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Solitary Psoas Muscle Metastasis of Gastroesophageal Junction Adenocarcinoma

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KEY WORDS

Skeletal muscle metastasis
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CT scan

ABSTRACT

Metastasis of gastroesophageal junction (GEJ) adenocarcinoma in skeletal muscle is rare and primary sites for skeletal muscle metastases are usually lung, renal and colorectal cancer. We have encountered with the first case report of solitary psoas muscle metastasis of GEJ adenocarcinoma. Here we describe a 65 years old man was diagnosed with GEJ adenocarcinoma in Gastroenterology Department, Imam Hussein Hospital, Tehran, Iran in February 2014. We were not able to use PET techniques due to lack of access. Staging CT scans demonstrated a small mass lateral to right psoas muscle. A CT-guided core needle biopsy of right psoas muscle was performed that supported a diagnosis of adenocarcinoma consistent with primary adenocarcinoma of the GEJ. Distant metastasis to skeletal muscle rarely occurs in patients with GEJ adenocarcinoma, but heightened awareness to these soft tissue lesions is warranted. CT or MR imaging could show findings suggestive of metastatic disease, although PET is preferable modality.

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Introduction

Metastasis to the skeletal muscle is very rare accounting for about 0.03 to 5.6% of all cancers in autopsy series (1-3). Primary sites for skeletal muscle metastases are usually lung, renal and colorectal cancer (4). There are some cases of skeletal metastatic lesions arising from gastric adenocarcinoma, pleural mesothelioma or transitional cell carcinoma of the urinary bladder (4). However, the association between

gastroesophageal junction (GEJ) adenocarcinoma and skeletal muscle metastasis is extremely rare. Previously, four cases of distant skeletal muscle metastasis from the GEJ adenocarcinoma have been explained with involvement of the lower extremity muscles including gluteal, biceps femoris, quadriceps femoris, semimembranosus, and semitendinosus muscles (5-8).

Although, PET is the superior diagnostic modality for skeletal muscle metastases of GEJ adenocarcinoma (9), nevertheless in the absence

of access to this diagnostic technique, CT or MR imaging could provide findings suggestive of metastatic disease.

Solitary metastasis in psoas muscle of GEJ adenocarcinoma has not been reported. Here we report a solitary psoas muscle metastasis of a primary adenocarcinoma of the GEJ detected by CT scan and confirmed by core needle biopsy.

Case Report

A 65 years old man with a 2 months history of severe dysphagia was referred to Gastroenterology Department, Imam Hussein Hospital, Tehran, Iran in February 2014. Endoscopy revealed a mass in the gastroesophageal junction which biopsy indicated infiltrating adenocarcinoma in this area.

Tumor staging by endoscopic ultrasound (EUS) was T3N2MX. A CT scan of the chest, abdomen, and pelvis with oral and intravenous contrast were performed; chest CT scan showed an 11*5 millimeters lung nodule in right middle lobe, abdominal and pelvic CT scan revealed a small mass lateral to right psoas muscle (Fig. 1). A CT-guided core needle biopsy of the lung nodule and right psoas muscle was done that results were negative for malignancy in lung specimen but the histological and immunohistochemical findings of psoas muscle supported a diagnosis of adenocarcinoma consistent with primary adenocarcinoma of the GEJ (Fig. 2).

Immunohistochemical stains were positive for CK7, MUC5AC, and HER2-2(+). The neoplastic cells were negative CK20, CDX2 and TTF1 (Fig.



Fig. 1
Abdominopelvic CT scan revealed 16 mm enhancing mass lateral to right psoas major muscle which could be metastatic mass

