Cervical Vertebral Metastasis from Tongue Carcinoma: A Rare Case Report and Review

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Head and neck cancers are emerging as major health problems in India. In 2010, head and neck cancer was ranked as the sixth leading cause of cancer death worldwide. Approximately 481,100 new cases developed, and 320,000 persons died of this disease, resulting in an average mortality rate of 7.3 and 3.2 per 100,000 males and females, respectively. Oral squamous cell carcinoma is the most common head and neck malignancy having a propensity for the locoregional spread. Vascular invasion is very rare when compared to lymphatic spread. Most frequent sites of distant metastasis are lung, bone, liver, adrenals, heart, and kidney. We report a rare case of 39-year-old male with cervical vertebral metastasis from tongue carcinoma which is 9th case reported according to literature.

Keywords: Cervical vertebra, Spinal cord decompression, Spinal metastasis

INTRODUCTION

The incidence and prevalence of head and neck cancer are relatively low in developed countries and highest in developing countries in South East Asia such as India, Pakistan, and Bangladesh. In 2010, head and neck cancer was ranked as the sixth leading cause of cancer death worldwide.¹ Approximately 481,100 new cases developed, and 320,000 persons died of this disease, resulting in an average mortality rate of 7.3 and 3.2 per 100,000 males and females, respectively.²³ Risk factors for head and neck cancer include tobacco, alcohol, and human papillomavirus (HPV). HPV is mainly seen affecting the oropharynx, tonsil, and base of the tongue which are on the rise in young population. This is thought to be due to changes in sexual behavior and habits leading to increased HPV transmission.⁴

Distant metastasis from a primary head and neck cancer is a very rare comparison to other cancers due to the low incidence of vascular invasion. Oral squamous cell carcinoma (OSCC) is most common tumor in head and neck region and most commonly metastasize to lungs. Although these tumors can also spread to spinal cord the overall incidence is just 3%.⁵ Spread from other malignancies to the spine is reported to be higher, especially from breast (20%), prostate, lungs (12%), kidney, and primary thyroid cancers.⁶ However, metastasis arising from a primary head and neck cancer to the spine is not widely reported in the literature. We report a rare case of 39-year-old male with cervical vertebral metastasis from tongue carcinoma which is 9th case reported according to literature.

CASE REPORT

A 39-year-old male reported to the department of head and neck oncology at our cancer center with a chief complaint of swelling in tongue from 3 months and pain in the cervical region from 1 month. On clinical examination, there was 5 cm × 3 cm ulceroproliferative lesion of the left side of tongue reaching up to midline and tip of the tongue. The lesion was reaching the floor of mouth on the left side. Ankyloglossia was evident. On palpation, the lesion was indurated for 1 cm. Clinical palpation of left side neck revealed Level I-III lymphadenopathy while right side there was no cervical lymphadenopathy. cTNM staging was T3N2bM0. Staging of the disease was Stage IVB. History revealed wide excision of the lesion was done 1 year back, and histopathological report revealed invasive
squamous cell carcinoma of Grade II type. The patient had received 3# of neoadjuvant chemotherapy of paclitaxel, cisplatin, and 5-fluorouracil (PCF). On clinical reassessment at present, Level IA node was fixed to anterior belly of digastric; Level IB node was fixed to mandible, and Level II and III nodes were fixed to sternocleidomastoid possible for the extracapsular spread. The tongue lesion was regressed completely, and floor of mouth was free.

On radiological assessment by contrast enhanced computed tomography (CT) scan, there was no obvious enhancing mass in the tongue but except for diffuse infiltrative soft tissue seen along the left side of floor or mouth between the lingual muscles and the mandible. There was extensive lymphadenopathy on the left side with partial encasement of left carotid vessels and narrowing of jugular vessels. On lateral cephalogram, there was complete fracture and collapse of the body of C3 cervical vertebra with retropulsing posterior margin indenting the cervical cord which was likely to be bony metastasis (Figure 1). The patient received 8# radiation to cervical spine with zoledronate and then further 3# of PCF followed by salvage neck dissection. The patient did not want cervical spine decompression surgery as his pain was regressed and there were no neurological deficits. Follow-up period is for 10-month, and the patient is eventually doing fine.

