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

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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

ÖZET Malign melanom epidermiste lokalize melanositlerden köken alan bir deri kanseridir. Mortalitesi yüksek olan bu hastalığın tedavi seçeneği hastalığın evresine göre belirlenmektedir. Bu nedenle malign melanomlu bütün hastalar agresif cerrahi evreleme gerektirse dahi uygun bir şekilde evrelendirilmelidir. Biz burada aksiller lenf nodu biyopsisi, video yardımlı göğüs cerrahi (VATS) timektomi ve median sternotomi ile intraperikardiyal lezyon rezeksiyonunu içeren agresif cerrahi yaklaşım ile evreleme yaptığımız malign melanomlu bir hastayı sunduk. Bu agresif cerrahi evreleme yaklaşımı ile hastanın daha ileri olarak evrelenmesi ve gereksiz tedavi görmesi engellenmiş oldu.

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

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MM as stage IV disease, you must be very attentive. 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 preauricular area underwent surgical excision as it had overgrown recently. He was asymptomatic. Upon a pathological diagnosis of malignant melanoma (superficially spreading, TNM:pT1b, CLARK:StageII, BRESLOW:0.7 mm), positron emission tomography with Deoxy-fluoro-D-glucose computed tomography (FDG-PET/CT) was requested for primary staging. An anterior mediastinal uptake belonging to a soft tissue lesion with a standardized SUVmax value of 25.5 and a left axillary uptake belonging to an axillary lymph node (SUVmax:3.8) were seen on FDG-PET/CT images (Figure 1). Soft tissue mass was interpreted as thymic tumour (thymoma 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 SUVmax value of two suspicious lesions were so different. These findings were reqired to confirm these lesion histopathologically. Therefore, the patient was referred to thoracic surgery department for CT-guided biopsy of the mediastinal mass to depict its nature and delineate its boundaries. Thoracic surgeons decided to perform left axillary lymph node biopsy and complete excision 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 heterogeneous 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 throracic surgery (VATS). As the thymic area was explored with tho-

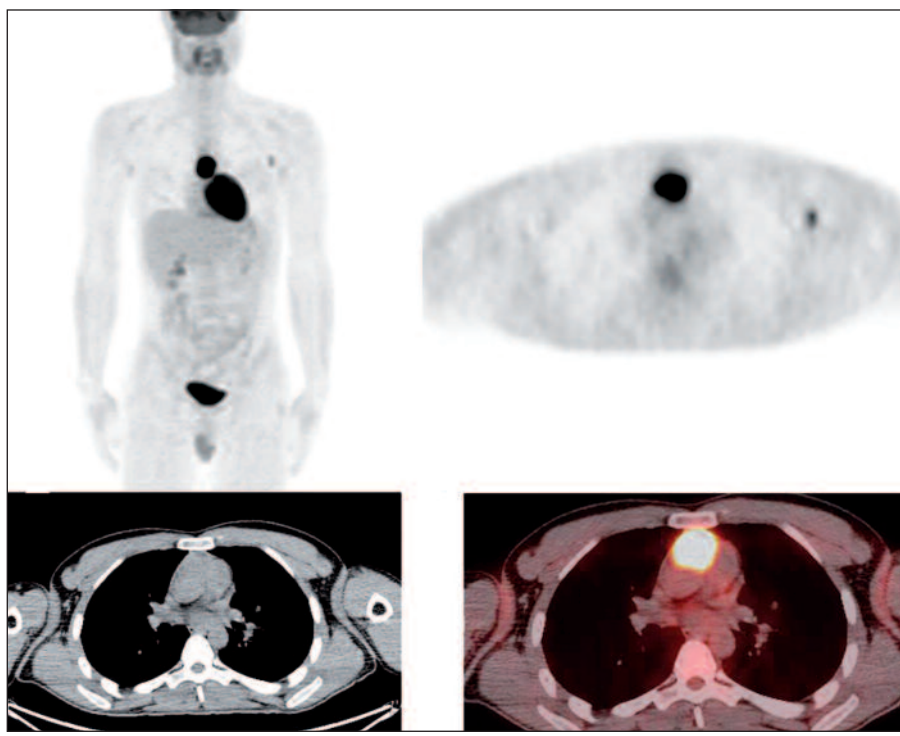

FIGURE 1: FDG-PET/CT scanning of the patient.

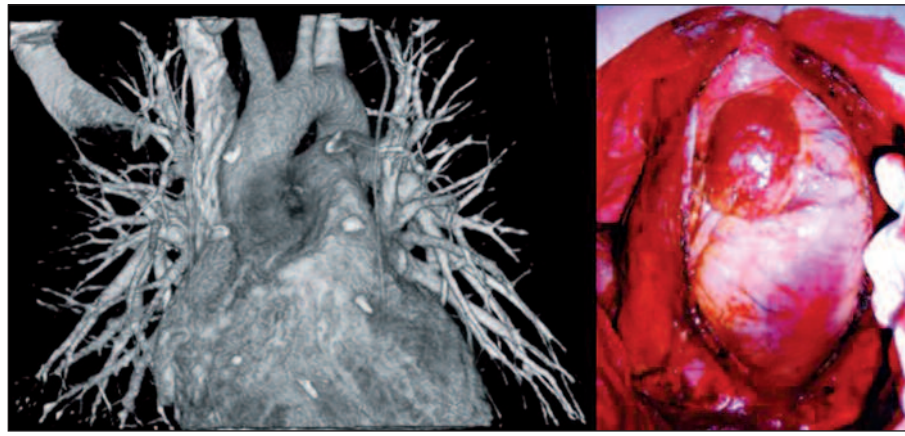

FIGURE 1: Dynamic CT angiography of the intrapericardial lesion that revealed no invasion to the wall of main pulmonary artery and ascending aorta and intraoperative view of the intrapericardial lesion.

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.[5] However its diagnostic efficiency is still controversial because of lots of mostly benign pathologies locating in mediasten by decreasing specifity 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 metastatis. 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.

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