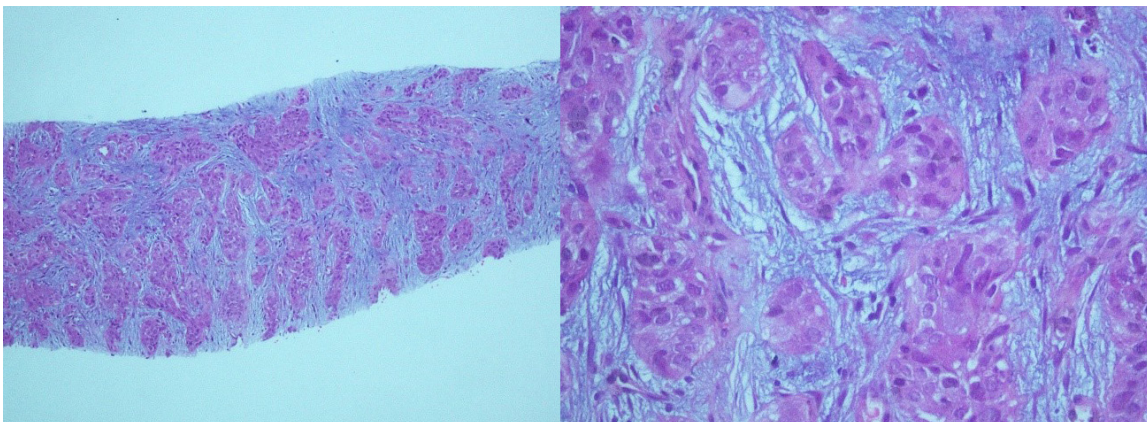
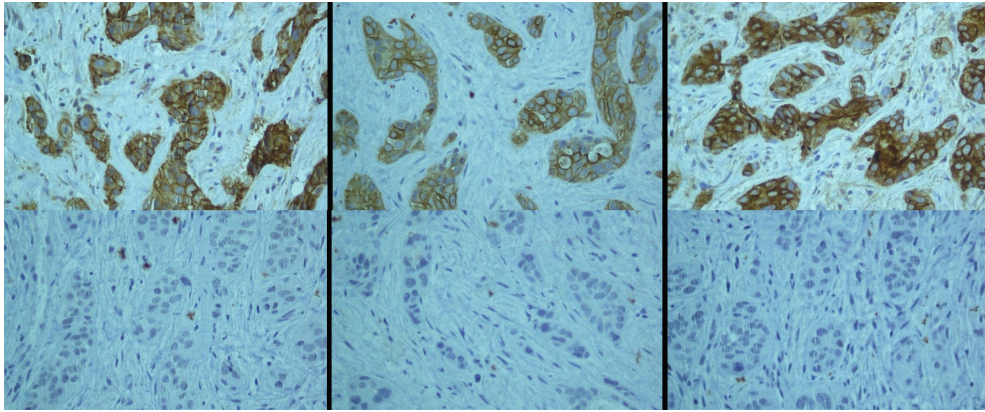


Fig. 2
The H&E (10X & 40 X microscopic powers) slides showed infiltrative atypical nests with vague gland-like features

**Fig. 3**

The infiltrative nests revealed positive reaction with CK7, MUC5AC, and Her2, as well as negative reaction with CK20, CDX2 and TTF1

3). Bone scan, serologic tumor markers (CEA, PSA, CA 19-9, and alphafetoprotein) were within normal limits. The patient underwent curative chemotherapy, consisting of IV oxaliplatin 130 mg/m² on day 1 with oral capecitabine 1,000 mg/m² twice daily, days 1 to 14, in a 3-week cycle for two months which followed by chemoradiation with paclitaxel 50 mg/m² and carboplatin (AUC 2) on days 1, 8, 15, 22 and 29 and concurrent radiotherapy (50.4 Gy in 28 fractions).

An informed consent was taken from the patient.

Discussion

Metastasis of GEJ adenocarcinoma in skeletal muscle is extremely rare and, to our knowledge, only four cases have been reported with involvement of the lower extremity muscles including gluteal, biceps femoris, quadriceps femoris, semimembranosus, and semitendinosus muscles (5-8). Our patient is first case of solitary psoas muscle metastasis of GEJ adenocarcinoma. Several mechanisms have been proposed to describe the rarity of skeletal muscle metastasis; for example, protease inhibitors in the muscle extracellular matrix resist invasion by tumor enzymes, muscular contractions may dislodge the tumor cells or the acidic conditions within the muscle produced by various metabolites may

interfere with metastatic growth (10, 11).

Skeletal muscle metastases usually present as painful and palpable mass, muscular swelling, and decreased range of motion of joints (4, 12, 13); however asymptomatic skeletal muscle metastases of GEJ adenocarcinoma has been reported (7, 8). In these cases, imaging procedures could provide a complete evaluation. Today, the majority of studies support PET, which is superior to CT in detecting distant metastases for initial staging of esophageal carcinoma (14, 15); however, in the absence of access to this diagnostic technique, CT and MRI could be used to complement the clinical assessment of skeletal muscle tumors (4). Unfortunately, we were not able to use PET techniques due to the lack of access to this diagnostic method. Our patient had asymptomatic psoas muscle metastasis which was detected by CT scan and confirmed by core needle biopsy.

In conclusion, distant metastasis to skeletal muscle rarely occurs in patients with gastroesophageal junction adenocarcinoma, but heightened awareness to these soft tissue lesions is warranted. CT or MR imaging could provide findings suggestive of metastatic disease, although PET is preferable modality in the detection of skeletal muscle metastases. Core needle biopsy is necessary to confirm the diagnosis.

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Abbreviations:

- GEJ** - Gastroesophageal junction
EUS - Endoscopic ultrasound
PET - Positron emission tomography
CT - Computed tomography
MRI - Magnetic resonance imaging
CK7 - Cytokeratins 7
CK20 - Cytokeratins 20
TTF-1 - Thyroid transcription factor-1
CEA - Carcinoembryonic antigen
PSA - Prostate specific antigen
CA 19-9 - Cancer antigen 19-9

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