**DISCUSSION**

Out of bony metastasis, spinal metastasis is the third most common site after lungs and liver in head and neck cancers. The incidence of spinal metastatic neoplasm outnumbers primary spinal neoplasms by more than twenty-to-one.7 Vast majority of these spinal metastatic neoplasm originate from the breast, lung, prostate, and renal tumors. Spinal metastasis is most commonly seen in the 4th-7th decades of life and most commonly seen in males than females since its thought to reflective of the higher prevalence of lung/head and neck cancer in males and the higher prevalence of prostate cancer relative to breast cancer.8

Spinal metastasis most commonly affects the thoracic vertebra (60-80%), lumbar vertebra (15-30%), and cervical vertebra (<10%) with the route of metastasis being arterial or venous - Batson’s venous plexus.9 Direct infiltration from paraspinal disease or, less commonly, through the cerebrospinal fluid is also potential routes of metastasis. In vertebra, the vertebral body (85%) is the most common site for initial spinal metastasis involvement then the posterior aspect of which is preferentially involved (66%). The paravertebral spaces (10-15%) and the epidural space (<5%) are also initial sites of metastatic involvement.10

Hsu and Chen,11 in 2005, reported that of distant metastasis in his 147 patients with OSCC found out that the lungs were the most common site for distant metastasis from hypopharyngeal and oropharyngeal cancer. For cancers of oral cavity, the probability of metastasis to bones and lungs was equal. The most common primary sites in oral cavity metastasizing to distant sites are the floor of mouth and tongue. Betka,12 in 2001, reported a 10% risk for patients with Stage IV disease and patients with locoregional relapse. Patients with clinically palpable neck N1-N3 and those with histological evidence of extracapsular spread, and 2 or more positive lymph nodes are at greater risk of developing distant metastasis. de Bree et al.,13 in 2000, also reported various risk factors for distant metastasis based on the histopathological report, 2 or more lymph node metastases, bilateral neck nodal metastases, lymph nodes of 6 cm or larger, low jugular lymph node metastases, locoregional tumor recurrence, and second primary tumor. According to literature, the incidence of distant metastasis was found to be higher in patients with locoregional failure than in those with locoregional control and 21.4% in patients with locoregional recurrence.14

CT imaging is an excellent modality in assessing the osseous spine and has a high degree of accuracy (90% sensitivity and 100% specificity) in identifying metastatic lesions, vertebral destruction, and spinal stability. However, it should be noted that bone scintigraphy measures abnormalities in bone metabolism and does not, therefore, possess a high specificity in identifying spinal metastasis. Single-photon emission CT and fluorodeoxyglucose positron emission tomography (FDG-PET) are both superior to bone scintigraphy and are used in surveillance of patients suspected of Spinal metastasis.15 CT guided biopsy could be more accurate in staging and formulating surgical or medical management.
External-beam radiotherapy (RT) up to a dose of 8 gray (Gy) is known to be effective in patients with pain and neurological deficit secondary to spinal metastasis from a variety of primary tumors. Stereotactic RT or radiosurgery has been shown to be more effective in reducing pain, and neurological deficit Surgery is generally indicated for spinal metastasis in the case of progressive or new-onset neurological deficit secondary to pathologic metastatic compression of the spinal cord, spinal instability or collapse by bone destruction, solitary easily resectable spinal metastasis, fracture-dislocation of spine, an enlarging by bone destruction, solitary easily resectable spinal compression of the spinal cord, spinal instability or collapse.

Medical management includes administration of analgesics, intravenous steroids, bisphosphonates, and chemotherapeutics. Steroids relieve pain and edema and improve neurological symptoms by decompressing the spinal cord to some extent. Bisphosphonates such as zoledronate reduce metastatic bone complications such as fracture and pain and moderate hypercalcemia by reducing the action of osteoclasts. All patients with advanced head and neck cancers must be suspected for distant micrometastasis to the bone and must be approached and investigated thoroughly. There should be a high-index of suspicion in any advanced head and neck cancer patient with a complaining with back pain. The neurologic examination has to be done thoroughly and imaging such as plain radiography, CT of spine and/or magnetic resonance imaging, radionuclide bone scintigraphy, and FDG-PET (whole body) scan can be done to assess for distant metastasis. An intraosseous and extra osseousstrucutbiospy/trocar biopsy can be performed.

There is inadequate evidence for a treatment protocol to be recommended. RT should be used in all patients with non-radioresistant tumors. Surgery should be considered in all patient cases of new-onset or progressive neurological deficit secondary to metastatic compression of the spinal cord.

CONCLUSION

Spinal metastasis is very rare, and management should aim to improve the pain and maintain neurological function. It was found that RT with medical adjuvant is considered the principle treatment of spinal metastasis of head and neck cancers.

REFERENCES