

Original Research Article

Retrospective analysis of total laryngectomy with post-operative radiotherapy for CA larynx in a tertiary care centre: a case series

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Received: 02 December 2018

Revised: 07 February 2019

Accepted: 08 February 2019

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ABSTRACT

Background: Squamous cell carcinoma is the most common malignancy of the larynx. Various treatment modalities are available. Recently, total laryngectomy is a viable option as primary treatment or salvage surgery after radiotherapy than organ preservation surgeries. The aim was to analyse the results of the patients with advanced laryngeal cancers treated with total laryngectomy and postoperative radiotherapy.

Methods: It is a retrospective study from January 2015 to June 2018 with 16 patients with squamous cell carcinoma of larynx. Detailed history, examination, radiological, endoscopic evaluation of tumour, tissue biopsy proof and staging was done.

Results: Of the 16 patients (15 male and 1 female), 12 patients (75%) were primary cases and 4 patients (25%) were radiorecurrent. 14 patients (87%) had pre-operative tracheostomy done and 2 patients (13%) had undergone direct laryngectomy. All the 16 patients had transglottic growth. All the patients had undergone total laryngectomy with post-operative radiotherapy. No pharyngocutaneous fistula reported. One patient (6%) had neck edema. One patient (6%) had nodal recurrence.

Conclusions: Total laryngectomy with post-operative radiotherapy affords a longer period of survival compared to radiotherapy alone. Minimal complications in our study are attributed to thorough pre-operative evaluation, meticulous surgical technique and post-operative care.

Keywords: Laryngectomy, Radiotherapy, Squamous cell carcinoma

INTRODUCTION

Squamous cell carcinoma still remains the most common malignancy of the larynx in our country. It contributes about 85% of the total laryngeal malignancies. Based on the site of origin, supraglottic cancers comprised 51%, glottis cancers 33% and subglottic cancers comprised 3% of the malignancies.¹ Our goal of the treatments is directed towards curing the disease, minimising the morbidity and improving the longevity of the patient. Various treatment options are available for the treatment of squamous cell carcinoma of the larynx. This varies

from radiotherapy to larynx conservation surgeries and total laryngectomy. Here, in our study, we have emphasised that total laryngectomy is a viable option for the cancer larynx.²

Aims and objective

The aim of the study was to analyse the patients with laryngeal squamous malignancies with total laryngectomy with post-operative radiotherapy conducted in our unit in our institution. It included a total of 16 patients.

METHODS

We did a retrospective study of 16 patients with squamous cell carcinoma in our unit in Upgraded Institute of Otorhinolaryngology, Rajiv Gandhi Govt. General Hospital, for a period of 3½ years from January 2015 to May 2018. Of them, 15 were male and 1 was a female.

We included patients having age group of 40 years to 70 years. We included T3 and T4 squamous cell carcinoma of larynx with nodal status as N0. We also included radio-recurrent squamous cell carcinoma to our study with the nodal status as N0.

We excluded patients having T1 and T2 squamous cell carcinoma of larynx and tumours with lymph node metastasis and distant metastasis.

Post-operative care

Certain protocols were strictly followed. All the 16 patients were kept in nil per oral for 9-12 days. All the patients received intravenous broad spectrum antibiotics for a minimum of 7 days along with maintaining adequate hydration. Amino acid supplementation was given daily and total parenteral nutrition was given once in a week. Strict aseptic wound care and tracheostomy care were given for all the 16 patients. Drain removal was done on the 3rd to 5th day. Suture removal was done on the 9th post-operative day for all the patients and the stomal suture removal was done after 2 weeks. Regarding feeding, nasogastric tube feeds were started on the 11th day and oral feeds were started only after 2 weeks post-operatively. Patients were discharged after 3-4 weeks and were reviewed weekly for the 1st month. Post-operative radiotherapy was given to all the 16 patients after 3 weeks. All the patients were also regularly followed up with thyroid function tests.

RESULTS

All the 16 patients who were included in the study underwent thorough scrutiny. Proper detailed history was taken for all the 16 patients. A very comprehensive head and neck examination was done. All the patients underwent endoscopic assessment of the tumour location. Extent of the disease was thoroughly evaluated with contrast enhanced computed tomography of the neck. Biopsy proof of the malignancy was obtained. Barium swallow was done for all the 16 patients and synchronous primary tumour was excluded. Metastatic screening was carried out. Based on the above data staging of the disease was done using the TNM classification. SPSS software used for analysing the data

Out of the 16 patients included in the study (15 males and 1 female), 12 patients (75%) were primary malignancy and 4 patients (25%) were radiorecurrent squamous cell

carcinoma of larynx. 14 patients (87%) had pre-operative tracheostomy done and 2 patients (13%) had undergone direct laryngectomy. End tracheostomy was done as in case of routine laryngectomy procedures.

