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Laryngeal metastases from breast cancer: A rare clinical entity



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ABSTRACT

Breast cancer is the most common malignancy in females. The common site for metastases is bone, lungs, liver, and regional lymph nodes. Larynx as a metastatic site from breast cancer is extremely rare. The authors report a 63-year-old female treated for carcinoma of right breast 5 years back who presented with hoarseness of voice. Clinicoradiological examination revealed a soft tissue lesion in larynx. Pathological evaluation of the laryngeal lesion revealed metastases secondary to breast cancer. The patient received systemic chemotherapy and local radiotherapy. Patients with a history of breast cancer presenting with hoarseness and shortness of breath should not only be evaluated for laryngeal primary but also for metastases. This case is reported in view of rarity of the case with laryngeal metastases from breast cancer masquerading as primary laryngeal disease. To the best of our knowledge, less than 20 cases of laryngeal metastases from breast cancer had been reported in literature till date. Patients with a history of breast cancer presenting with hoarseness and shortness of breath should not only be

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evaluated for laryngeal primary but also for metastases. Once the diagnosis is confirmed, the treatment of laryngeal metastases is multidisciplinary. Recognizing metastatic disease and prompt early treatment are very important to improve the quality of life.

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Introduction

Breast cancer is the most common malignancy in females and is the most common cause of cancer death in females.¹ The common site for metastases is bone, lungs, liver, and regional lymph nodes.² Metastases to the larynx are uncommon and accounts for 0.09%-0.40% of all laryngeal tumors and less than 200 cases have been reported in the literature.³ Of the laryngeal metastases, the primary cancer as breast cancer is extremely rare. We herein report a rare case of laryngeal metastases secondary to breast cancer, presenting with hoarseness of voice, and masquerading as primary laryngeal disease.

Case Report

A 63-year-old female presented with hoarseness of voice for 6 months and shortness of breath for 3 months. She was treated for carcinoma of right breast 5 years back, had undergone right-modified radical mastectomy. Histopathology revealed infiltrating ductal carcinoma with single lymph node metastases (pT2N1M0; ER +ve, PR +ve, Her2 -ve). Subsequently, she was on hormonal therapy with anastrozole 1 mg daily for last 5 years.

After 5 years, she presented with hoarseness of voice and shortness of breath. Fiberoptic laryngoscopy showed mild restriction of right vocal cord (VC) mobility associated with pooling of secretions in right pyriform sinus (PFS). Contrast-enhanced computed tomography of neck showed an enhancing irregularly marginated soft tissue lesion involving the posteroinferior part of right PFS, right false VC, vestibule and true VC, posterior commissure and infraglottic region. It was extending laterally extralaryngeally to the right lamina of thyroid cartilage and posteriorly into the right post cricoids region (Fig 1). Ultrasound-guided fine needle aspirate from right PFS showed metastatic carcinoma (Fig 2).

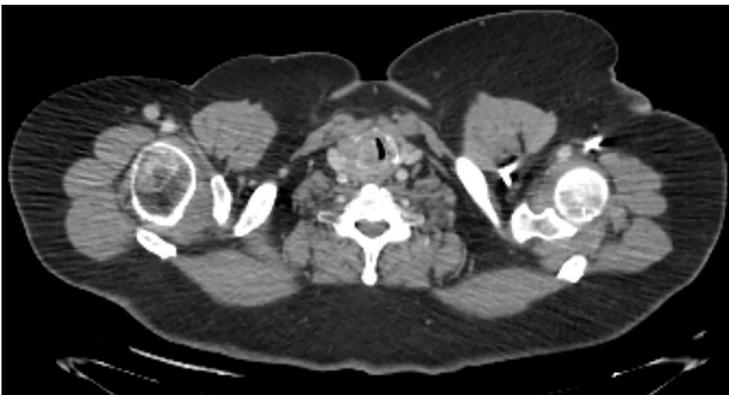


Fig. 1. CECT of neck showing an enhancing soft tissue lesion involving right false vocal cord and PFS.

