Mucosa-associated Lymphoid Tissue Lymphoma of the Trachea in a Patient with Breast Cancer

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Abstract

We herein report the case of a 93-year-old woman with breast cancer on the left side. Preoperative computed tomography of the chest showed irregularities and narrowing of the mid-trachea. Bronchoscopy was performed, and the results of a biopsy supported a diagnosis of mucosa-associated lymphoid tissue (MALT) lymphoma. The patient responded to treatment with prednisone alone, with a reduction in the size of the lesion. MALT lymphoma of the trachea is extremely rare, and there are only a few case reports of double cancer, i.e., MALT lymphoma of the trachea and breast cancer.

Key words: breast cancer, MALT lymphoma, prednisone, trachea


Introduction

Mucosa-associated lymphoid tissue (MALT) lymphoma is most commonly found in the stomach, lungs, orbital soft tissue, salivary glands and thyroid; involvement of the trachea is extremely rare (1, 2). There are no clear guidelines for the treatment of MALT lymphoma, and, with respect to lesions located in the trachea, a broad range of treatments have been shown to be effective, including surgical resection, radiotherapy, bronchoscopic therapy, chemotherapy, immunotherapy (rituximab) and immunochemotherapy.

This report describes a rare case of MALT lymphoma of the trachea in a 93-year-old woman with breast cancer. The administration of prednisone alleviated her symptoms and reduced the size of the MALT lymphoma in the trachea.

Case Report

The patient was a 93-year-old woman who presented to the thoracic surgery department of Yonago Medical Center complaining of a self-destructed left breast tumor. In the following month, the patient complained of wheezing during movement. She had a previous medical history of hypertension and Alzheimer’s disease, which had been treated with enalapril (5 mg daily) and donepezil (5 mg daily), respectively. Her medical history did not include chronic autoimmune diseases, such as Sjögren syndrome and Hashimoto’s thyroiditis, or chronic infections, such as that with Helicobacter pylori.

On a physical examination, the patient presented with a left breast mass and chest wheezing during inspiration, with no other remarkable findings. Renal and liver function tests, hemogram findings and the lactic dehydrogenase level were normal.

A chest X-ray showed tracheal deviation to the left side (Fig. 1). Computed tomography (CT) of the chest demonstrated irregularities of the tracheal wall and narrowing of the mid-trachea (Fig. 2A).

Flexible bronchoscopy was performed during intravenous anesthesia for mastectomy, the results of which revealed a protuberant lesion involving all the walls of the trachea, extending from the trachea to the left main bronchus (Fig. 3). A biopsy showed aggregation of small lymphocytes, and the morphological and immunohistochemical features confirmed the presence of low-grade non-Hodgkin’s B-cell lymphoma.
with plasmacytic differentiation, suggestive of MALT lymphoma. Hematoxylin and Eosin (H&E) staining disclosed characteristic infiltration of centrocyte-like cells surrounding the reactive follicles and forming lymphoepithelial lesions (Fig. 4A). An immunohistochemical panel revealed that the lymphoma cells were positive for CD20 and bcl2 and negative for CD5 and CD10 (Fig. 4B-E). The pathology of the breast cancer was pT4bN0M0, stage III, solid-tubular carcinoma, with positive estrogen- and progesterone-receptor immunostaining, a proliferative index as high as 5.8% and a negative human epidermal growth factor receptor type 2 (HER2) status.

Treatment with prednisone (30 mg/day) was effective in improving the patient’s symptoms. Chest CT performed after the four weeks of therapy showed a reduction in the size of the lesion in the trachea (Fig. 2B), and the dose of prednisone was tapered four weeks after the first dose. Although the patient had exhibited good disease control, she died a natural death while undergoing treatment with 10 mg/day of prednisone in a nursing home, five months after the operation.

Discussion

MALT lymphoma was first described by Issacson and Wright in 1983 in a small series of patients with low-grade B cell gastrointestinal lymphoma (3). MALT lymphomas are characterized by the presence of neoplastic marginal cells that exhibit a variable combination of colonization of reac-

Figure 1. Chest X-ray showing a mass protruding into the tracheal lumen.

Figure 2. Chest computed tomography (CT) demonstrating irregularities of the tracheal wall and narrowing of the mid-trachea before (A) and four weeks after treatment with prednisone (B).
tive germinal centers, plasma differentiation and destructive epithelial infiltration forming lymphoepithelial lesions. Immunohistochemical examinations often show characteristic B cell lymphoma with monoclonal expansion by monotypic cytoplasmic immunoglobulin. Although MALT lymphomas occur most frequently in the gastrointestinal tract, they can also arise in a number of non-gastrointestinal sites, such as the lungs, orbital soft tissue, salivary glands and thyroid (1). Among nongastrointestinal MALT lymphomas, pulmonary lymphomas are the most frequent, representing up to 19% of MALT lymphomas (3). As primary tracheal MALT lymphomas are extremely rare, most reports in the literature are case reports (4-6).

The current case involved double cancer, breast cancer and MALT lymphoma of the trachea. A cancer prone phenotype may exist in MALT lymphoma patients. For example, Zucca et al. observed a high incidence of other neoplasms (20%) in patients with low-grade gastric MALT lymphoma (7). However, Au et al. reported that, in their study, MALT lymphoma patients did not appear to have a significantly increased rate of cancer compared with an age-matched population followed for the same period of time (8).

Previous reports have shown the effectiveness of a range of treatments, including surgical resection, radiotherapy, bronchoscopic therapy, chemotherapy, immunotherapy and immunochemotherapy, i.e., rituximab, cyclophosphamide, adriamycin, oncovin and prednisone (R-CHOP) (4-6). However, combination regimens have not been proven to be any more effective than single chemotherapy regimens (9). In the present case, despite the positive test findings for CD20, rituximab was not selected for treatment due to the age of the patient. In this case, treatment with prednisone alone improved the patient’s symptoms and reduced the size of the mass. Prednisone monotherapy may be less intense chemotherapeutic regimen for older patients, and the effectiveness of antibiotic therapy has also been reported in some cases of pulmonary MALT lymphoma (10).

As our patient presented with symptomatic stenosis of the airway, we selected treatment with prednisone, taking into consideration her advanced age. Importantly, prednisone was effective in reducing her symptoms and the size of the lesion.

This is the first case of MALT lymphoma of the trachea in a patient with breast cancer treated with prednisone alone. The details of this case suggest that prednisone monotherapy may be an effective strategy for treating MALT lymphoma. MALT lymphoma of the trachea is an extremely rare and indolent disease and must be considered in the differential diagnosis of airway lesions. Tracheal tumors may mimic the features of asthma and chronic obstructive pulmonary disease (COPD) and should be kept in mind as a rare cause of asthma and COPD-like symptoms. In the current case, prednisone monotherapy was beneficial in managing the tracheal lymphoma in our patient.

The authors state that they have no Conflict of Interest (COI).
References


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