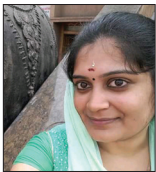


Case Report

Role of speech language pathologist in the speech and swallowing assessment and management of laryngectomy - presented with a case report

Perumal Santhanam Divya, R. Sai Sreya

Department of Speech Language Pathology, MERF Institute of Speech and Hearing (P) Ltd., Chennai, Tamil Nadu, India.



*Corresponding author:

Perumal Santhanam Divya,
New no. 1, old no. 1/1,
South Canal Bank Road,
Mandaivelipakkam,
Chennai - 600 028, Tamil Nadu,
India.

divyapsmay14@gmail.com

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ABSTRACT

The primary goal of a speech-language pathologist in a laryngectomy is to restore the clients' functional speech ability, facilitate comfortable swallowing, and, thus, improve the quality of life. The client, a 65-year-old female, came to the department of speech-language pathology for evaluation. She was diagnosed with carcinoma in the glottic and supraglottic region and had undergone. Total laryngectomy with hemithyroidectomy with primary tracheoesophageal puncture and voice prosthesis inserted. The client had lost her voice completely and had swallowing difficulty and presented with the complaint of food getting stuck in the throat and increased duration of swallowing.

Keywords: Laryngectomy, Swallowing, Speech

INTRODUCTION

Cancer is the uncontrolled, rapid growth of the malignant cells.^[1] As cancer cells grow and divide, they accumulate and form tumors destroying and invading normal tissue.

Cancer of the larynx is called laryngeal cancer.^[2] Cancer can develop in any region of the larynx – glottis, subglottis, and supraglottis.

Head-and-neck cancer is the sixth most common cancer worldwide, with oral cancer being the most common site and laryngeal cancer being the second within the head-and-neck region.

Annual global estimated figures in laryngeal cancer are 136,000 new cases and 73,500 deaths. Worldwide, laryngeal cancer occurs mostly in men, with a greater male-to-female ratio (almost 7:1) than for any other site.^[3-5]

The most common causes of laryngeal cancer are smoking, alcohol consumption, tobacco consumption, gene mutation, and chemical exposure.

The most common symptoms of laryngeal cancer are swallowing difficulty, lump in the neck, tenderness, respiratory difficulty, change in voice quality, fullness in cricothyroid or thyrohyoid membrane, presence of lump at the base of tongue, aspiration, and breathing difficulties.

The treatment for laryngeal cancer includes surgical and non-surgical procedures (such as chemotherapy or radiation therapy) or combination of both.

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Table 1: Oral peripheral mechanism examination

Articulators	Structure	Function
JAW	Symmetry–Normal	Range of motion – Restricted •Movement – Restricted
Teeth	Missing teeth – Absent Alignment–Normal Malocclusion–Underbite	
Labial	Symmetry–Normal	Range of motion–Restricted Lip spread /i/–Restricted Lip closure at rest–Absent Lip rounding /u/–Adequate
Lingual	Surface color–Normal Size–Normal Asymmetry–Absent	Range of motion–Restricted Protrusion–Restricted Elevation of tip–Present Point to right side–Absent Point to left side–Absent
Hard and soft palate	Color – Normal Arch height–High arched Symmetry at rest–Symmetrical	Symmetry at movement–Symmetrical

The primary indication for laryngectomy is the presence of a malignant tumor of a size and in a location in the larynx which requires surgical removal of the structure. Size, location, invasiveness, and spread of the tumor will determine the extent of the surgical excision required. A laryngectomy may be medically indicated for reasons other than malignancy, such as severe laryngeal trauma, non-functional larynx with intractable aspiration, or irreparable supraglottic stenosis. Laryngeal trauma may be so severe that it is beyond repair. It may result from direct blow to the larynx; gunshot wounds, severe laceration that severs crucial innervations.

The rehabilitation of the laryngectomee requires the expertise of numerous specialists including speech-language pathologist (SLP), physicians, physical therapist, nurses, nutritionists, psychologists, dentist, prosthodontist, and social worker.

The primary goal of an SLP is to restore the clients' functional speech ability, facilitate comfortable swallowing, and, thus, improve the quality of life.

The assessment carried out by the SLP includes evaluating the speech mechanism, the structures and functioning of the oral mechanism, and assessing the function of the respiratory system. A detailed dysphagia assessment is carried out to check if the client has difficulty swallowing food materials of different textures, consistencies, and temperatures before and after surgery.

