

Salvage Supracricoid Partial Laryngectomy with Cricohyoidoepiglottopexy for Radiorecurrent Laryngeal Carcinoma: A Case Report

SHIVANGI GUPTA¹, MEGHANA MATTA RAJA², MANU S BABU³, GUNDAPPA D MAHAJAN⁴, ADITI S MORUSKAR⁵

ABSTRACT

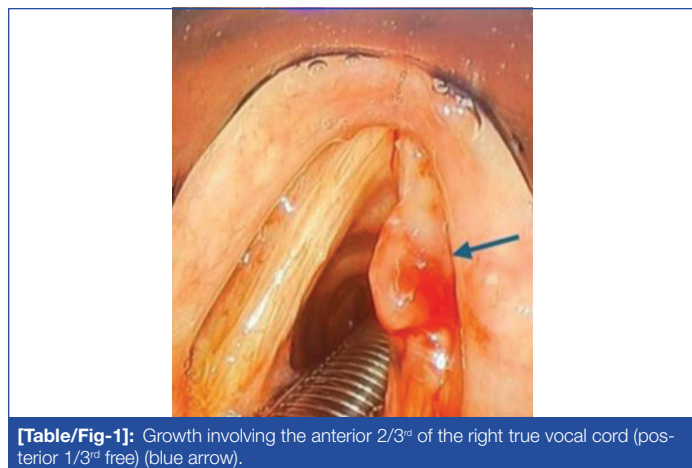
Recurrent or residual Laryngeal Squamous Cell Carcinoma (LSCC) after chemoradiotherapy often requires surgical salvage. Salvage total laryngectomy is effective but results in significant long-term functional loss. In selected cases without cartilage invasion, supracricoid laryngectomy with Cricohyoidoepiglottopexy (CHEP) can achieve oncologic clearance while preserving the larynx and reducing aspiration-related morbidity. A 77-year-old male presented with progressive hoarseness for one month. He had been treated three years previously with radiotherapy (25/35 planned cycles; defaulter) and chemotherapy (6 cycles) for LSCC. A Contrast-Enhanced Computed Tomography (CECT) of skull base to thorax showed an enhancing polypoidal lesion involving the anterior 2/3rd of the right true vocal cord (posterior 1/3rd free), no thyroid cartilage, arytenoid, or paraglottic space involvement, and no supraglottic/subglottic extension. No significant cervical lymphadenopathy was noted. Biopsy revealed sarcomatoid carcinoma with spindle cell morphology. The patient underwent supracricoid laryngectomy with cricohyoidoepiglottopexy. Histopathology confirmed spindle cell squamous carcinoma with all margins free of tumour. Tumour size was 0.5×0.5×0.3 cm with staging pT1a pNx pMx. Supra cricoid laryngectomy with cricohyoidoepiglottopexy is an effective organ-preserving option in selected cases of radiorecurrent laryngeal carcinoma without cartilage invasion, helping to avoid total laryngectomy while maintaining oncological safety.

Keywords: Organ preserving, Spindle cell squamous carcinoma, Surgical salvage, Total laryngectomy avoidance

CASE REPORT

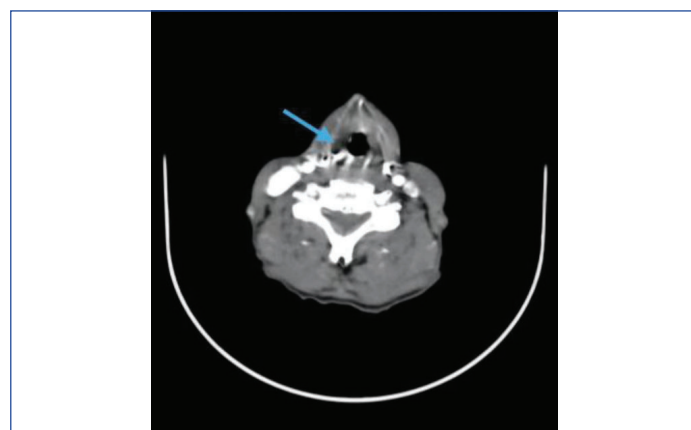
A 77-year-old male presented with progressive hoarseness for one month. He was a known case of squamous cell carcinoma of the larynx and had previously undergone definitive oncological management in the form of radiotherapy (25 fractions) and chemotherapy (6 cycles). It was noted that the patient was a defaulter and had received only 25 fractions of radiotherapy, although 35 fractions were planned. Radiotherapy was completed three years ago. In view of the new-onset voice change in a post-treatment patient, recurrence/residual disease was suspected.

