JMMS 2015, 2(2): 100- 107. **Review**

Differences between men and women with total laryngectomy

Bogdan Popescu[1], Șerban Vifor Bertesteanu[1], Alexandra Oana Paun[1], Cristian Radu Popescu[1], Oana Denisa Balalau[1], Panaiota Dumitrache[1], Răzvan Valentin Scaunasu[1], Cristian Balalau[2]
[1] Colțea Clinical Hospital, Department of Otolaryngology
[2] St. Pantelimon Emergency Hospital, Department of Surgery
Corresponding author: Scăunașu Răzvan Valentin, e-mail: razvan.scaunasu@gmail.com

Running title: Total laryngectomy and gender
Keywords: total laryngectomy, gender, neoplasia, quality of life, psychological profile

www.jmms.ro 2015, Vol. II (issue 2): 100- 107.
Date of submission: 2015-08-28; **Date of acceptance**: 2015-09-02

Abstract

The larynx is one of the organs that is usually involved in the tumor growth in the head and neck region and it is the second site of malignant neoplasia of the respiratory tract after the lungs. It is a well-known fact that larynx cancer is more often present in male population, with a ratio of 3:1 male/female because of the higher rate of tobacco and alcohol use. The issues related to total laryngectomy are the loss of voice, swallowing rehabilitation, reeducation of breathing through the tracheostomy, psychological alterations and social pressure. Women tend to be more affected by the presence of the tracheostomy, since general physical aspect is a major concern for modern women. Also, the emotional status of women is a plays a major role for the adherence to the therapy plan. The response to total laryngectomy by men and women is similar with slight differences in physical aspect and social reinsertion.

Introduction

Head and neck neoplasia is an important type of pathological condition that involves all of the organs of the neck with extension towards the head or to the surrounding tissues. The larynx is one of the organs that is usually involved in the tumor growth and it is the second site of malignant neoplasia of the respiratory tract after the lungs. It is a well-known fact that larynx cancer is more often present in male population, with a ratio of 3:1 male/female because of the higher rate of tobacco and alcohol use. In the UK the incidence of male larynx cancer is decreasing whereas the incidence in women is increasing, modifying the national ratio male/female at 4.5:1 (Office for National Statistics, 2008). Still, there are changes in the gender profile of the larynx cancer patient, most likely because of the increasing use of tobacco and alcohol by women. Several studies indicate that the use of drugs and the presence of the human papilloma virus lead to an increase in the numbers of larynx cancer patients (1). The age of appearance for this type of malignancy in decreasing in most studies, and this is represented in our data (2).

The larynx has several functions such as breathing, speech, swallowing, protection of the inferior airways. Depending on the site of the malignant process one or more functions are impaired. As much as 98% of malignant tumors of the larynx, in our department, are squamous cell carcinoma. The therapy management of such cases include radiotherapy, chemotherapy and surgery. Patients neglect their symptoms and go to the E.N.T. specialist in late stages of disease when the therapy options are fewer and with functional, psychological, social and family distress. Most of the patients, depending on the site of the tumor, local extension, regional spread, type of malignancy, undergo a total laryngectomy (3).

Discussion

The issues related to total laryngectomy are the loss of voice, swallowing rehabilitation, reeducation of breathing through the tracheostomy, psychological alterations and social pressure. The lack of larynx leads to a change in the lifestyle of each patient. This is the starting point of any means of

rehabilitations partly because total laryngectomy is mutilating, partly because there are individual and ethnic particularities. Men and women tend to have different states of mind regarding this type of surgery fact that needs to be taken into consideration by the surgeon and by the therapy management team.

Along with the oncological outcome of the total laryngectomy oncology surgeons need to present the patient with a plan of rehabilitation of the voice, swallowing, tracheostomy management. Most patients in this situation have a tendency to overlook the life threatening condition and be more interested in the long term changes of the voice, physical aspect, deglutition and social reinsertion. There is also a problem to be discussed about the degree of handicap that these patients have at their work-places. Pensioning is the choice most of the patients make.

