

Case Report

Metachronous Carcinoma of the Trachea and Lung after a Squamous Cell Carcinoma of the Tongue: A Rare Case

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Abstract

We present a case of 52-year-old male with history of squamous cell carcinoma of the tongue diagnosed and treated by local excision and radiotherapy in 2008. He was admitted with stridor and shortness of breath since last two weeks in 2010. The Magnetic Resonance Imaging (MRI) of the neck and chest revealed intraluminal mass in upper trachea occupying about 80% of its circumferential diameter. Fiber optic bronchoscopy was performed and biopsy report showed, "Squamous Cell Carcinoma". Tracheal resection was performed and continuity of the trachea was restored by end to end anastomosis. At seven years follow up with CT scans and surveillance flexible bronchoscopies; there was no evidence of recurrence of tracheal tumor. But he developed a nodule in his left lung which was resected by video assisted thoracoscopic surgery. Histology report revealed squamous cell carcinoma same as of tongue origin.

ABBREVIATIONS

MRI: Magnetic Resonance Imaging

INTRODUCTION

Metachronous squamous cell carcinomas of trachea and tongue are exceedingly rare. Second primary malignancy after the head and neck squamous cell carcinoma is currently a major cause of death. Head and neck squamous cell carcinoma incidence is on rise globally due to high risk of human papilloma virus [1]. Metachronous tumor of bronchus and lung after head and neck cancer has been reported respectively in medical literature [2].

CASE PRESENTATION

A 52-year-old ex-smoker male, with a 30-year-pack smoking history was admitted to our hospital with a two-week history of shortness of breath and stridor in November 2010. He earlier had squamous cell carcinoma of the base of tongue staged as T1N2M0 back in 2008. He received three cycles of cisplatin 75 mg/m², followed by external beam radiotherapy course of 70 grays (Gy) over thirty nine days. On admission, MRI Scan of neck and chest revealed a mass obstructing the upper trachea Figure (1A). Flexible bronchoscopy showed a mass occluding the upper trachea and biopsies were taken Figure (1B). Basic laboratory investigations total white cell count, hemoglobin, liver and renal panels were all within normal limits.

As the patient was symptomatic due to airway obstruction, emergency surgery was performed. Case was discussed with the anesthetist and a separate ventilatory circuit and an additional endotracheal tube was arranged prior to the induction of anesthesia. Cervical trachea was exposed through the collar incision. Fiber optic bronchoscope was inserted through the endotracheal tube and upper and lower margins of tumor were marked under the guidance of flexible bronchoscope. As the patient had radiotherapy in the past skin was hard and there was dense fibrosis around the trachea which rendered surgical dissection to be very difficult.

Manubriotomy was also performed to mobilize the trachea for a tension free anastomosis.

Trachea was divided at marked site and endotracheal tube was inserted in to the distal trachea and connected to a ventilator through breathing circuit across sterile field while a Foley's catheter was tied to proximal endotracheal tube which was pulled out of operative field. Four centimeter segment of the trachea harboring the tumor was excised and end- to -end tracheal anastomosis was fashioned with 3-0 polyglycolic acid interrupted sutures with knots outside Figure 1(C, D).

Before the completion of the anastomosis proximal endotracheal tube was pulled down and passed across the anastomosis after detaching the Foley's catheter. The neck was kept in flexed position, with two chin guard stitches,

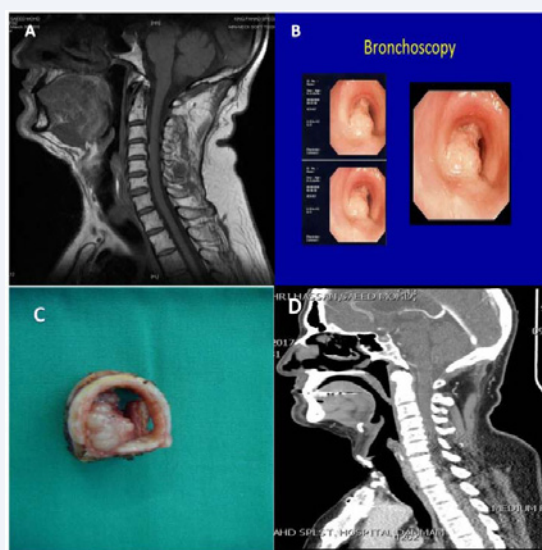


Figure 1 (1A) MRI scan of neck showing intraluminal mass in upper trachea (B) Bronchoscopic view of trachea delineating the tumor (C) Resected part of trachea harboring the tumor (D) Post op sagittal view of CT scan neck showing patent airway.

manubrium was approximated with two, 5 mm wires. The patient was extubated on the table and transferred to intensive care unit in stable hemodynamic condition with normal arterial blood gases. The chin guard stitches were removed after six days and patient was discharged for further follow up in the outpatient clinic. A post-operative CT scan of neck showed no recurrence and surveillance flexible bronchoscopy carried out periodically for seven year showed no recurrence. Figure (2) shows the diagrammatic illustration of the surgical procedure. Histopathology report of tracheal specimen resected showed to be positive by immunohistochemical stains for p16 a marker of human papilloma virus (HPV) (Figure 3).

