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Video-Assisted Thoracoscopic Surgery Lobectomy for Pulmonary Malignant Melanoma Metastasis

Pulmoner Malign Melanom Metastazında Video Yardımlı Torakoskopik Cerrahi Lobektomi

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Abstract

Malign melanoma (MM) develops as a result of malign transformation of the melanocytes and constitutes 2-4% of all skin cancers, while being the most common cause of mortality among all skin cancers. In addition to other organs, distant organ metastases also include lung metastasis. A metastasectomy is an acceptable treatment option in cases of malign melanoma with isolated lung metastasis. The current report presents a case with isolated lung metastasis that underwent a right upper VATS (video-assisted thoracoscopic surgery) lobectomy due to tumour localization.

Keywords: Malignant melanoma, videothoracoscopy, lobectomy

Özet

Malign melanom (MM), melanositlerin malign transformasyonu sonucunda gelişen, tüm deri kanserlerin %2-4'ünü oluşturan fakat cilt kanserleri içinde en sık mortaliteye sahip olan kanser türüdür. Akciğer metastazı da uzak organ metastazları arasında yer almaktadır. İzole akciğer metastazı olan malign melanomlu olgularda metastazektomi kabul edilebilir bir tedavi seçeneğidir. Bu çalışmada, izole akciğer metastazı bulunan, yerleşim yeri nedeniyle VYTC (video yardımlı torakoskopik cerrahi) ile sağ üst lobektomi uygulanmış olgu sunulmaktadır.

Anahtar Kelimeler: Malign melanom, videotorakoskopi, lobektomi

Introduction

Malign melanomas (MM) develop as a result of the malign transformation of the melanocytes and it constitutes 2-4% of all skin cancers, while being the most common cause of mortality among all skin cancers [1, 2]. Malign melanomas initially metastasize to the regional lymph nodes, and then reach the skeletal system and central nervous system. Lung metastases may also be encountered. It is believed that the metastases in the lungs are caused by the tumour emboli that reach the pulmonary arteries [2]. Malign melanoma metastases can be located in different regions in the lungs. Lesion oriented, different surgical approaches can be considered based on the localization of the tumour.

Case Report

A 64-year-old male patient was operated on 20 months ago for a skin lesion in the right facial region and was diagnosed with MM. The patient was monitored and the results of a thorax computed tomography (CT) that was performed during the follow-up showed a lesion on the anterior segment of the right upper lobe of the lung with a diameter of 2.5 centimetres (Figure 1). Additional examinations were performed before the operation and positron emission tomography (PET-CT) results showed that the lesion had 12.3 SUV_{max} uptake and there was no update at any other focus. Pulmonary function tests showed that his FEV_1 was 2870 mL (90%). In order to guide the operation, transthoracic thin needle aspiration biopsy was performed before the operation. Cytology results indicated malign melanoma metastasis and the surgical council decided that the patient could undergo metastasectomy. The patient was prepared for the surgery and was operated on. It was decided during the operation that the lesion could not be resected with a benign surgical border by any other method than lobectomy; therefore, a right upper lobectomy was carried out with VATS (video-assisted thoracoscopic surgery) (Figure 2). The pathology results were reported as malign melanoma metastasis. Thorax drainage was terminated on the postoperative fourth day. The patient is uneventful and currently in the sixth postoperative month of follow-up.

Discussion

Malign melanoma has the highest rate of mortality among all skin cancers. It generally develops in the fourth to sixth decades. Its localization depends on gender, and it most commonly develops on the trunk in men and in the lower

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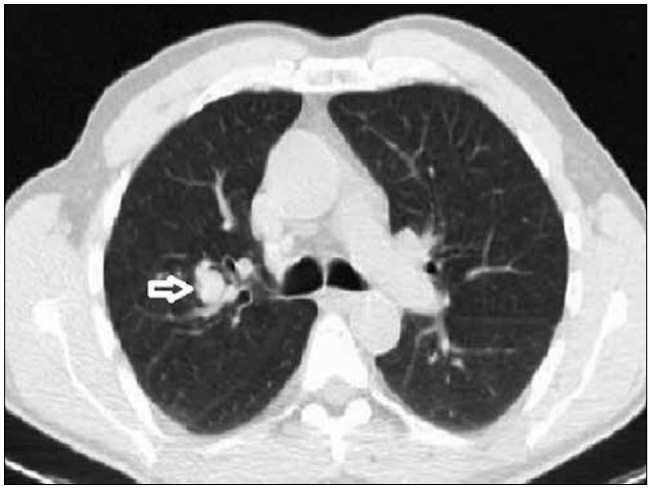

Figure 1. *Thorax computed tomography image.*

Figure 2. *VATS lobectomy operation scar image.*

extremities in women [3]. Contrary to the general localization in men, the current case presented with a lesion on the right half of his face.

Malign melanoma basically metastasizes through the lymphatic system and primarily spreads to the regional lymph nodes. Regional lymph node metastasis is one of the most important prognostic markers [4, 5]. Sentinel lymph node sampling performed after the first operation of the patient in the current study did not show lymph node metastasis and additional treatments were not deemed necessary in the postoperative period. Further investigations were initiated when a suspected lesion was seen in the lungs at the 20th month follow-up.

Although not being the initial site of MM metastasis, lung metastasis can be encountered in 12-20% of the patients, but only 5% of these cases are in the form of isolated lung metastasis [5]. The case described here presented with isolated lung metastases and the patient was operated on, as he met the criteria for metastasectomy. In an extensive study performed on this subject, Harpole et al. [5] reported that 945 of 7595 patients with MM diagnosis had lung metastasis. Leo et al. [6] reported that the five-year and ten-year survival rates were 22% and 16%, respectively in 282 patients who underwent pulmonary metastasectomy due to MM metastasis.

The metastasectomy approach is appropriate when there is no risk factor for surgical intervention, the primary malignancy is controlled, there is no extrathoracic metastasis, and the lesion can be completely resected [7]. Additionally, there are many factors affecting the prognosis of the cancer types that are suitable for metastasectomy. The surgical approach involves various options and there is no common approach preferred in the lung metastases. Nodules that are undetectable on CT can be detected by palpation during thoracotomy, whereas the VATS approach does not allow palpation. In modern surgery, palpation during VATS is only limited to the port entries [8]. However, Putnam [9] reported that VATS resection can be preferred in suitable patients who have no other metastasis and the disadvantages of the limitations in palpation do not decrease the rates of survival. It is also known that the error margin will be lower when the check-ups are performed at the same radiology centre and by the same reviewers. The most important advantage of the VATS approach is that it reduces pain to minimum and provides maximum efficiency in delivering adjuvant treatment [8]. Based on these reasons, and to avoid the burden of anatomical lung resection, as well as the effects of thoracotomy, the researchers herein preferred VATS resection.

During metastasectomy, the lung parenchyma should be preserved to the greatest possible extent and it must be ensured that the surgical borders are clean [10]. The rate of lobectomy is 14-21% in the lung metastases reported in the literature, and this rate is as low as possible [10]. Although the rate of anatomical resections is low, R0 is a condition that must be considered and applied in resections. This condition was also considered in the current patient and an upper right lobectomy was performed.

In conclusion, metastasectomy is an acceptable treatment approach in malignant melanoma cases with isolated

lung metastasis. Considering the current advances in videothoracoscopic surgery, the authors believe that VATS lobectomy can be applicable for the single-lesion tumours that are located in regions that prevent limited lung resection.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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