Paraganglioma Necessitating Aggressive Surgical Staging After Primary Staging of Malignant Melanoma by FDG-PET/CT: Case Report

FDG-PET/BT ile Malign Melanomun Primer Evrelemesi Sonrası Agresif Cerrahi Evreleme Gerektiren Paraganglioma

**ABSTRACT** Malignant melanoma (MM) is a dermal cancer originating from melanocytes locating in epidermis. Its mortality is high and treatment option is determined by the stage of the disease. Therefore all patients with MM should be staged properly even if it requires aggressive surgical staging. Herein we presented a patient with MM who was staged with aggressive surgical approach that includes left axillary lymph node biopsy, video assisted thoracic surgery (VATS) thymectomy and resection of intrapericardial lesion via median sternotomy. This aggressive surgical approach avoided upstaging of the patient and unnecessary treatment.

**Key Words:** Melanoma; paraganglioma


**Anahtar Kelimeler:** Melanom; paragangliom

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Malignant melanoma (MM) is a dermal cancer originating from melanocytes locating in epidermis. Its mortality is high and incidence is increasing. While 5-year survival rate is about %90 in local disease especially if diagnosed and treated early, it is around %5 in metastatic disease.1 Common metastatic sites are skin, subcutaneous tissue, remote lymph nodes, lungs, liver, brain, bone and intestines.2 If there is microscopic lymph node metastasis, 10-year survival rate is 48%; if not 65%.3 The most common subtype is superficially spreading one and its prognosis is better. Approximately 15% of patients with invasive thin tumours (<1 mm) may develop metastatic disease.4

Treatment is wide surgical resection and sentinel lymph node dissection is necessary for staging. If sentinel lymph node is positive, radical lymph node dissection of drainage region is performed. While determining
mm as stage IV disease, you must be very atten-
tive. Because treatment of stage IV MM is almost
impossible and mean survival is 6-9 months.

Paraganglioma is a rare neuroendocrin tumour
originating from paraganglionic body of autonomic
nervous system. These benign tumors containing
dense vascular structure usually grow slowly and
their clinical courses change according to pressure
symptoms.

CASE REPORT
A 23 year-old male having a mole at right preau-
ricular area underwent surgical excision as it had
overgrown recently. He was asymptomatic. Upon a
pathological diagnosis of malignant melanoma (su-
perficially spreading, TNM:pT1b, CLARK:StageII,
BRESLOW:0.7 mm), positron emission tomo-
graphy with Deoxy-fluoro-D-glucose computed to-
mography (FDG-PET/CT) was requested for
primary staging. An anterior mediastinal uptake
belonging to a soft tissue lesion with a standardized
SUV max value of 25.5 and a left axillary uptake be-
longing to an axillary lymph node (SUV max:3.8)
were seen on FDG-PET/CT images (Figure 1). Soft
tissue mass was interpreted as thymic tumour (thy-
moma or thymic carcinoma) and left axillary
lymph node as metastasis of malignant melanoma.
However, there was not any metastasis to regional
lymph node and the SUV max value of two suspi-
cious lesions were so different. These findings were
required to confirm these lesion histopathologically.
Therefore, the patient was referred to thoracic sur-
gery department for CT-guided biopsy of the me-
adiastinal mass to depict its nature and delineate its
boundaries. Thoracic surgeons decided to perform
left axillary lymph node biopsy and complete exci-
sion of the lesion simultaneously for histological
confirmation of PET/CT findings. On chest CT and
aortic-pulmonary arterial dynamic CT angiography
images; a smooth contoured, slightly heteroge-
neous mass lesion of 23x34x44 mm in dimension
containing milimetric calcifications, locating in
front of ascending aorta and pulmonary truncus
adjacent to them alongside a surface of 2.5 cm, not
invading vessel wall and lumen was detected and
suspected principally of thymic origin (Figure 2).
Left axillary lymph node was excised, thymus was
removed by video assisted thoracic surgery (VATS).
As the thymic area was explored with tho-
racoscope after excision, it was understood that the pericardium was intact and the lesion was inside the pericardium. This meant that it was not originating from thymic tissue (Figure 2). This fragile lesion of cardiac origin was neither biopsied nor resected because of the risk of massive bleeding and dangerous cardiac tamponade. It was completely resected ten days later by a cardiovascular surgeon. Histopathologic examination of the resected specimens revealed that left axillary lymph node was not malignant (reactive) and the mediastinal mass initially thought to be of thymic tissue was a paraganglioma originating from parasympathetic chain around aortic root. The patient was staged as early disease and no adjuvant therapy was planned. He was discharged without any complication.

**DISCUSSION**

Staging of a cancer patient is the most important issue when planning treatment, determining prognosis and evaluating treatment results. Imaging modalities are useful for defining primary lesion and detecting suspicious metastatic disease. Treatment option is determined by the stage of the disease. Therefore all patients with malignant disease should be staged properly even if it requires aggressive surgical staging. MM is an aggressive tumor that can metastasize to any organ of the body.

Although FDG-PET/CT is the most useful imaging tool for staging as it screened whole body, it may cause false positivities resulting in upstage of the disease as is in our case. FDG PET/CT is being widely used for primary staging, treatment response and restaging of FDG-avid tumors like MM. However its diagnostic efficiency is still controversial because of lots of mostly benign pathologies locating in mediasten by decreasing specificity creating false positive results. While staging MM, PET seriously and frequently faces challenge due to increased glycolytic activity of benign tumors and various infectious, inflammatory and granulomatous lesions in addition to that of malignant ones around this region. Rarely unknown synchronous or metacron malignities at this area accompanying MM may be interpreted as metastasis of it. We found two suspicious lesions for metastasis. One was left axillary lymph node that can be a metastatic focus and the other one was in anterior mediastinum around thymic area where it was an unexpected area for MM metastasis. These modalities have limitations and can only be a guide to performing histopathological confirmation. Anatomical imaging techniques give just anatomical detail and besides this information may sometimes be confused with normal overlapping anatomical structures around them especially in mediastinum where normal dense anatomical tissues overlap each other misleading the clinician. In our case chest CT and dynamic CT angiography misled us showing the mass insistently in relation with thymus. So we focused over this region. But when we explored the area,
we saw that the lesion didn’t have nothing to do with thymus. At the same time, he could had a fatal complication caused by bleeding and cardiac tamponade if we had performed a biopsy to this fragile lesion depending on CT. Eventually definitive decision can only be made after removing of these masses for histopathological examination.

As conclusion, due to false positivities of PET/CT scanning, many cancer patients such as MM can be upstaged wrongly if we trust only imaging modalities. In order to avoid this situation and treat the patients properly, we should do histopathological confirmation if it necessitates aggressive surgical staging.

REFERENCES