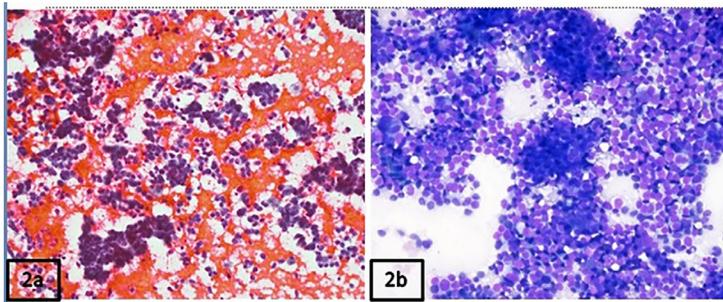


Fig. 2. Papanicolaou (A; $\times 200$) and May-Grunewald Giemsa (B; 200) stained smears show a metastatic carcinoma with focal acinar pattern.

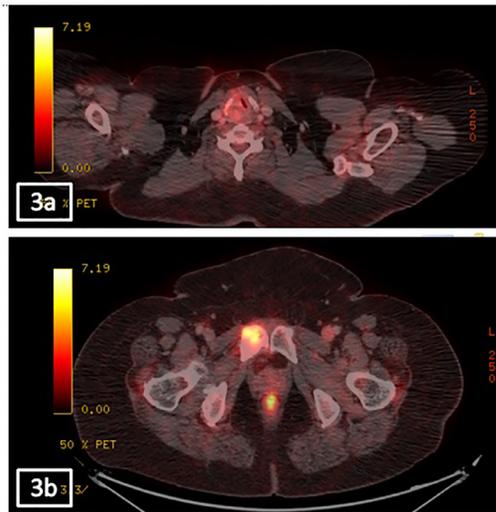


Fig. 3. PET scan showing (A) FDG avid thickening at right false vocal cord, right PFS and posterior cricoids region with erosion of right thyroid cartilage (B) skeletal metastases at right pelvic bone.

Further, positron emission tomography (PET) scan was done to assess the extent of disease and also to look for other distant metastases. PET scan showed a mild FDG avid enhancing thickening involving right false VC, right PFS and posterior cricoids region with erosion of right thyroid cartilage. It also showed multiple lung and skeletal metastases (Fig 3). computed tomography-guided biopsy from right pelvic bone showed a metastatic adenocarcinoma, immunopositive for GATA3, ER and PR, and negative for HER2/neu (Fig 4).

In view of disseminated metastases from breast cancer, she received systemic palliative chemotherapy with single agent docetaxel for 4 cycles. She received palliative radiotherapy to neck with 30 gray in 10 fractions in 2 weeks for laryngeal disease. After radiotherapy and 4 cycles of chemotherapy, patient had partial response and had started on further hormonal therapy with fulvestrant.

Discussion

Breast cancer can have systemic metastases with a relatively wide distribution. The most common sites of spread are bone, regional lymph nodes, lung, liver, and brain.² Metastases

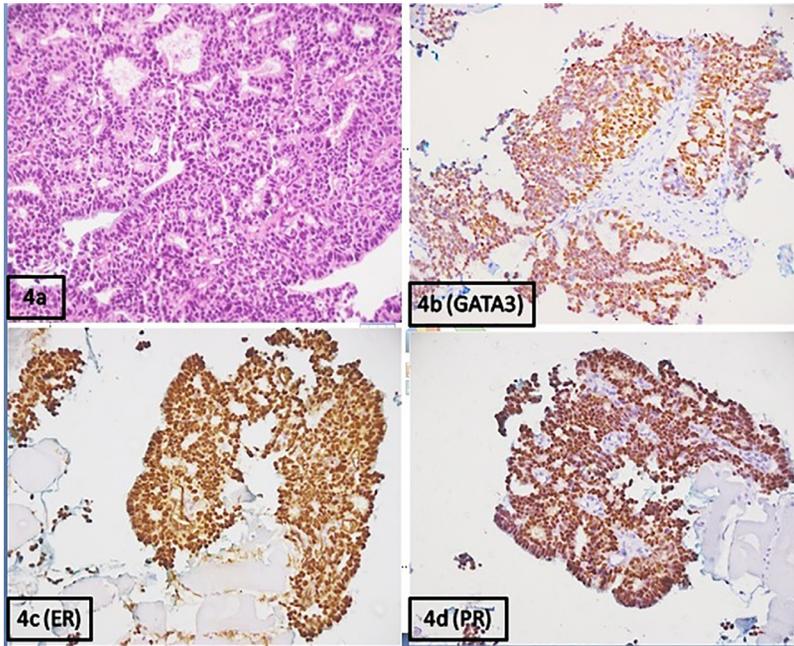


Fig. 4. Biopsy from right pelvic bone shows an adenocarcinoma (A; HE, $\times 200$) which is immunopositive for GATA3 (B; IHC, $\times 200$), estrogen receptor (C; IHC, $\times 200$), and progesterone receptor (D; IHC, $\times 200$).