On endoscopic examination, a growth involving the anterior 2/3rd of the right true vocal cord (posterior 1/3rd free) was identified [Table/Fig-1]. Bilateral vocal cord mobility was present.



[Table/Fig-1]: Growth involving the anterior 2/3rd of the right true vocal cord (posterior 1/3rd free) (blue arrow).

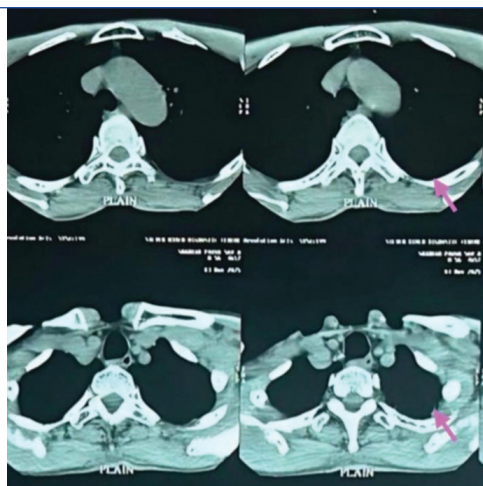
larynx showed a lesion over the right true vocal cord involving the anterior 2/3rd, with the posterior 1/3rd being free [Table/Fig-2a,b]. The soft-tissue measured approximately 11.8×9.2 mm. There was no involvement of thyroid cartilage, arytenoids, or paraglottic space. No supraglottic or subglottic extension was noted [Table/Fig-3]. Importantly, no significant cervical lymphadenopathy was reported, and there was no imaging evidence of gross cartilage destruction. The clinical staging was cT1a Nx MO.



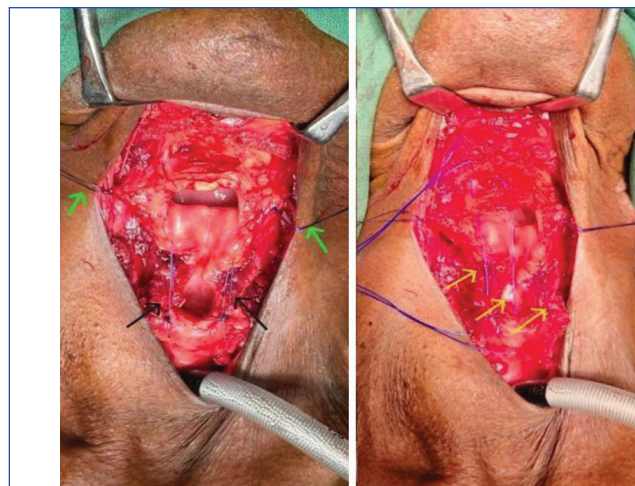
[Table/Fig-2a]: Axial CECT skull base to thorax showing lesion involving the anterior 2/3rd of the right true vocal cord (posterior 1/3rd free), no thyroid cartilage/arytenoid/paraglottic space involvement, and no supraglottic or subglottic extension.

Histopathological examination of tissue obtained from the lesion over the right true vocal cords demonstrated sarcomatoid carcinoma with spindle cell morphology [Table/Fig-4].

