

Stomal Recurrence After Total Laryngectomy

Kashif Iqbal Malik, Zubair Iqbal Bhutta And Mansoor Baseer Pal
Department of ENT, Allama Iqbal Medical college, New Campus, Lahore.
drkashifmalik2003@hotmail.com

SUMMARY

Forty five cases of total laryngectomy were analyzed to determine the possible risk factors and frequency of stomal recurrence. Pre-operative tracheostomy and delayed postoperative radiotherapy were the two important risk factors for stomal recurrence in our patients. Stomal recurrence occurred in 4 (8.89%) patients. The average time interval between laryngectomy and stomal recurrence was 10.25 months. All the patients had type-III or type-IV recurrence and all of them expired within a period of 6 months.

Key words: Carcinoma, larynx, stomal recurrence, tracheostomy.

INTRODUCTION

Recurrence of the tumor around the permanent stoma after total laryngectomy for carcinoma is a serious and fatal complication, occurring in 1.7 to 15% of the patients¹. Tumor location, size, pre-operative tracheostomy, inadequate resection and residual disease in paratracheal lymph nodes are known risk factors for stomal recurrence². It is generally associated with subglottic lesions (five fold increased risk). The risk increases with bulky transglottic tumor even in the absence of subglottic extension³. Implantation of the pre-operative tracheostomy is probably the most important risk factor⁴. The two year disease free survival falls to almost half in patients with pre-operative tracheostomy as compared to those treated without tracheostomy⁵. Once stomal recurrence is evident, tumor has already infiltrated deep under the clavicles in most of the patients. Mortality is very high in this complication due to respiratory obstruction or massive hemorrhage. Due to fatal nature of stomal recurrence, a number of measures has been suggested for its prevention. These include pre or post-operative radiotherapy to the high-risk patients, adequate resection in patients with more than 1.5 cm subglottic extension of growth and avoiding preoperative tracheostomy⁵. In type-I and II, recurrence is above the tracheostomy and extensive radical surgery may improve the survival

but once it is below the tracheostomy (type-III and IV) it is mostly inoperable (Table-1).

Table 1: Sisson's classification of stomal recurrence.

Type-I	Localized, usually as a discrete nodule in the superior aspect of the stoma.
Type-II	Extending to the oesophagus on the superior aspect of the stoma.
Type III	Inferior involvement of stoma, usually with direct extension into the mediastinum
Type IV	Inferior involvement of stoma, with lateral extension under either side of clavicle.

PATIENTS AND METHODS

Forty five consecutive patients of histologically proven squamous cell carcinoma larynx who underwent total laryngectomy between September 2000 and June 2003 at ENT Unit-2, Jinnah Hospital, Allama Iqbal Medical College, Lahore were studied for stomal recurrence.

There were 42 male (93.33%) and 3 female (6.66%) patients with an average age of 56 years (between 34 and 80 years). Topographically 4 patients (8.88%) had supraglottic, 25 patients (55.55%) had glottic and 16 patients (33.33%) had transglottic tumor. None of the patients had only

subglottic growth. However, 3 patients had subglottic extension of the growth. The tumor was exophytic with ulcerated surface in 30 patients (66.66%) and infiltrative in 15 patients (33.33%). Five patients had positive ipsilateral neck nodes at time of presentation.

The disease was staged according to the 1987 revision of the union Internationale centre le cancer (Table-2).

Table 2: Staging.

Stage	No. of patients	Percentage
T ₂ N ₁ M ₀	1	2.22
T ₂ N ₁ M ₀	1	2.22
T ₃ N ₀ M ₀	40	88.88
T ₃ N ₁ M ₀	2	4.44
T ₄ N ₁ M ₀	1	2.22

Histopathology of tumor was squamous cell carcinoma with different grades of differentiation (Table-3).

Table 3: Staging.