Several studies concerning the quality of life of patients with laryngectomy have been conducted over a long period of time. Evidences of different studies (Jones et al 1992; Murphy et al 2007) indicate that there are minor difficulties regarding the voice early postoperative, depending on the different ways to rehabilitate the patient. Rehabilitation methods for the voice include esophageal voice (erygmophonia), the use of a digital voice transductor (laryngophone) and voice prosthesis (speech valve). There are some surgical techniques that might be used in selected cases such as the neoglottis formation with the Staffieri technique. Despite early impairment in voice rehabilitation the long term-results are satisfying for laryngectomee patients. Deleyiannis et al. suggest that in the long term most of the patients report a better general health status compared with preoperative condition. Physical and psychological status of these patients has an upward evolution towards a better quality of life. This has been suggested by de Graeff et al. The time frame in which these functional modifications no longer affect the patients at an important level is variable depending on the gender and the social support. Along with the social support family and close friends tend to improve the quality of life for these patients (4). There are some situations in with ethnic particularities lead to the out casting of these

patients. This is usually more frequent in underdeveloped countries in which access to medical data is harder.

Because there is a preponderance of male patients that undergo total laryngectomy most of the data concerning quality of life comes from this population. Women, however, respond in a different manner to this type of pathology regarding psychological issues. The incidence of larynx cancer is increasing in women population and this is the subject of new concerns regarding the risk factors distribution, associated morbidity, rehabilitation methods. This has been indicated by Gijsbers, Van Wijck, VanVliet & Kolk in 1996. Physical aspect is one area of interest when we are to compare male and female larynx cancer patients. Women tend to be more affected by the presence of the tracheostomy, since general physical aspect is a major concern for modern women. Also, the emotional status of women plays a major role for the adherence to the therapy plan. de Graeff et al. (2000), reported that laryngectomee women had a worse quality of life, emotional status and a poorer social functioning.

Swallowing

The larynx plays an important role in deglutition being the organ that protects the inferior airways from food and liquids. The upward movement of the larynx and the joining with the root of the tongue is one of the protection mechanisms. Women have smaller larynx and smaller root of tongue than men. Also the closing of the glottis is another major mechanism of protection. Total laryngectomee patients lack this mechanism because of the absence of the organ. However, deglutition is ensured by the fact that there is a total separation of the digestive pathway from the respiratory tract. The opening of the pharynx during total laryngectomy affects the autonomic innervation of the walls of the pharynx. Muscle contraction is impaired after surgery and there are second stage deglutition movements that are affected. Depending on the extension of the resection, considering that the major priority of the oncological procedure is the ”en bloc” resection of the malignant tumor, there is the possibility of extensive pharynx resection. It is considered that a successful closing of the pharynx is achieved when there are at least 2 cm of pharynx mucosa left. The larger the resection the more difficult is for the patients to swallow.

Along with the smaller dimensions of the women's pharynx this leads to bigger difficulties for women to swallow after total laryngectomy. Women have different eating habits, this meaning that meals are smaller in quantity. This has not been an issue for most women, although there are women who consider this to be a problem. There are no major differences between men and women in terms of swallowing.

Tracheostomy management and voice

The presence of tracheostomy is a major life changing event for total laryngectomy patients. The physical aspect is one of the most important things that patients complain about. The need for a good look for women, higher than in men, is one of the key aspects of the differences in the psychological profile for the two genders (5). Looks are something that a society values and women take better care of this aspect. Women from urban environment are more affected by this condition, whereas those from rural environment accept the situation more easily. There are different types of tracheal tubes with different functions, such as filters for secretions or valves to help speech. The fact that a tracheal tube is considered to be a foreign body inside the trachea means that a laryngectomee coughs more and tends to have more secretions passing through the orifice of the tracheal tube. These secretions can be infected or have a bad smell this contributing to the impairment on the psychological and physical aspect for women. Patients with total laryngectomee need to clean the tracheostomy and change their tracheal tube daily, themselves or helped by another person. It is an emotional distress for women to look at themselves in the mirror but this is an issue that most women overcome in a variable period of time (6).

Speech is one of the means by which people communicate and relate to one another, being one of the most important social skills. Voice is impaired in a laryngectomee patient so that rehabilitation is a major concern for these patients. There are some patients that refuse the surgery because they will be unable to speak, despite being advised to follow an oncological surgery based therapy plan. For some patients the loss of voice is similar to being dead. Taking this into consideration an oncology surgeon needs to be able to offer the larynx cancer patient options for voice rehabilitation. Women tend to be more affected by the loss of their voice from two perspectives: they tend to speak more than men, and

because of the fact that after voice rehabilitation their voice has different characteristic such as lower tone and roughness. The disadvantage of voice loss is better overcome by women with the help of family, close friends and favorable social environment. Phone calls are harder to make when being a laryngectomee but there are no significant differences between men and women.

