Case Report

A Rare Case of Late Onset Isolated Hepatic Metastases from Laryngeal Carcinoma Demonstrated on PET-CT Scan – A Case Study

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ABSTRACT

Laryngeal cancer is the second most common type of head & neck malignancies. This cancer commonly spreads to regional lymph nodes and distant metastasis is rare. Liver metastasis rarely occurs without evidence of lung or bone involvement. We report a case with a history of squamous cell carcinoma of the larynx treated by definitive radiotherapy nine years earlier, had developed isolated liver metastases on 18F-fluorodeoxy-D-glucose Positron Emission Tomography-Computed Tomography (FDG PET-CT).

Key words: *Fluorodeoxy D-glucose Positron Emission Tomography-Computed Tomography (FDG PET-CT), laryngeal cancer, liver metastasis.*

INTRODUCTION

Laryngeal cancer is the second most common variant of head & neck malignancies and the 14th most common malignancy in all cancers[1,2]. The most common histopathological type is squamous cell cancer (SCC)[2]. The overall incidence of distant metastases in laryngeal cancer is low. The lungs and bone are the most-frequent metastatic sites[3,4]. The lungs and bone are the most-frequent metastatic sites[4]. In this case report, we discuss a case of squamous cell carcinoma originating from the larynx, which had delayed hematogenous spread to the liver after nine years, without involvement of the lung or bone.

18F-FDG-PET-CT plays a crucial role in the management of laryngeal cancer, aiding in diagnosis and treatment planning. Despite initial aggressive treatment, local recurrence or distant metastases can occur in head and neck malignancies, especially within the 1st year[5]. Timely diagnosis of locoregional disease may improve survival by increasing the effectiveness of salvage therapy[6]. PET-CT imaging is superior to other conventional imaging in detection of local recurrence, as well as distant spread of disease[5]. The frequency of distant metastasis is relatively low in head and neck malignancies in comparison to other malignancies. Therefore, detection of distant metastases is an important factor in treatment planning[5].

In this case report, we present a patient with laryngeal SCC who developed isolated liver metastases after a prolonged disease-free interval.

CASE REPORT

A 68 years old male, diagnosed as a case of carcinoma of larynx since 2016. Histopathology report showed squamous cell carcinoma (diagnosed outside EHD). He was treated by radiotherapy, completed in 2016. Recently, he reported right upper abdominal pain for 1 week. Abdominal USG showed a large mass lesion in the liver, and the patient was referred to the Nuclear medicine & Molecular imaging department of Evercare Hospital Dhaka for an 18F-FDG-PET-CT scan for evaluation & re-staging the disease.

18F-FDG-PET-CT illustrated that there was a large hypermetabolic irregular heterogeneously enhancing mass with central necrosis in liver, predominantly in the right lobe, infiltrating porta hepatis and encasing portal vein and biliary duct, causing upstream biliary dilatation in left lobe. The mass measured about 12.6 cm (Tra) x 11.6 cm (AP) x 9.5 cm (CC). Another FDG avid heterogeneously enhancing mass was also seen in segment VII of liver (~4.8 cm x 3.4 cm x 2.4 cm. (Fig-1) On the other hand, there was no abnormal tracer uptake at the laryngeal region, lung, bone and cervical-mediastinal lymphatic groups. (Fig-2 & 3) CT guided biopsy of liver mass confirmed metastatic squamous cell carcinoma.

DISCUSSION

The frequency of distant metastases in laryngeal carcinoma is 8.5% - 20% [3,4]. However, one study mentioned that distant metastasis occurs in only 5% cases, because of improved initial proper treatment, which achieves locoregional control[7]. Advanced local disease (T3, T4), regional lymph node metastases at initial presentation (N+), tumor location and local tumour recurrence are related to distant metastases (3). In most cases, the tumors predominantly involve the lung (45–85%), followed by bones (10–30%) and liver (5–22%) [8,9,10].

Although liver metastasis is infrequently associated with advanced laryngeal cancer, its clinical presentation is often indolent during the course of disease. If symptoms are present, they will usually be nonspecific initially including anorexia, weight loss, and vague abdominal pain. However, during the natural course of the disease, other symptoms can alert the physician that either liver metastases are present or a patient is at high risk for liver metastasis. As stated above, advanced locoregional disease including regional lymph node metastasis is strongly associated with the risk for distant metastasis. In this case, the patient presented isolated liver metastases nine years after completion of treatment. The incidence of hematogenous spread to liver is very rare without evidence of pulmonary and bone disease[5]. Several reports of soft-tissue metastases from laryngeal cancer involving gluteus maximus and scapular muscles[5]. Another report that shows supraglottic larynx cancer which involves all five distal phalanges of the left hand while simultaneous involving lung and liver[11].