The management provided by the SLP will focus on providing the client with alternate modes of communication such as alaryngeal speech, esophageal speech, and tracheoesophageal speech. The clinician and client together choose the mode of communication that would best suit the client. The SLP

Table 2: Cranial nerve examination

Cranial nerve	
V Trigeminal	Sensory and motor functions are adequate
VII Facial	Sensory and motor functions are inadequate
IX Glossopharyngeal	Sensory and motor functions are inadequate
X Vagus	Sensory and motor functions are inadequate
XII Hypoglossal	Motor functions are inadequate

works on improving the ability to swallow properly, ensuring healthy nutrition, and protection against aspiration of food particles or choking.

CASE REPORT

A 65-year-old female was diagnosed with the left glottal carcinoma. She had undergone radiation therapy to treat the same. Post-radiation therapy, video laryngoscopy reported glottal swelling with vocal folds immobility. Ten years later, there was a recurrence of carcinoma in the glottic and supraglottic region. Biopsy revealed it to be squamous cell carcinoma. The client had undergone total laryngectomy with hemithyroidectomy and primary tracheoesophageal puncture. Voice prosthesis was inserted.

The client came to the department of speech-language pathology, post-surgery. A detailed evaluation was done. Oral peripheral mechanism examination [Table 1] and cranial nerve examination [Table 2] were done. Vegetative functions were assessed and the client was able to chew only

Table 3: Swallowing profile

	Liquid	Thick liquid	Puree	Honey	Semi-solid	Solid	Ground food
Delay in swallowing	Present	Present	Present	Present	Present	Present	Present
Multiple swallowing	Present	Present	Present	Present	Present	Present	Present
Nasal gurgitation	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Laryngeal elevation	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Cough	Weak	Weak	Weak	Weak	Weak	Weak	Weak
Gurgly voice	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Aspiration	Absent	Absent	Absent	Absent	Absent	Absent	Absent

on the left side. She had swallowing difficulty and presented with the complaint of food getting stuck in the throat and an increased duration of swallowing. Swallowing profile was assessed [Table 3] and the client had mild dysphagia.

Dysphagia classification scale	Classification	Characteristics
	Mild dysphagia	With mild stasis, without food consistency restriction

(Swallowing and quality of life after total laryngectomy and pharyngolaryngectomy. *Brazilian journal of otorhinolaryngology*).

The client was given swallowing therapy and effortful swallow was attempted to explore the change in swallowing mechanism. Clinically, the client reported of an improvement in the ability to swallow semisolids and solids with the maneuver.

The client was given speech rehabilitation using tracheoesophageal speech.

The goals of therapy included:

- Orienting the patient with tracheoesophageal speech
- Increasing air supply and pulmonary air-driven voicing source
- Efficient timing control in initiation and termination of voice
- Increasing vowel and word duration
- Increasing mean length of utterance

The goals undertaken eventually increased the intelligibility of speech and improved voice quality was achieved.

CONCLUSION

The total rehabilitation of the laryngectomy patient involves the interaction of a number of specialists from a multidisciplinary team. A primary participant on the team is the SLP whose role goes beyond basic speech retraining approaches to include both patient and family counseling. The SLP is directly responsible for evaluating and providing for the patient's short-term and long-term

communication needs. This involves both pre-operative and post-operative consultations. Initial pre-operative counseling with the patient as well as family or friends is usually an informational educational session discussing issues about the changes in speech and alternate forms of communication. Postoperatively, the patient is seen by the SLP to address communication, swallowing issues, and voice restoration.

The goal of speech therapy for laryngectomy patients is to find an appropriate source for sound production. The clinician and client together choose the most appropriate sound source depending on extent of surgical removal of structures, degree of tissue loss and esophageal stenosis, noise level in the communicative environment of the patient, motivation of the patient, and their personal preference.

Evaluating the swallowing function of patients with head-and-neck cancer is an important part of the assessment and management process and should be completed on all patients. A comprehensive swallowing evaluation will provide the health-care team with adequate information to guide treatment and to optimize health and nutrition, and it must be carried out frequently for 1 year after treatment as it will help in providing the patient with a positive step forward in decreasing the risk for dysphagia and aspiration. A clinical swallowing evaluation must be done before and after head-and-neck surgery as well as pre-and post-treatment with radiotherapy and chemotherapy as pre-treatment exercises have demonstrated improved swallowing functions.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms.

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Conflicts of interest

There are no conflicts of interest.

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