



Esophageal cancer with metastases to skeletal muscles - A case report

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Abstract : Aim- To report a rare case of esophageal cancer with metastases to skeletal muscles. Case report- 69 year old male, chronic smoker presented in 2013 with dysphagia for three months, diagnosed to have adenosquamous carcinoma of upper thoracic Esophagus and was treated with concurrent chemoradiation with RT TD 54Gy to primary and nodal regions along with three cycles of weekly cisplatin. On March 2014, patient was diagnosed to have metastases to calf muscle and gluteus maximus which after IHC correlation was found to be secondaries from esophageal primary. Patient received palliative irradiation to the same with TD 30 Gy and was on follow-up. He again had metastases to Right popliteus and left shoulder and was irradiated to popliteal region. Patient on treatment developed pathological fracture of right tibia and was on supportive care. Patient died due to progressive disease on December 2014.

Discussion

Esophageal cancers have a poor five year overall survival with concurrent chemoradiation or surgery. Esophageal cancers usually metastasize to liver, lung or bone. Skeletal muscle metastases usually are rare and account for 1-2 of all metastases. Treatment is usually with palliative irradiation or chemotherapy. Patients with such metastases have a poor prognosis with Overall survival ranging from 6 to 24 months.

Conclusion

Skeletal muscle metastases are rare with esophageal cancers and should be always borne on mind while presenting with lump earlier diagnosis due to better imaging modality might result in earlier treatment which might improve local control and quality of life.

Keyword : Skeletal muscle metastases, esophageal cancer, adenosquamous carcinoma.

Introduction:

Esophageal cancer is a highly aggressive neoplasm. There is an increased trend noticed in the diagnosis of esophageal cancers. Approximately, 87% would have died of the disease at the end of five years. The prognosis of esophageal cancers is usually poor which can be either due to loco regional failure or distant metastases. Metastases to liver, lung, adrenals, bone, pleura, peritoneum, and pericardium are common. Less common sites of metastases include pancreas, kidneys, ovaries, skin, gallbladder, heart and thyroid. Skeletal muscle metastases are usually very rare and account for less than two percent of all tumours. They may present as a lump, nodule or can be asymptomatic during presentation. Hence

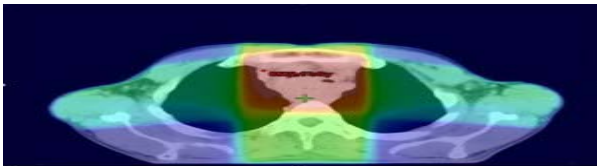
any nodule or lump when it is clinically palpable should be carefully evaluated to rule out the possibility of secondaries from esophageal cancers.

Case report:

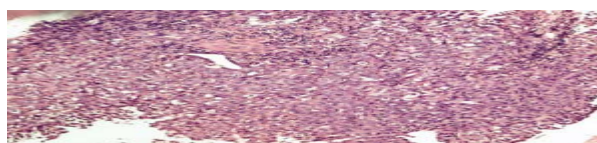
69 years old male patient, without any comorbid, known smoker for the past twenty years with 10 pack cigarettes/ day, and alcoholic for the past fifteen years presented with dysphagia for three months duration. The dysphagia initially, was for solids which later progressed to liquids also. Barium swallow showed irregular stricture in the proximal part of the Esophagus. Esophagogastroduodenoscopy was done, which showed circumferential growth extending from 20 to 26 cm from the incisors with the rest of the mucosa being normal. Biopsy done showed poorly differentiated carcinoma of glandular origin, and further immunohistochemistry evaluation showed as Adenosquamous carcinoma of upper thoracic Esophagus. Rest of the investigations were within normal limits. Patient was treated with concurrent chemoradiation using three cycles of weekly cisplatin, following which he developed Gr III febrile neutropenia and dyselektrolytemia, and hence deemed unfit for further chemotherapy.

Patient also received radiation concurrently using 3D Conformal therapy to a total dose of 54 Gy from 13.08.2013 to 02.10.2013. Patient was on regular follow up; In December 2013, he presented with neck swelling that moves on deglutition and was diagnosed as thyroglossal cyst for which patient refused surgery. He was on follow up and in March 2014, he presented with painful swelling in right calf region, which was 5 x 4 cm in size, firm in consistency, non tender with restricted mobility. Fine needle aspiration was done, which reported to be poorly differentiated carcinoma with squamous features, high grade; and further IHC studies (High Molecular weight Keratin, CK 5/6, CK8, CK 18) confirmed it to be secondaries from Esophagus. 18F PET-CT was done for metastatic workup which revealed irregular enhancing lobulated muscular soft tissue density lesions seen in right calf and gluteal regions with an SUV uptake value of 17.4 and 11.2 respectively. Patient was deemed unfit for chemotherapy, as he was biologically older, and was planned for palliative irradiation. Patient was treated with palliative irradiation to the right calf with TD of 30Gy along with the same dose to right inguinal region covering the gluteus muscular uptake from 20.05.2014 to 31.05.2014 and was found to have a residual 4x3cm swelling in right calf with minimal response. Patient was

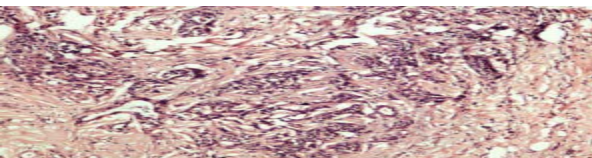
kept on follow-up, and on July 2014, he presented with pain in right popliteal region and was found to have a 4x3 cm swelling which on fine needle aspiration was found to be metastases from the Esophagus. He was also found to have an asymptomatic metastatic lesion in left shoulder, and was treated with radiotherapy to right popliteal region. Patient received 15 Gy and had a history of fall, which on evaluation found to be pathological fracture of right middle third of tibia. Patient desired to have further treatment at native place and was discharged against medical advice. Patient expired on December 2014 due to progressive disease.



