CASE REPORT

A Unique Presentation of Metastatic Esophageal Adenocarcinoma: The Painful Thigh

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CASE REPORT

This is a report of a 51-year-old male who presented to the orthopedic team with a painful swelling of the right thigh of a few months’ duration. He had lost around 20 kg during this period. On further inquiry, he mentioned a restriction of his movements at some point. The patient’s past history was negative for any co-morbid conditions, and the rest of his history and systemic review were not contributory factors at that point. The routine laboratory work-up included complete blood count, renal and hepatic profiles, the results of which were within normal limits. The work-up of his right thigh pain demonstrated a local ill-defined painful swelling, which on clinical exam was intramuscular occupying the proximal upper outer thigh. The skin over it was intact and the rest of the lower limb exam was within normal limits. Right hip X-ray did not reveal any abnormalities but warranted further radiological assessment. Magnetic resonance imaging (MRI) of the right thigh showed an enhancing mass in the right vastus lateralis muscle measuring around 8 cm in the sagittal plane [Figure 1a] and 3 cm by 4 cm in the axial plane [Figure 1b]. The finding raised the suspicion of sarcoma since the skeletal muscle origin is confirmed radiologically. A true cut biopsy was performed and

A B S T R A C T

The incidence of esophageal adenocarcinoma is increasing, and with this increase is an influx of unusual presentations in the literature. Skeletal muscles are generally rare as sites of metastasis. We report a case of a middle aged-man who presented with a painful swelling of the thigh which turned out to be consistent with esophageal adenocarcinoma metastasis. Few reports have preceded ours. The prognosis is poor and the therapeutic modalities of such an advanced disease are limited.

Key words: Esophageal adenocarcinoma, metastasis, skeletal muscle, thigh pain

INTRODUCTION

Skeletal muscles account for 50% of body weight. Despite this, skeletal muscle metastasis is an uncommon phenomenon. Several factors have been raised for such a low probability.[1] It is even uncommon for metastasis from gastrointestinal (GI) malignancies. The rarest of this is esophageal adenocarcinoma metastasis to the skeletal muscle. Usually, it advances with metastasis to local or regional lymph nodes or the liver. Aggravating the problem is the fact that the radiological modalities available today are not sensitive enough to differentiate primary skeletal muscle tumors such as sarcomas from metastasis.[2] However, once confirmed by biopsy, prognosis is poor with very limited therapeutic options for cure.
the result was consistent with atrophic skeletal muscle with metastatic adenocarcinoma that was likely to be esophageal in origin.

During the work-up period, the patient had an episode of dysphagia. The work-up consisted of standard modified Barium swallow [Figure 2a], computed tomography (CT) of the chest [Figure 2b] and esophagoscopy. They demonstrated a distal junctional obstructing esophageal tumor. The biopsy was consistent with esophageal adenocarcinoma. Staging positron emission tomography also confirmed the findings. The malignant cells expressed monokeratin, carcinoembryonic antigen (luminal pattern), CK7 (diffuse pattern) and CK20. They were negative for vimentine, S100, leukocyte common antigen, gross cystic disease fluid protein, calretinin, thyroid transcription factor-1, prostate specific antigen and prostatic acid phosphatase. The patient was labeled a metastatic esophageal adenocarcinoma and was managed accordingly, by the oncology team. The options were discussed with the patient, and the agreement was to proceed with palliative radiotherapy for the esophageal cancer. He was started on 1800cGy in 6 fractions. The patient refused palliative chemotherapy because of its potential toxicity. He underwent palliative radiotherapy for the thigh lesion, 1800cGy in 6 fractions. His dysphagia worsened and he required an esophageal stent later. The patient passed away few weeks later.

**DISCUSSION**

Epidemiological studies have shown an alarming increase in the incidence of esophageal adenocarcinoma over the last three decades.[3] Several factors have contributed to this increase, namely gastroesophageal reflux disease, obesity and others.[3] As this increase is observed, the spectrum of presentation from incidental to extremely advanced disease is observed, as are unusual rare presentations. Skeletal muscles are rarely involved in metastasis because of several factors such as: Blood flow,
intramuscular blood pressure, blood flow per unit of weight (mL/min/g), local pH changes, local temperature changes and the capability of skeletal muscle proteases to eliminate lactic acid which is thought to be an important factor in tumor angiogenesis.\cite{4}

Despite these protective mechanisms, skeletal muscles usually host metastasis from primary tumors such as melanoma, thyroid, breast, colon, uterus and lung.\cite{1} It has been reported from autopsies, that the incidence of intramuscular metastasis reaches a range 0.8-20%.\cite{4} The diaphragm, rectus muscle, deltoid, psoas, thigh muscle, intercostals, gluteal muscle and spinal muscles have been involved as sites of metastasis.\cite{1} With regards to GI tumor metastasis to skeletal muscles, the stomach, pancreas and colon are the most common.\cite{3} The literature is very limited on esophageal adenocarcinoma metastasis to skeletal muscles, with only a few case reports. Such metastasis is a poor prognostic sign indicating an advanced disease. Plain radiography is neither specific nor sensitive enough to diagnose skeletal muscles metastasis. MRI is the gold standard for imaging such lesions. It is even superior to CT scans in its ability to detect metastasis.\cite{3} Characteristically, it shows low to iso-intense signals in T1-weighted images and high signal intensity in T2-weighted images. It has a superior delineation of extension to bone and adjacent structures.\cite{3} There is no standard treatment approach to such metastasis. Usually, it is part of an advanced disease which precludes surgical resection of the primary esophageal adenocarcinoma. The treatment is tailored to the individual. Chemotherapy, radiation therapy, combination therapies under the palliative care umbrella has been reported. Surgical resection of such metastasis has been reported, but there are indications of failure of other therapeutic modalities or neurological deficit.\cite{3} Despite all the modalities, the median survival rate is <12 months.

**CONCLUSION**

Skeletal muscle metastasis from esophageal adenocarcinoma is an extremely rare event. Once identified, it is a poor prognostic indicator and the treatment options vary according to each individual case. This report together with others might go toward the assembly of information about this rare entity so that possible management standard guidelines might be determined.

**REFERENCES**


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