to the larynx are uncommon and accounts for 0.09%-0.40% of all laryngeal tumors. Laryngeal metastases from breast cancer are extremely rare.³

The initial report on laryngeal metastases from colon cancer came from Mayo Clinic, Rochester by Whicker et al. in 1972.⁴ Only 1 case of laryngeal metastases was observed in 491 cases of laryngeal tumors over a 10-year interval. Further literature review showed a total of 38 cases of laryngeal metastases at that time of which only 4 cases had primary breast cancer.

Freeland et al. in 1979 reported 4 cases of laryngeal metastases over a 12-year period from the University of Toronto.⁵ Ferlito et al. reported 2 cases of laryngeal metastases in a series of 2874 primary and secondary malignant tumors of the larynx and hypopharynx at Padua University in 1984.⁶ Laryngeal metastases from MD Anderson cancer centre, Texas was reported by Batsakis et al. in 1985. Only 11 cases of laryngeal metastases were observed over a 20-year interval, of which only 2 cases had primary breast cancer. Literature review by the authors showed a total of 83 cases of laryngeal metastases at that time with 8 cases with primary breast cancer.⁷

Several hypotheses have been put forth to explain how neoplastic cells can seed the larynx. The systemic circulation, often following the route of the inferior vena cava, right heart, lungs, left heart, aorta, external carotid artery, superior thyroid artery, and laryngeal artery is regarded as an important route.^{4,5} The retrograde circulation of the paravertebral venous plexus or thoracic lymphatic duct is also a possible route. The rarity of metastases to the larynx may be related to the terminal location of the larynx in the lymphatic-vascular circulation.³

The common primary tumors which metastasize to the larynx are melanoma (29%), renal (25%), gastrointestinal (14%), lung (9%), breast (8%), and prostate (5%). The most frequently affected laryngeal subsite is the supraglottis (35%-40%) followed by subglottis (10%-20%) and glottis (5%-10%).^{3,4} The index case had submucosal metastasis involving false VCs and pyriform sinus.

The signs and symptoms are similar to the primary tumors of the larynx and vary according to the location of metastases. Supraglottic lesions present with foreign body sensation in throat, dysphagia or change in voice. Glottic lesions manifest as hoarseness of voice and subglottic

lesions manifests as airway compromise.⁵ The index case had hoarseness of voice associated with shortness of breath.

Indirect or direct laryngoscopy is done for disease extent and tissue sampling for confirmation of diagnosis.⁸ Radiological investigation like contrast-enhanced computed tomography and PET gives additional information regarding the local spread of disease and systemic involvement. PET scan was done in the index case and it showed lung and skeletal lesions. Histopathology is the confirmatory test to differentiate the primary laryngeal tumors from metastases. Tissue diagnosis was done in the index case from both laryngeal lesion and bony metastases. It showed features of metastasis from primary breast cancer with immunopositive for estrogen receptor (ER) and progesterone receptor (PR).

The treatment depends on the extent of the disease and the general condition of the patient. In localized laryngeal metastases alone, local treatment in form of surgery and radiotherapy (RT) gives good results. But, mostly the patients have widespread systemic disease, and require palliative RT and palliative systemic chemotherapy.³ The index case had widespread metastatic disease in lungs and bones and thus was treated with palliative RT and palliative chemotherapy followed by hormonal therapy. Overall, the prognosis is generally poor and in cases of isolated metastasis, a prolonged survival may be achieved.

Conclusions

In summary, although rare, breast cancer patients can develop metastases to the larynx. Patients with a history of breast cancer presenting with hoarseness and shortness of breath should not only be evaluated for laryngeal primary but also for metastases. Once the diagnosis is confirmed, the treatment of laryngeal metastases is multidisciplinary. Recognizing metastatic disease and prompt early treatment are very important to improve the quality of life.

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