1	1	0	0
9	7	0	0	0	0	1	0	1
10	5	0	1	1	0	1	0	0
n(%)	-	3(30)	8(80)	3(30)	8(80)	10(100)	4(40)	8(80)

0 = No;
1 = Yes;
ASHA NOMS = Scale National Outcomes Measurement System da American Speech-Language Hearing Association;
*according to the location or anatomical region;

DISCUSSION

With the prevalence of infiltrative or ulcerative T2 and T3 tumors (90%), the findings of this study are in agreement with the literature, which states that this surgical procedure is traditionally prescribed for the treatment of tumors of intermediate and advanced stages. Only one patient required a permanent tracheostomy, demonstrating, in the sample evaluated, the effectiveness of the reconstruction of anatomical structures and functional maintenance, consistent with the specialized literature of horizontal open partial laryngectomies, even with the broader surgical extension than expected.

No studies were found that addressed functional results of Extended LPST. However, based on horizontal open partial laryngectomies, it can be inferred that the most frequent functional complications would be those related to swallowing. Thus, the presence of stasis and aspiration in the VFD analysis of patients in the present study was already predicted by some authors. Regarding surgical reconstruction, 90% of the patients evaluated did not present a need for tracheostomy maintenance and all maintained oral feeding and hydration exclusively, representing success, since the result is the main focus of the technique described as a viable alternative to total laryngectomy.

According to the ASHA NOMS scale, only one patient (10%) needs moderate dietary restrictions (level 4), adaptations or limitations of consistency of oral feeding (aspiration patient). The other aspiration patients (two) are at level 7, with stasis in the structures represented in Table 2.

The general contraindications for PSTL are uncontrolled diabetes mellitus, severe chronic obstructive pulmonary disease, psychiatric syndromes, personal motivations, neurological problems, ability to cough up and / or swallow or severe cardiac function. The group enrolled to perform the procedure has a lower risk of complications after treatment. The literature suggests that advanced age, an important cut-off point for relative surgical indication, is not considered by itself an exclusion criterion for PSTL. In the present study, all aspiration participants were older than 65 years.

The PSTL Extended in THEP reconstruction is a highly complex procedure used in carefully selected patients and requires follow-up by a specialized multiprofessional team at all times of treatment. The success of the management of the patients of the study, who present nutrition and hydration exclusively by oral route, is given with constant speech therapy at all times of the treatment in the reference hospital in oncology. These patients do not present neurological alterations, are ambulatory, non-institutionalized, clinically stable and, therefore, not considered fragile individuals. It is important to note that the presence of aspiration and stasis in these individuals until the study was done did not cause greater clinical repercussions and they adapted to the neolarynx and the new swallowing process.

CONCLUSION

The high incidence of cancer in the association between smoking and alcoholism reinforces the lack of public policies for the prevention of new smokers and the rehabilitation and awareness regarding passive or active smoking. The prevalence of males affirms the need to consolidate the National Policy for Integral Attention to Men's Health in Brazil, already in force, as well as the awareness of this public for its real importance.

Considering the extent and behavior of the tumors of the patients of this study, all would be listed in any other institution to perform a total laryngectomy. This procedure provides for greater areas of resection and, therefore, greater functional impact on the life of individuals. Through this study, it was observed that the effect on swallowing, under the auspices of speech therapy, remains after the outcomes associated with the treatment. However, the presence of aspiration and stasis are managed with extreme care and caution, justifying the complaints related to the speech therapy work and reinforcing its importance for the improvement of the quality of life, independence and swallowing function of the patients. The PSTL extended in THEP reconstruction is a viable alternative to total laryngectomy, with presence of functional neolarynx in the selected group.

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