Esophagus PTV



Esophagus HPE



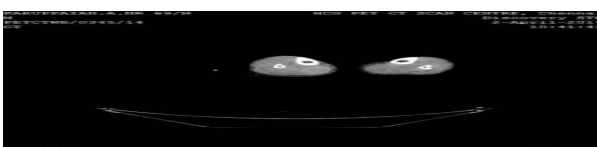
Calf muscle HPE



Whole body PET



PET uptake of Calf muscle



Calf muscle Helical

Discussion:

Metastases to the skeletal muscle is rare and represent less than 1-2% spread from solid tumours. Reports indicate that some researchers have come across only a handful of metastases like 15 to 20 cases among 50000 cancers. The incidence of skeletal muscle metastases is very less and about 2.5% even in soft tissue sarcomas. The most common sites of primaries for skeletal muscle metastases are from lungs (35%), gastrointestinal tract (24%), and kidneys (12%). Other sites of primaries are melanomas, head and neck cancers, thyroid, prostate, breast, uterus, cervix, etc. The most common sites of skeletal muscle metastases are diaphragm, rectus abdominis, psoas, intercostal muscles, deltoid, gluteus and thigh muscles.

Skeletal muscles make up about 40-45% of total body mass. Vascular embolization is very common for metastases. Skeletal muscles, which are body's major locomotor organ, are very well vascularized. Even so, it is very uncommon for skeletal muscle metastases. It might be due to the fact that, skeletal muscle contraction and muscular turbulence might create a hostile environment to the circulating tumour cell. Another fact is that skeletal muscle possess lactic acid and protease inhibitors that might act as inhibitors to the tumour cell to lodge in skeletal muscles and its development. The differential diagnoses might include benign tumours, lipomas, hemangiomas, etc. Fine needle aspiration or biopsy is required for final confirmation of the pathology, as it represents systemic disease. Moreover, it is rare for patients to be diagnosed with skeletal muscle metastases as many people won't survive long enough to be clinically detected with the same.

Treatment mostly includes observation, radiotherapy, chemotherapy and excision of the lesion. However, all these approaches rarely make any impact on the treatment's outcome. Taking all metastases from esophageal carcinoma as, [2] lymph nodes accounts for around 75% of the metastases, followed by lungs (52%), liver (47%) and adrenals (20%). Study undertaken by Department of Nuclear Medicine in Czech Republic[1] published case reports of metastatic esophageal carcinoma to skeletal muscles, and among those five cases, two cases were squamous cell carcinomas of esophagus, two were adenocarcinomas, and one with both esophageal and pancreatic adenocarcinoma with metastasis to skeletal muscles. All these patients were above 50 years of age at presentation, and had both synchronous and metachronous muscle presentation along with the primary. The muscle location were as follows: Quadriceps femoris, Gluteus minimus and psoas; subscapularis, iliacus and multiple level of muscular metastasis. The overall survival from the diagnosis of metastasis ranged from two months to thirty two months depending on the severity of the disease. Among these patients, three received concurrent chemoradiation, and two did not receive treatment and succumbed to the disease.

Another study done by the Japanese institute [4] reported two cases of esophageal carcinoma with skeletal muscle metastases, and was treated with chemoradiation and irradiation alone, with overall survival being 6 and 12 months respectively. Tuoheti et al [3] reported a case series of twelve patients with skeletal muscle metastases from various primaries; the primaries included lung, stomach, urinary bladder, thyroid, gingiva, etc. Patients were treated with wide local excision followed by irradiation, or concurrent chemoradiation depending upon the performance status of the patient. All these patients presented with a painful mass evaluated with imaging studies, either with a CT or an MRI scanning. The overall survival ranged from two months to five years, and varied between the disease status of the

patient. In the above patient mentioned, the patient was moderately built and nourished, who after treatment of his primary in esophagus was under regular follow-up, presented with painful mass in the calf, which on palpation, was firm and was diagnosed to be metastases from the primary. Due to the advancement in imaging modalities, especially PET-CT, has yielded valuable information regarding widespread metastases during metastatic workup. Imaging modalities confirm the diagnosis, because, these muscular lesions tend to be overlooked, and might be diagnosed clinically for a benign lesion, and hence, could have been kept under follow-up. Because of this, the true impact of skeletal muscle metastases from various primaries does not reflect the data available, as many of these tend to be missed due to the differential diagnosis of clinically benign lesions, which are more common than metastatic carcinomas in skeletal muscle. This patient, had a disease free survival of about one year, after which he developed calf muscle metastases, after which, his disease progressed to other sites. He had an overall survival of about 8 months from the time of metastases, and subsequently died due to progressive disease.

Conclusion:

In summary, any lesion presenting as a painful or incidental mass with a known prior history of cancer should be dealt with caution, as chances of those lesions being metastatic are very high. Fine needle aspiration or biopsy of these lesions is mandatory to confirm the diagnosis, and immunochemistry can be done to confirm whether it is from the same primary or not. Advancements in imaging modalities have given the oncologists, a good chance of picking up these lesions at an early stage which might be treated immediately. Skeletal muscle metastases, whether symptomatic or asymptomatic, represent a rare event in esophageal primaries, and might be because of improved locoregional control of the same due to the advancements of treatment modalities which leads to improved control of the primary disease. Skeletal muscle metastases can represent the first incidence of metastatic disease in the patient, which if diagnosed earlier can be treated with multimodality approaches like excision, irradiation, or chemotherapy. This can reflect as improved local control, which even in metastatic disease, might result in better quality of life.

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