Degree of differentiation	No. of patients	Percentage
Well differentiated	10	22.22
Moderately	18	40
Poorly differentiated	17	37.78

Preoperative tracheostomy was done in 31 patients (68.88%) to relieve the respiratory obstruction or to facilitate the administration of general anaesthesia at the time of panendoscopy. Total laryngectomy was combined with radical neck dissection in 5 patients (11.11%) and partial thyroidectomy in 42 patients (93.33). Post-operative radiotherapy was given to 38 patients (84.44%). Different risk factors for stomal recurrence were evaluated.

RESULTS

Stomal recurrence occurred in 4 patients (8.89%). Recurrence was confirmed by wedge biopsy from the lesion under local anaesthesia. All four patients had stage-III (T₃N₀M₀) lesions with no

subglottic extension of growth. It was an exophytic growth that proved to be moderately differentiated and poorly differentiated squamous cell carcinoma in 3 and 1 patients respectively. Preoperative tracheostomy was done in all four patients to relieve the respiratory obstruction and time interval between tracheostomy and total laryngectomy varied from 2-4 weeks. Total laryngectomy with partial thyroidectomy was done in all patients. Stomal recurrence occurred after an interval of 3,7,13, and 18 months. CT Scan revealed mediastinal involvement in all patients. No surgical procedure was performed after confirming the diagnosis, since all of them had inferior stomal involvement (Type-III / IV).

One patient who had recurrence after 3 months was a case of salvage surgery. He suffered from wound breakdown and pharyngocutaneous fistula in early postoperative period, due to which postoperative radiotherapy was delayed. The other two patients also had pharyngocutaneous fistula postoperatively. Postoperative radiotherapy was advised to all the patients but two patients refused it. After stomal recurrence chemotherapy was given to all four patients while 2 patients had radiotherapy also. All four patients expired within a period of 6 months after recurrence (maximum 5.5 months and minimum 2 months).

The cause of death was massive bleeding in 3 patients and respiratory obstruction in one patient.

DISCUSSION

Stomal recurrence after total laryngectomy is one of the most serious issues in the management of laryngeal carcinoma². It occurs in 5-15% of the patients¹ 8.89% of our patients had stomal recurrence. Although higher incidence has been reported in the patients with positive neck nodes, none of the four patients in the study had a nodal involvement pre or post operatively^{1,2}.

Although exact etiology of stomal recurrence is not known but pre-operative tracheostomy, primary site and paratracheal lymph nodes metastasis are significant risk factors^{3, 7}. Since, stomal recurrence has a grave prognosis, the management is mainly focused on the prevention rather than it's treatment. All the four patients in the

study had preoperative tracheostomy – a known risk factor. Emergency laryngectomy has been advocated to avoid the preoperative tracheostomy⁸. But due to the fear of false negative results on frozen section and non-availability of frozen section at all centers, it is not practical. Moreover, second primary may be overlooked and it does not give sufficient time for the counseling of the patient and family. The use of KTP laser, to relieve the obstruction in patients requiring emergency tracheostomy has been advocated⁵. But due to its limited availability, its use has not gained much popularity. In the circumstances where preoperative tracheostomy is unavoidable, the interval between total laryngectomy and tracheostomy should be kept to minimum. All these patients should be advised postoperative radiotherapy to sterilize the area and tracheostomy should be done at a higher level and tract should be removed at the time of operation, thus creating a new tracheostome at the lower level¹⁰. All four patients were advised radiotherapy post operatively but two of them left the ward against medical advice. The postoperative radiotherapy should be started as early as possible. Three patients with stomal recurrence had other complications also i.e. pharyngocutaneous fistula thus causing an unavoidable delay in postoperative radiotherapy.

Subglottic growth is another well-recognized risk factor for stomal recurrence but none of our patients had subglottic extension of growth. In subglottic growth, there is higher incidence of paratracheal lymph node metastasis and thus higher incidence of residual disease⁷. Presence of metastasis in paratracheal lymph nodes is another known risk factor⁴. In order to avoid this complication, paratracheal nodes and tissues in tracheo-oesophageal groove should be cleared at the time of primary surgery¹¹.