Table 1: Characteristics of patients in study.

Sl. No	Criteria	No. of patients
1.	Sex	
	Male	15
	Female	1
2.	Cases	
	Primary	12
	Radiorecurrent	4
3.	Tracheostomy	
	Pre OP	14
	Direct laryngectomy	2

All the 16 patients had a transglottic growth with all the 16 of them had fixed vocal cords. As already mentioned in the inclusion criteria the patients had nodal status as N0 i.e. no palpable neck nodes. All the patients had undergone total laryngectomy followed by post-operative radiotherapy.

Tracheo-esophageal puncture and prosthesis (TEPP)

Primary TEPP was done for 3 patients and secondary TEPP was done for 2 patients. The remaining 11 patients did not undergo TEPP.

We had a case of 55 years old male diagnosed as a glottic growth with subglottic extension and causing cartilage erosion along with skin infiltration (Figure 1 A-H). For this patient, total laryngectomy was done along with pectoralis major flap reconstruction.

Complications

The various complications which can occur following a total laryngectomy are as follows:

- Wound infection.
- Pharyngocutaneous fistula.
- Recurrence.
- Fistula following post-operative radiotherapy.
- Edema and hematoma.
- Pharyngeal and stomal stenosis.
- Abscess.

All the 16 patients in our study didn't have any pharyngocutaneous fistula. Because of our strict aseptic protocols, none of the patients developed any wound infection. One patient (6%) had neck edema which settled with conservative treatment (Figure 5a and b). Only 1 patient (6%) had nodal recurrence (Figure 6). All the other patients didn't have any of the above mentioned complications.