Given the localised nature of the disease involving the right true vocal cords, the absence of radiological thyroid cartilage invasion, and the lack of clinically significant nodal disease, a salvage organ preservation strategy was planned. The patient underwent supracricoid laryngectomy with CHEP under general anaesthesia.



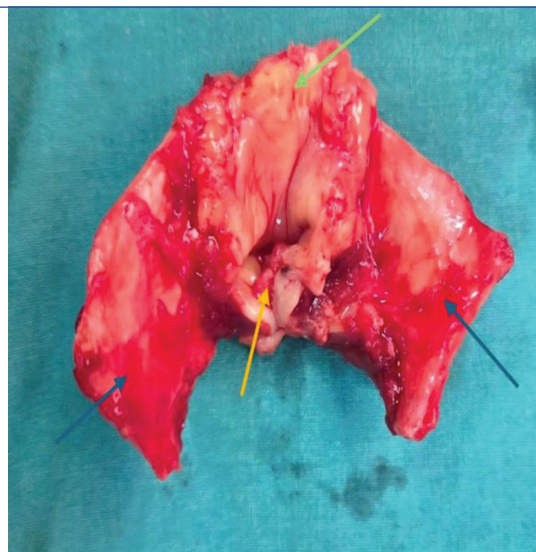
[Table/Fig-2b]: Axial CECT skull base to thorax showing clear lung fields (pink arrow).



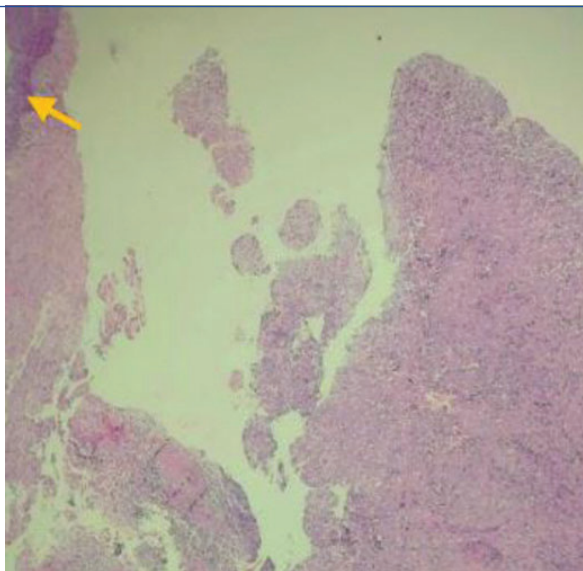
[Table/Fig-5]: Intraoperative reconstruction sutures in cricohyoidoepiglottopexy: arytenoid-hyoid stitch (black arrow-2 stitches), pyriform sinus stitch (green arrow-1 stitch on either side) and cricoid-hyoid-epiglottic stitch (yellow arrow-3 stitches).



[Table/Fig-3]: Sagittal CECT skull base to thorax showing no subglottic extension.



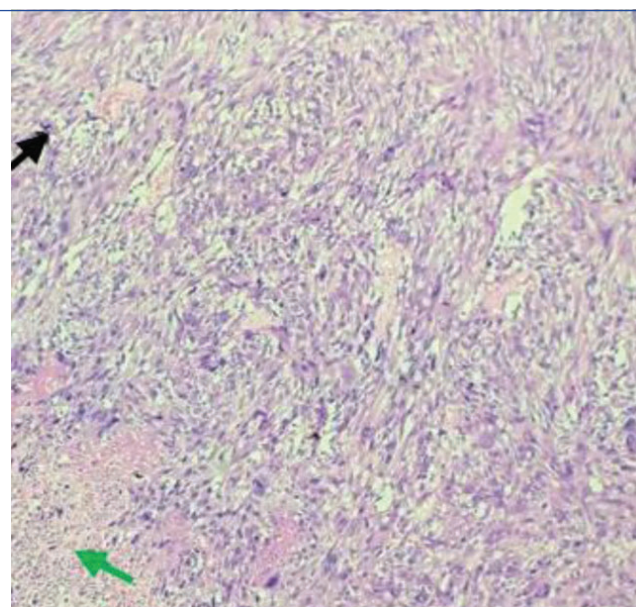
[Table/Fig-6]: Gross specimen showing thyroid lamina (blue arrow), epiglottis and aryepiglottic folds (green arrow), lesion on the right vocal cord from mid cord to anterior commissure.