The average time interval between total laryngectomy and stomal recurrence in the patients was 10.25 months. All the four patients had inferior stomal recurrence. No surgical treatment was offered to them and they were managed palliatively by radiotherapy and chemotherapy. Sisson had advocated radical surgery as the treatment of choice for type-I & type-II recurrence as it yields the most promising chance of cure^{6, 13}. Although trans-sternal

radical neck dissection and mediastinal dissection have been used for type-III recurrence¹⁴, but the results are not very encouraging and the five-year survival rate is less than 5%, while radiotherapy and chemotherapy is recommended for type-IV recurrence¹¹. The mean survival of the study patients was 4 months, which is quite less as compared to the other reports.

CONCLUSION

Prevention is the best treatment of stomal recurrence. All the risk factors should be evaluated pre-operatively and intensive follow-up should be performed for patients who had preoperative tracheostomy, paratracheal lymph node metastasis to detect stomal recurrence at an early stage and full dose post-operatively radiotherapy should be given. However, if there is stomal recurrence, multidisciplinary approach is the best option available.

Incidence can be minimized by early detection of disease, comprehensive assessment of the extent of tumor, timely adjuvant radiation therapy, adequate excision at the time of primary excision and radical excision of emergency tracheostomy tract.

REFERENCES

1. Stell PM. Prognosis in laryngeal carcinoma, tumor factors. *Clin Otolaryngol* 1990; 15: 69-81.
2. Yutaka I et al. Stomal recurrence after total laryngectomy for squamous cell carcinoma of the larynx. *Otolaryngol. Head Neck Surg* 2002 Jan; 126(1): 63-6.
3. Magnano M. Prognostic factors for head and neck tumor recurrence. *Acta Otolaryngol* 1995; 115: 833-38.
4. Rockby TJ et al. Postlaryngectomy stomal recurrence. Tumor implantation or paratracheal lymphatic metastasis? *Chin Otolaryngol* 1991; 16: 34-7.
5. MacKenzie R, Franssen E, Balogh J, Birt D, Gilbert R. The prognostic significance of tracheostomy in carcinoma of the larynx treated with radiotherapy and surgery for salvage. *Int J Radiat Oncol Biol Phys*; 1998

- Apr 1; 41(1) : 43 - 51
6. Yousaf PK, Robert HG. In: Complications in head and neck surgery. Philadelphia: WB Saunders Company 1993: pp 248-321.
 7. Jochen AW. Description and clinical importance of lymphatics of larynx. *Otolaryngol Head and Neck* 1990; 120-13.
 8. Wickham MH, Narula AA, Barton RP. Emergency laryngectomy. *Clin Otolaryngol* 1990; 15: 35-8.
 9. McCombe A, Stell PM. Emergency laryngectomy. *J Laryngol Otol* 1991; 105: 463-65.
 10. Mantravodi PVP, Skolinik EM, Applebaum EL. Complications of postoperative and preoperative radiotherapy in head and neck cancer. *Arch Otolaryngol* 1981; 107: 690-93.
 11. Emami B, Bignardi M, Spector GJ, Devineni VR, Hederman MA. Re-irradiation of recurrent head and neck cancer. *Otolaryngol Head and Neck Surg* 1986; 94: 517-20.
 12. Myers EM, Ogura JH. Stomal recurrence: a clinicopathological analysis of future management. *Laryngoscope* 1979; 89: 1121-28.
 13. Sisson GA, Bytell DE, Becker SP. Mediastinal dissection, indications and newer techniques. *Laryngoscope* 1977; 87: 751-55.
 14. Hamoir M. Mediastinal tracheostomy for recurrent cancer. In Myers E ed. *New dimensions otolaryngology head and Neck Surgery* 1985; 2: 654-56.

Authors:

Kashif Iqbal Malik
Assistant Professor
Department of ENT-2
Allama Iqbal Medical College, New Campus,
Lahore.

Address for Correspondence:

Kashif Iqbal Malik
Assistant Professor
Department of ENT-2
Allama Iqbal Medical College, New Campus,
Lahore.