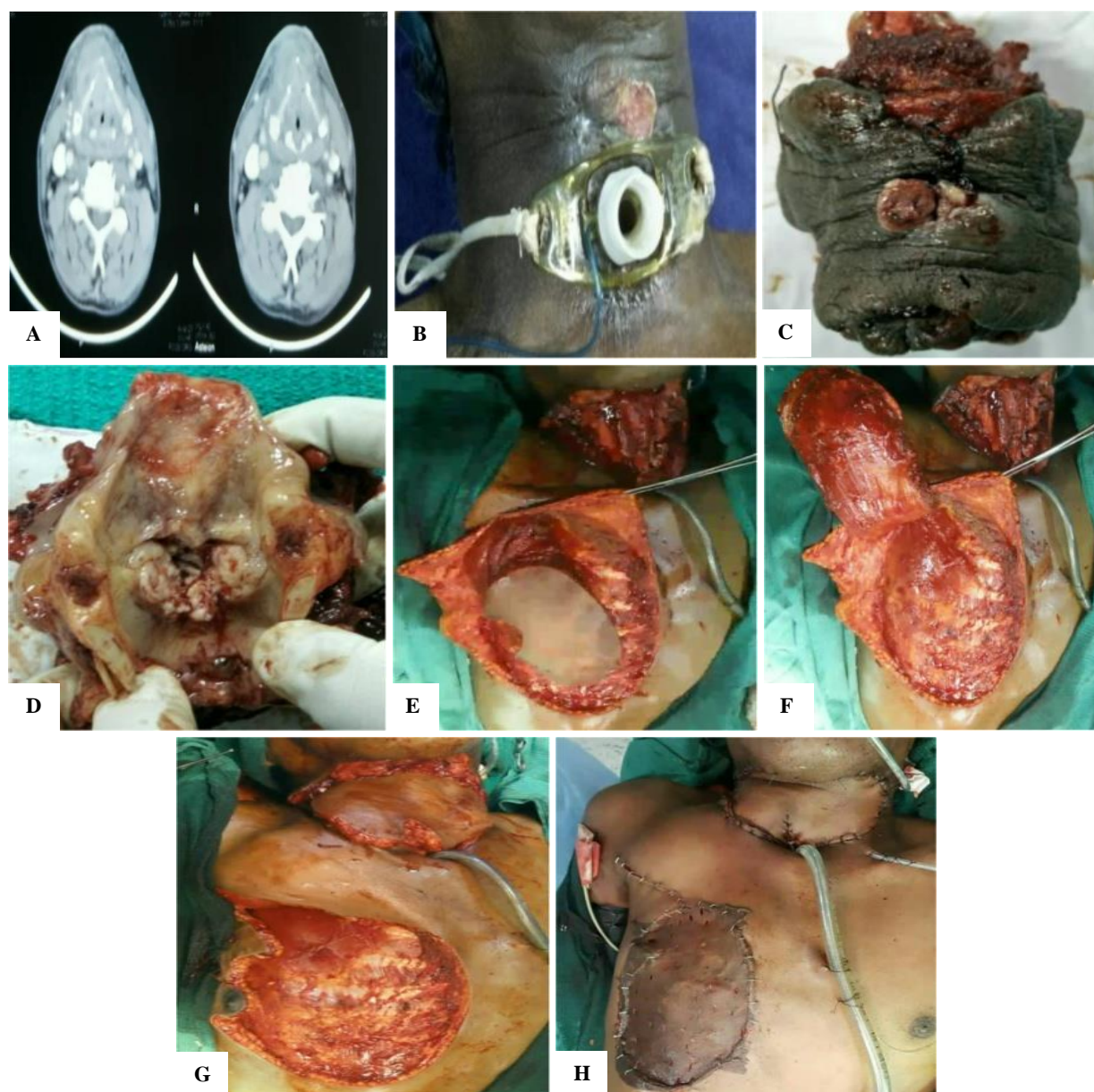


Figure 1: (A) Axial CT of a patient with Ca larynx; (B) pre-operative picture; (C) laryngectomy specimen; (D) cut section of the specimen; (E) harvesting PMMC flap; (F) flap rotation; (G) flap closure of laryngectomy site; (H) donor site closed with split-skin graft.

Table 2: Disease description.

S. No	Criteria	No. of patients
1	Initial disease	
	Transglottic	16
2	Vocal cord mobility	
	Fixed	16
3	Nodal status	
	N0	16
4	Surgery	
	Total laryngectomy	16
5	Post op	
	Radiotherapy	16



Figure 2: Tracheo-esophageal prosthesis.

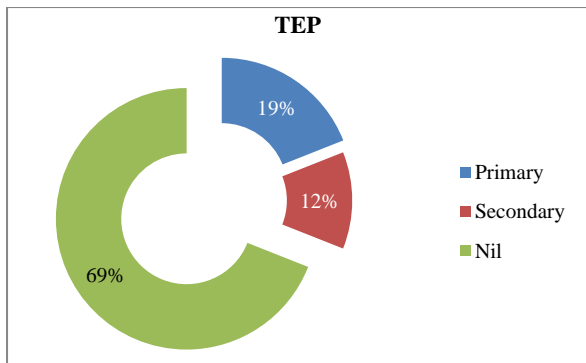


Figure 3: Use of TEP in our study.

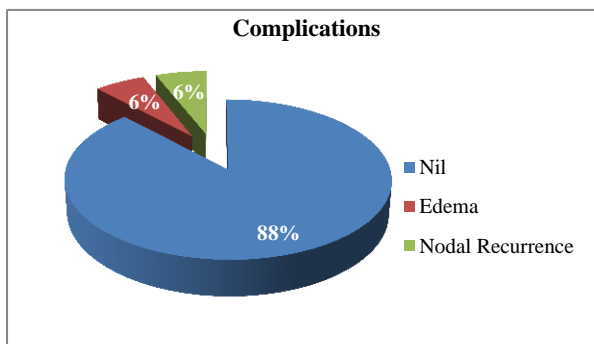


Figure 4: Postoperative complications.



Figure 5: (A) Neck edema post laryngectomy; (B) after treatment.



Figure 6: Nodal recurrence.

DISCUSSION

Analysis of the US National Cancer Database between 1985 and 2007 showed a drop in total laryngectomy with

post-op RT. Instead there was an increase in the chemo-radio therapy pointing to laryngeal preservation.² However, this resulted in decreased survival rates. And there was also increase in the salvage total laryngectomy. Several other retrospective studies also showed the same trend.³⁻⁵ In our 3 year study, we have not encountered even a single death post laryngectomy. All laryngectomy patients and doing well with timely follow-up. On the other hand, the patients refusing surgery and those not eligible for surgery succumbed to terminal illness at a faster pace.

CONCLUSION

After thoroughly following up the 16 patients, we come to a conclusion that total laryngectomy in combination with post-operative radiotherapy affords a longer period of survival for patients of advanced laryngeal cancers. Minimal complications encountered in our study are attributed to thorough pre-operative evaluation, meticulous surgical technique and diligent post-operative care.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Siddique SM, Selvarajan G. Retrospective analysis of total laryngectomy with post-operative radiotherapy for CA larynx in a tertiary care centre: a case series. *Int J Otorhinolaryngol Head Neck Surg* 2019;5:653-6.