Emotional status

Most of the studies performed on the quality of life from an emotional status standpoint suggest that there is a decline immediately after surgery and there is a recovery to the pre-operative status after one year (Murphy et al 2007). Coping mechanisms are different for men and women (7). Men have a tendency to make new plans with their life, to seek new goals and to address the illness as if it is a life battle. Fear of illness and death are the result of domain-specific mechanisms (Marks & Nesse, 1994; Ohman & Mineka, 2001; Seligman, 1971) with genetically influenced development from ancient times. The fear of death is more frequent in women (8). This is one aspect that might lead to less social integration, less social activities and an overall poorer psychological status.

Conclusions

The quality of life after total laryngectomies seems to be more affected for women than for men. The use of QoL questionnaires is a good tool for assessing the real impact of radical surgery for cancer patients such as larynx cancer patients. Functional and emotional implications are vulnerabilities that need to be addressed by the psychologist. The rehabilitation techniques of voice and swallowing as well as psychological rehabilitation programs are mandatory and may be particularly suited for female patients. The psychological status of larynx cancer patients may be influenced in a better way if there were to be counselling therapies started before the oncological therapy. Anxiety and depression therapy needs to be available for larynx cancer patients, not only in specialized centers but through the general practitioner's office. Social integration and social support might play an important role in the outcome of

the long-term cancer surveillance program. Salva & Kallail (1989), investigated the counselling need for both men and women and stated that usually female laryngectomies reported higher rates of fear and anxiety than men. They suggest that maybe women with total laryngectomy need to have better post-surgery counselling. There still are controversies regarding the differences between larynx cancer male and female psychological profiles, thus the need for further large scale studies for a better understanding of coping mechanisms (9).

Disclosure

No authors involved in the production of this article have any commercial associations that might pose or create a conflict of interest with information presented herein.

References

1. Verschuur HP, Irish JC, O'Sullivan B, Goh C, Gullane PJ, Pintilie M. A matched control study of treatment outcome in young patients with squamous cell carcinoma of the head and neck. *Laryngoscope. 1999,* 109(2): 249-58.
2. Schantz SP, Byers RM, Goepfert H, Shallenberger RC, Beddingfield N. The implication of tobacco use in the young adult with head and neck cancer. *Cancer. 1988,* 62(7): 1374-80.
3. Woodard TD, Oplatek A, Petruzzelli GJ. Life after total laryngectomy: a measure of long term survival, function and quality of life. Arch Otolaryngol Head Neck Surg. 2007, 133(6): 526-32.
4. Ramirez MJ, Ferriol EE, Domenech FG, Llatas MC, Suarez-Varela MM, Martinez RL. Psychosocial adjustment in patients surgically treated for laryngeal cancer. *Otolaryngol Head Neck Surg. 2003*, 129(1): 92-7.
5. Brown SI, Doyle PC. The woman who is laryngectomized: Parallels, Perspectives and Re-evaluation of Practice. *J Speech Lang Aud*. 1999. 23(2): 54-60.

6. Graham MS, Palmer AD. Gender Difference Considerations for Individuals with Laryngectomies. *Contemp Issues Commun Sci Disord. 2002*, 29: 59-67.
7. Grigoriadis S, Robinson GE. Gender issues in depression. *Annals of Clinical Psychiatry 2007*, 19(4): 247-255.
8. Maxfield M, Kluck B, Greenberg J, Pyszczynski T, Cox CR, Solomon S, Weise D. Age-Related Differences in Responses to Thoughts of One's Own Death: Mortality Salience and Judgments of Moral Transgressions. *Psychol Aging. 2007*, 22(2): 341–353.
9. Pusic A, Liu JC, Chen CM, Cano S, Davidge K, Klassen A, Branski R, Patel S, Kraus D, Cordeiro PG. A systematic review of patient-reported outcome measures in head and neck cancer surgery. *Otolaryngol Head & Neck Surg. 2007,* 136: 525-535.