DISCUSSION

Primary tumors of trachea are exceedingly rare representing only 0.19% of all malignancies of respiratory tract and annual incidence is 0.1-0.2 per 100,000 populations. The most common malignant tumors of trachea almost 75% are squamous cell carcinoma and adenoid cystic carcinoma. Secondary tumors of trachea are most commonly from adjacent structures, larynx, thyroid, and esophagus and lung malignancies [3]. Metachronous tracheal tumors are very rare. A cohort study about the metachronous second primary malignancy after head and neck cancer showed that commonest site was esophagus and lung [4]. Schwartz et al reported a review of 851 patients with head and neck cancer which revealed that 19% patients developed a second malignancy, 96 patients developed Metachronous tumor after initial treatment [5]. After the initial treatment of squamous cell carcinoma of head and neck mortality is very high in those patients who develop second primary cancer. Van der Haring et al reported in 2000 a study of 2400 new patients with head and neck cancer, 95 % were squamous cell carcinoma, 28% developed in tongue and rest of that in oral cavity and oropharynx [6]. The most common cause of oropharyngeal carcinoma in the past was alcohol and tobacco consumption. Recently high risk papilloma

virus (HPV) has surpassed the alcohol and tobacco use to cause squamous cell carcinoma of oropharynx [7]. Trachea is very rare site of developing metachronous tumor after the initial treatment of squamous carcinoma of the tongue. The best imaging diagnostic modality is CT scan, which is the first instance imaging tool and is mainly used for follow up. Although modern magnetic resonance imaging (MRI) can provide more details about tracheal tumors.

Bronchoscopy is mandatory for diagnosis and evaluation of rest of respiratory tract for subsequent treatment plan. The mainstay of treatment for primary or metachronous tracheal tumor is surgical resection as with the advanced tracheal mobilization techniques almost half of the trachea can be resected safely in the adults. For inoperable cases endoscopic electrocoagulation, cryotherapy, laser resection are the palliative methods used to restore the airway patency.

Radiotherapy can be used as a definite treatment if surgery is not feasible or as a neoadjuvant therapy for subsequent surgery [8].

The expandable wire or covered endotracheal stents can be used in inoperable cases. They are placed through the malignant

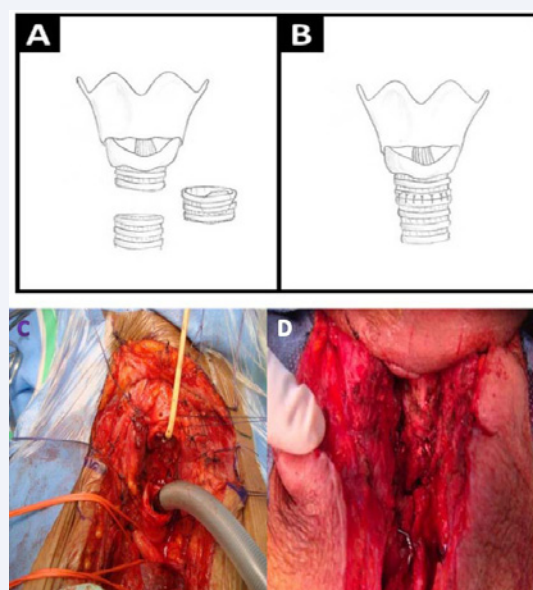


Figure 2 Operative technique illustrative and operative views.

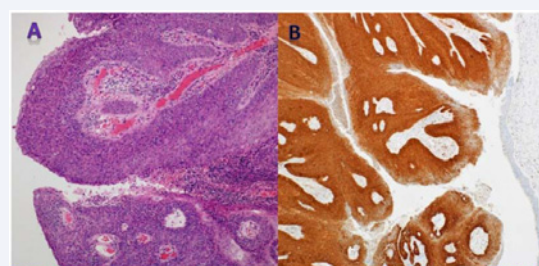


Figure 3 (A): Papillary squamous cell carcinoma arising from the tracheal mucosa. Note nuclear pleomorphism and atypia (H&E x200) Figure (B); Strong positive staining for p16, a marker for HPV infection.

tumor to maintain the airway patency. Metachronous tumors of bronchus and trachea have been reported after lung cancer. To the best of our knowledge there is no case of metachronous tumor of trachea reported in medical literature after the treatment of squamous cell carcinoma of the base of tongue.

In conclusion we report a rare case of metachronous squamous carcinoma of trachea and lung after carcinoma of the tongue due to Human Papilloma Virus (HPV). Tracheal tumor was resected and airway anatomy was restored by end to end anastomosis in 2010. Patient is still on regular follow up by surveillance CT scan neck and chest and periodic bronchoscopy which showed no recurrence to date.

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