[Table/Fig-4]: Photomicrograph showing dysplastic stratified squamous epithelium (yellow arrow) with infiltration by neoplasm composed of spindle-shaped cells (Haematoxylin and Eosin (H&E), 100x).

Intraoperatively, reconstruction sutures were placed, including crico-arytenoid stitch, pyriform sinus stitch, and crico-hyoid-epiglottic stitch [Table/Fig-5].

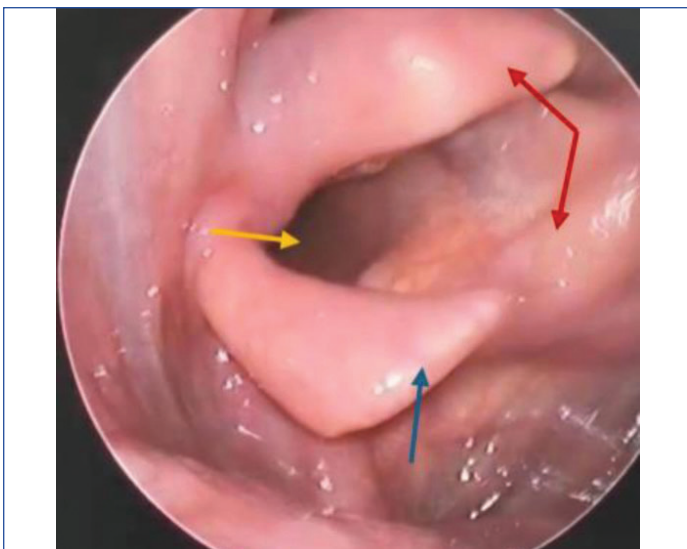
All resected surgical margins were free of tumour. The tumour was described as unifocal, located in the right larynx/glottis, measuring 0.5×0.5×0.3 cm [Table/Fig-6]. The specimen was substantially smaller than the imaging dimensions because of the post-biopsy status.



[Table/Fig-7]: Photomicrograph showing neoplastic spindle-shaped cells with atypical mitosis (black arrow) and foci of necrosis (green arrow) (H&E, 400X).

The post-treatment pathological staging was pT1a pNx pMx (AJCC 8th edition).

Histopathological evaluation of the primary resection specimen revealed spindle cell squamous carcinoma [Table/Fig-7].



[Table/Fig-8]: Postoperative VDL showing epiglottis (blue arrow), aryepiglottic fold (red arrows), adequate glottic chink with no aspiration and pooling of saliva (yellow arrow).

Postoperative Video Directed Laryngoscopy (VDL) and Fiberoptic Endoscopic Evaluation Of Swallowing (FEES) was done three months later. VDL showed an adequate glottic chink with no aspiration [Table/Fig-8]. FEES showed minimal aspiration at three months, which resolved on the 6-month follow-up.

DISCUSSION

Carcinoma of the larynx is one of the most common head and neck malignancies. Treatment of LSCC should be individualised, considering tumour extension, patient fitness, and institutional expertise. Open partial horizontal laryngectomy offers satisfactory oncologic and functional outcomes, provided that patient selection is performed carefully. Non surgical treatment, although associated with poorer locoregional control, optimises outcomes in high nodal burden [1].

