

Laryngeal tuberculosis following laryngeal carcinoma

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Abstract

Laryngeal tuberculosis is a rare entity and the disease related to laryngeal cancer is extremely rare. We describe a case of laryngeal tuberculosis in a 74-year-old man with a history of radiotherapy for laryngeal carcinoma four months earlier. Laryngoscopy demonstrated a white mass on the right vocal fold at the site carcinoma had previously occupied. Recurrence of the cancer was suspected, but the biopsy result showed histological features of tuberculosis. We discuss the derangement of the host's mucosal barrier by the malignancy as a contributing factor in secondary tuberculous infection. Tubercular bacilli may be reactivated due to the immunosuppression associated with the therapy.

Key words: Tuberculosis, Laryngeal; Carcinoma; Larynx; Radiotherapy

Introduction

Laryngeal tuberculosis (TB) has become quite rare with the advent of antitubercular chemotherapy, and laryngeal carcinoma is now more common than laryngeal TB.¹ Thus, the risk of misdiagnosing laryngeal TB as laryngeal cancer has been well documented.² Laryngeal TB complicating laryngeal cancer is, however, very rare.^{3–6} We report a case of laryngeal TB occurring four months after radiotherapy for laryngeal carcinoma. Tuberculosis developed at the site cancer had previously occupied, making the diagnosis difficult.

Case report

A 74-year-old man was referred to the Suita Municipal Hospital by a local otolaryngologist because laryngeal cancer was suspected. The chief complaints were hoarseness and discomfort in the throat.

Signs of old pulmonary TB were found on chest X-ray. Laryngoscopy demonstrated a white elevated mass on the right vocal fold (Figure 1a). Laryngeal biopsy demonstrated well differentiated squamous cell carcinoma of the larynx, classified as T_{1a}N₀M₀.

The patient successfully completed a course of radical radiotherapy (60 Gy in 30 fractions over 47 days). Periodic follow up did not detect any evidence of recurrence of the squamous cell carcinoma for several months (Figure 1b).

Four months after the therapy, however, hoarseness and sore throat reappeared. Laryngoscopy demonstrated a white mass on the right vocal fold at the site carcinoma had previously occupied, and the larynx was swollen (Figure 1c). The patient's symptoms did not respond to antibiotics or steroids. Cancer recurrence was suspected and biopsy was taken from the lesion.

Histopathologic examination of the granuloma did not show any cancer cells, but did show the histological features of TB (Figure 2a). Ziehl-Neelsen staining showed the presence of acid-fast bacilli in the sample (Figure 2b). Smears of sputa for acid-alcohol-fast bacilli were double-positive. A chest X-ray did not show any alteration of old pulmonary TB findings. Thus, the patient was diagnosed as having TB of the larynx, but not recurrence of carcinoma.

The patient was referred to another hospital and underwent antitubercular chemotherapy there.

Discussion

The clinical picture of laryngeal TB has changed. Recent reports have described patients as demonstrating fewer systemic symptoms, with a lower degree of pulmonary involvement than in the past.^{2–7} Furthermore, laryngeal lesions do not show any specific appearance or a predilection for any specific laryngeal site.⁷ Since 1990, the topic of laryngeal TB has received renewed attention because of a rising incidence.² The emergence of acquired immune deficiency syndrome and other immunosuppressive diseases or treatments will further increase the incidence and spectrum of TB.⁸

Patients with a malignancy may have reduced immunocompetence due to their primary disease and/or the effects of therapy.⁹ The frequency of TB in cancer patients was reported to be 90 per 100 000, indicating that TB in cancer patients occurs at a ninefold greater frequency than in the general population. Extrapulmonary TB in cancer patients, however, is relatively rare, and its incidence comprises 16 per cent of TB in cancer patients. Reports on laryngeal TB related to laryngeal carcinoma have been even rarer. A search of international literature found only four reported instances.^{3–6}

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FIG. 1

Fibre-optic findings. (a) A white, elevated mass on the right vocal fold, diagnosed as squamous cell carcinoma. (b) Disappearance of the mass after radiotherapy. (c) A swollen larynx and white mossy tumour on the right vocal fold, diagnosed as tuberculosis.

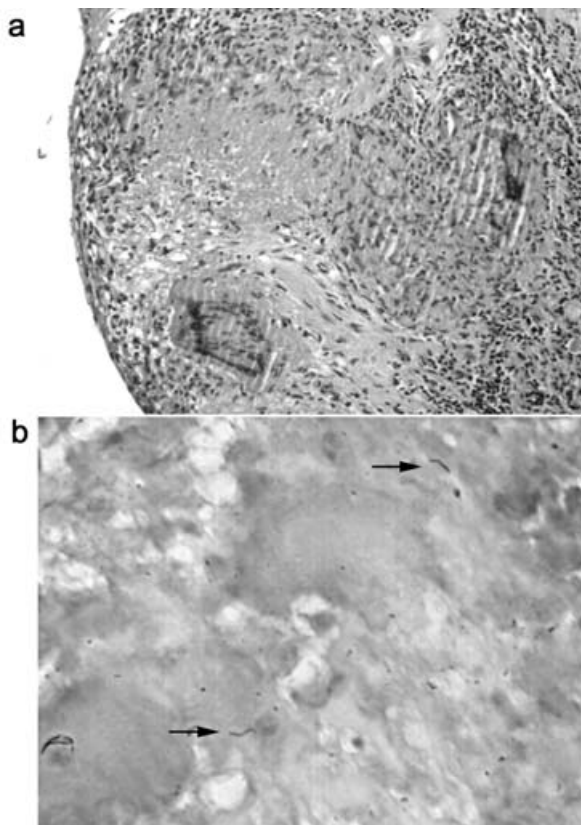


FIG. 2

Histological findings. (a) Necrotic centres surrounded by epithelioid zones and multinucleated giant cells (original magnification H & E; $\times 200$). (b) Acid-fast bacilli on Ziehl-Neelsen stain (original magnification $\times 1000$).

The etiological relationship between cancer and TB is often unclear. Libshitz *et al.*⁹ reported the difficulty experienced when attempting to separate the roles of primary disease and of therapy in patients who developed TB during the course of malignancy or within 18 months after the completion of therapy. In this case, tuberculous mossy granuloma occurred at the exact site as the previous cancer. In this setting, it was suggested that derangement of the host's mucosal barrier by the malignancy may have

been a contributing factor in secondary tuberculous infection.^{10–12} Tubercular bacilli may be reactivated due to the immunosuppression associated with radiotherapy.¹²

The potential for misdiagnosis is high in such patients. Undiagnosed laryngeal TB after radiotherapy for laryngeal cancer may necessitate radical surgery. Furthermore, the differential diagnosis from possible cancer recurrence during the course of the TB infection may be challenging. Thus, physicians should consider TB in the differential diagnosis of laryngeal disease and rule out the existence of laryngeal TB complicating laryngeal cancer. Early and exact diagnosis is important to minimize possible complications and to avoid inadequate treatment of the patient as well as excessive exposure of hospital personnel.^{6,7}

Conclusion

Physicians should bear in mind the possibility that a new mass appearing in the larynx of a patient with a history of malignancy and radiotherapy might be laryngeal TB.

- **This case report is of a patient who was thought to have a cancer recurrence four months after radiotherapy for laryngeal carcinoma and was found to have laryngeal tuberculosis**
- **Four cases of laryngeal tuberculosis related to laryngeal cancer have been reported before in the world literature**
- **Physicians should consider tuberculosis in the differential diagnosis of laryngeal disease and rule out the existence of laryngeal tuberculosis complicating laryngeal cancer**

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