Most distant metastases are detected by the patients themselves or by specific symptoms[12]. For laryngeal cancer metastatic work-up, the standard involves direct laryngoscopy with biopsy, followed by imaging like contrast-enhanced computed tomography (CECT) and/or magnetic resonance imaging (MRI) for local staging or to check for lung/distant metastases, especially for advanced stages. In case of head and neck malignancies screening for distant metastases is currently not well established[13]. 18F-FDG-PET-CT has developed as a valuable imaging modality for staging, evaluation of treatment response and to detect local recurrence as well as distant metastases[14]. Many studies suggest that PET-CT is superior to other conventional imaging in primary staging and may alter management and treatment especially when unexpected nodal and/or distant metastasis is diagnosed[15,16].

The incidence of liver metastases in carcinoma of the larynx is relatively low but signifies hematogenous dissemination and poor prognosis. Therefore, detection of distant metastases is an important factor in clinical decision-making. This case illustrates a rare instance of liver metastasis, emphasizing the potential for atypical metastatic patterns. Long-term follow-up is essential for early detection of recurrence, monitoring treatment side effects,

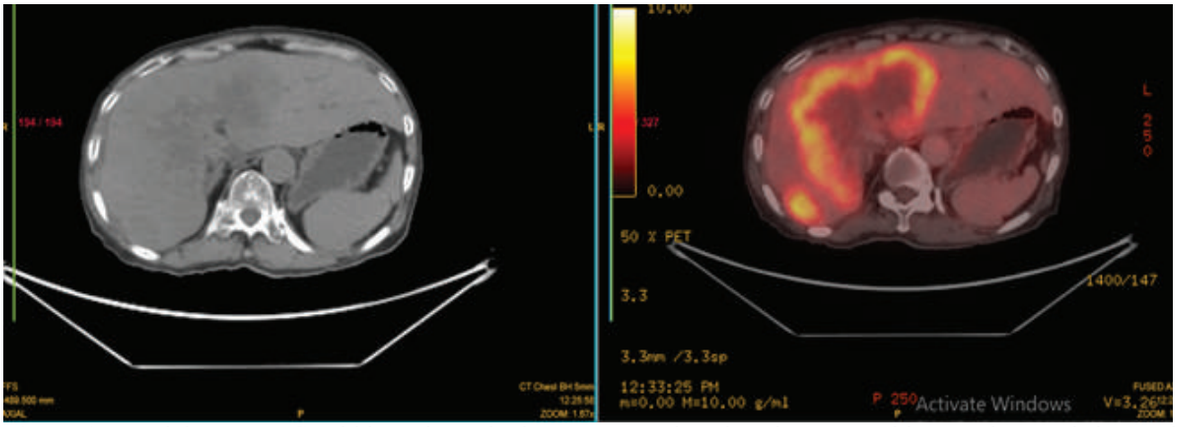

Figure 1: In axial scan, FDG avid large irregular heterogeneously enhancing mass with central necrosis is noted in liver, predominantly in right lobe, infiltrating porta hepatis and encasing portal vein & biliary duct, causing upstream biliary dilatation in left lobe. The mass measures about 12.6 cm (Tra) x 11.6 cm (AP) x 9.5 cm (CC) with SUVmax – 8.0. Another FDG avid heterogeneously enhancing mass is also seen in segment VII of liver (~4.8 cm x 3.4 cm x 2.4 cm).