In the present case, new-onset voice change in a post-treatment laryngeal cancer patient is a well-recognised warning symptom for residual or recurrent disease, warranting reassessment. In such recurrent settings, available salvage management options include Open Partial Laryngectomy (OPL), total laryngectomy, Transoral Laser Microsurgery (TLM), cordectomy for selected early lesions, and re-irradiation, particularly when recurrence occurs after a longer interval (>3 years) [2].

Since the patient defaulted after receiving only 25 of the planned 35 fractions of radiotherapy, the present lesion may represent persistent or residual disease rather than a true late recurrence. Incomplete radiotherapy may adversely affect local disease control and complicate interpretation of treatment failure patterns. Surgical salvage represents the primary curative option when recurrent disease is resectable [3].

Sarcomatoid (spindle cell) carcinoma represents an uncommon aggressive variant characterised by biphasic epithelial and mesenchymal differentiation. These tumours are associated with aggressive biological behaviour, increased recurrence tendency and poorer prognosis compared with conventional squamous cell carcinoma. Some studies suggest relative resistance to radiotherapy, thereby increasing the importance of surgical salvage in localised disease [4,5].

Salvage surgery following radiotherapy remains technically challenging because irradiated tissues exhibit fibrosis, poor vascularity, and impaired wound healing. In addition, recurrent laryngeal carcinomas may demonstrate occult multifocal disease, increasing the risk of underestimation of tumour extent. Previously irradiated patients are also at higher risk for postoperative complications including aspiration, pharyngocutaneous fistula formation, wound breakdown,

chondronecrosis, prolonged dysphagia, and long-term functional impairment. Therefore, careful patient selection and comprehensive postoperative rehabilitation are essential when considering organ-preserving salvage procedures [6].

A case report by Nakayama M et al., where a 65-year-old man underwent salvage supracricoid laryngectomy with cricothyroidopiglottopexy. The right recurrent hemilarynx was successfully resected. After cricothyroidopiglottopexy, the right lobe of the thyroid gland was repositioned to overlap and reinforce the pexis gap and muscle closure. Four years after supracricoid laryngectomy with cricothyroidopiglottopexy, the patient's recovery was favourable, and he had satisfactory laryngeal function [7].

Eleven out of 270 papers were analysed, and a total of 251 cases were included. The larynx preservation rate was 85.2%, the decannulation rate was 92.1%, and swallowing recovery was 96.5% (Percutaneous Endoscopic Gastrostomy (PEG) dependence and the aspiration pneumonia rate were 3.5 and 6.4%, respectively) [8].

In a Spanish study by Luna-Ortiz K et al., a 68-year-old patient with recurrent glottic squamous cell carcinoma (T1aN0) was treated with partial laryngectomy. Supra cricoid partial laryngectomy with cricothyroidopiglottopexy was performed with a satisfactory postoperative evolution with tracheostomy decannulation at day 7. Physiological phonation and removal of the nasogastric tube were accomplished at day 15, as well as reinitiation of oral feeding. Hence, a functional evaluation with no need of permanent tracheostomy, and a close to normal biopsicosocial integration after surgery is possible [9].

Salvage decision-making depends mainly on anatomic extent and margin feasibility. It is suitable only in selected patients with localised disease, preserved cricoarytenoid unit function, absence of extensive cartilage invasion, and adequate pulmonary and swallowing reserve. In the present case, preserved arytenoid mobility, absence of cartilage involvement, and localised glottic disease favored organ preservation surgery. Hence, preservation must be balanced against oncologic clearance [7,8].

CONCLUSION(S)

New-onset hoarseness after chemoradiotherapy should prompt early reassessment. Careful clinical and radiologic restaging can identify localised recurrence or residual disease. Salvage Supracricoid partial laryngectomy can provide oncologic clearance while preserving the larynx. There's a need for meticulous surgical and pathological assessment.

Authors' contribution: All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work. SG: Concept and design; MMR: Acquisition, analysis, or interpretation of data; MSB: Drafting of the manuscript; GDM, ASM: Critical review of the manuscript for important intellectual content.

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