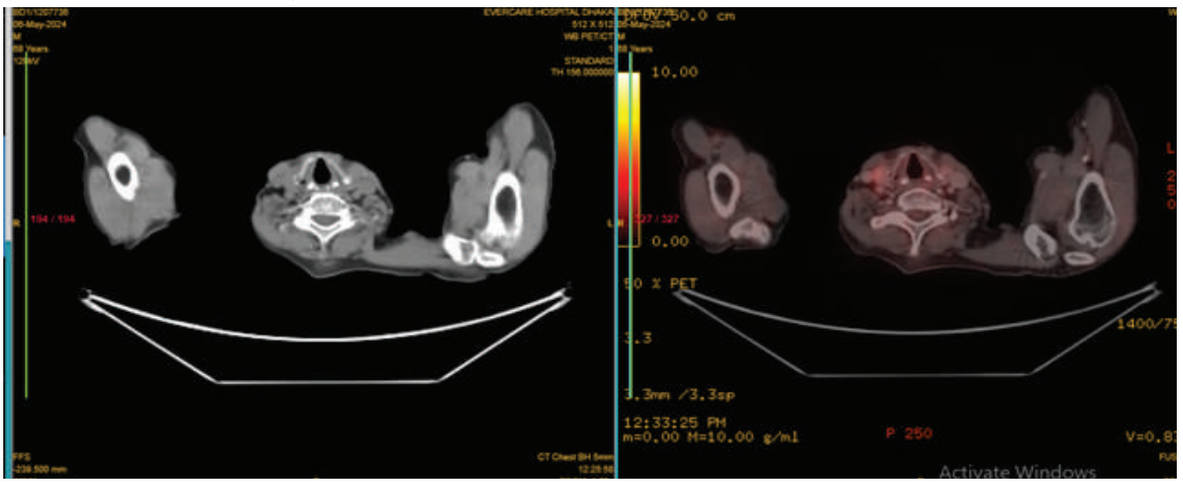

Figure 2: In axial scan, no abnormal FDG uptake is seen in larynx.

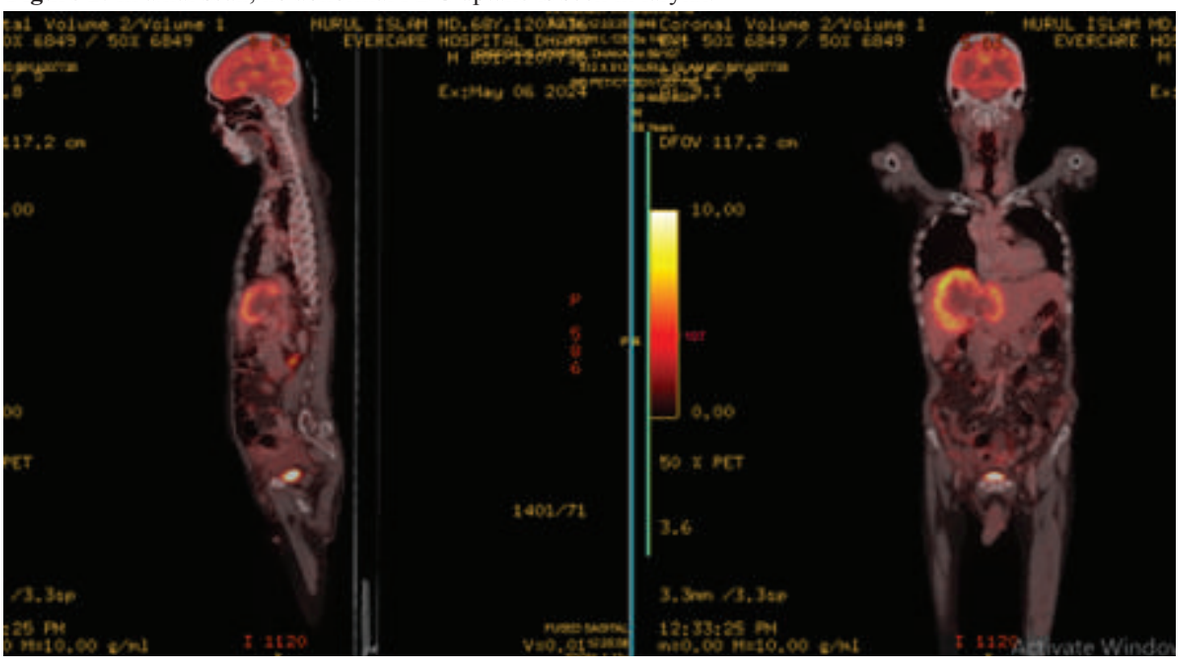

Figure 3: In sagittal and coronal scans show no abnormal FDG avidity in larynx. There is large high FDG avid mass is liver.

identifying second primary cancers and managing rehabilitation. Early and accurate detection of metastases may play an important role for patient survival. A whole-body 18F-FDG-PET-CT scanning is an essential method to re-stage the disease for further management planning.

The treatment modalities for laryngeal cancer are both surgery and radiotherapy[2]. In case of isolated SCC metastasis to the liver, several investigators have suggested using conformal radiation therapy or hepatic arterial infusion chemotherapy[17].

CONCLUSION

Delayed liver metastases from laryngeal carcinoma is rare but possible. Our patient presented with isolated liver metastases nine years after laryngeal cancer diagnosis. PET-CT plays a crucial role in identifying atypical metastatic patterns and guiding further management.

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