CASE REPORT

Surgery in late melanoma adrenal metastasis

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SUMMARY

Metastatic melanoma to adrenal gland are very infrequent, being generally associated with additional evidence of systemic disease and, consequently, with short-term survival. However, the prognosis and the therapeutic management vary depending on some important oncological features. Long-term survival rates have been described after complete resection of metastatic disease. Here, we report the case of a woman aged 41 years diagnosed with a cutaneous melanoma on the right side of her paravertebral region, level III of Clark, in 2002, who underwent surgical excision of the tumour with negative margins and a negative sentinel node. She posteriorly developed pulmonary metastasis in 2006 and 2009, both resected with curative intention and in 2013, she was diagnosed with an adrenal metastasis. Therefore, she was submitted to an uneventful right laparoscopic adrenalectomy. The pathology report described metastasis of a cutaneous melanoma, negative for BRAF mutation. The patient is actually disease-free after 30 months of follow-up.

BACKGROUND

Stage IV melanoma is a very aggressive malignancy with a 5-year survival rate of only 5–10%.¹ The tumour can metastasise to a wide range of organs, from the brain to gastrointestinal organs. The American Joint Committee of Cancer (AJCC) divides metastatic melanoma disease into three prognostic groups: M1a, with metastasis to skin, subcutaneous or distant lymph node; M1b, to the lung and M1c, to other visceral organs, as well as in the presence of elevated serum lactate dehydrogenase (LDH).² Adrenal metastases are generally associated with additional evidence of systemic disease and, consequently, a poor prognosis, with an overall survival rate of ~6 months. However, the prognosis and the therapeutic management vary depending on some important features of the oncological disease.

CASE PRESENTATION

Here, we report the case of a woman aged 41 years diagnosed with a cutaneous melanoma on the right side of her paravertebral region, level III of Clark, in 2002. She underwent surgical excision of the tumour with negative margins and a negative sentinel node. After 4 years, in 2006, she was diagnosed with two pulmonary metastases in the right inferior lobe, which required an inferior lobectomy. In 2009, two more metastases were discovered in the left inferior pulmonary lobe; consequently, the patient was submitted to another pulmonary resection. In 2013, 11 years after the first diagnosis of

cutaneous melanoma, during the follow-up of a pancreatic cyst, a newly appeared lump was identified in her right adrenal gland, and for this reason, she was referred to the surgical team. The patient was completely asymptomatic; she did not refer palpation, anxiety, excessive sweating, hirsutism, nor pain or loss of weight.

INVESTIGATIONS

Hormone values and functional tests did not suggest any hormone overproduction: Nugent's test was negative; serum electrolyte, plasma aldosterone and renin activity were normal; catecholamines in urine were within the range, as well as progesterone and DHEA. Preoperative LDH was 143 U/L. A CT scan revealed a 13 mm lesion in the right adrenal gland, not visualised in previous CT scans. The patient was informed of her clinical situation and an MRI was carried out 3 months later. This showed an increase in size of the nodular lesion, of 17 cm×10 cm, hyperintense in T2 sequences and with intense early capitation of contrast ([figure 1](#)). Therefore, a [¹⁸F]-fluorodeoxyglucose (FDG) positron emission tomography/CT was performed, assessing an elevated deposit of FDG inside the adrenal nodule, with a standard uptake value of 7.1, suggesting malignancy ([figure 2](#)). No other lesions showing hypercapitation were identified.

TREATMENT

The patient consented and was booked for a laparoscopic right adrenalectomy. The surgery was performed through a right semilateral position without intraoperative unfavourable incidents. The length of hospital stay was 4 days because of some episodes of nausea and a problematic postoperative pain control. The pathology report described

Figure 1 MRI showing a right adrenal nodule.

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Figure 2 Positron emission tomography/CT assessing an elevated deposit of [^{18}F]-fluorodeoxyglucose inside the right gland, suggesting malignancy.

metastasis of a cutaneous melanoma, S-100, HMB-45, Melan-A positive, negative for BRAF mutation.

OUTCOME AND FOLLOW-UP

The patient is actually free from the disease after 30 months of follow-up.

DISCUSSION

Although autopsy-based series^{3,4} have shown that approximately half of stage IV melanoma had adrenal metastasis, antemortem diagnosis is uncommon. Therefore, relatively few data exist about this condition and the appropriate management.

Despite the poor overall survival rate for patients with adrenal metastasis, due to the concomitant presence of systemic disease, the prognosis and the therapeutic management can vary widely, depending on some relevant features of the disease.⁵ Surgical resection with curative intent has shown higher survival rates than non-surgical strategies.⁶ The presence of unresectable disease, as well as elevated serum LDH, represents the principal contraindication surgery.⁷ Elevated LDH constitutes inclusion criteria into the M1c category of the AJCC staging system, since it has been associated with the presence of systemic disease.

Mittendorf *et al*² analysed the prognostic factors and the indication of adrenalectomy in a large series of patients from MD Anderson Cancer Center. Persons with disease limited to the gland and normal LDH showed a higher survival rate compared with the overall group. Additional favourable prognostic factors were a resectable extra-adrenal disease, a disease-free interval (DFI) ≥ 1 year and partial response to systemic therapy. These findings have been confirmed by Flaherty *et al*⁸ whose results showed an increase in survival from 9.4 months for non-resectable adrenal melanoma metastasis versus 29.2 months when an adrenalectomy was performed. Therefore, a preoperative assessment should include a complete staging, in order to evaluate the extra-adrenal disease. Levels of LDH must be assessed, and radiological imaging of the brain, thorax, abdomen and pelvis must be undertaken. Selective use of positron emission imaging can be helpful in patients with equivocal findings, while adrenal biopsy can be reserved for lesions without a conclusive imaging diagnostic.⁹

Patients with isolated adrenal disease and normal LDH should be submitted to surgery in order to achieve a complete tumour response. Debate continues about the use of an open versus a minimally invasive approach, either anterior laparoscopic or videoscopic posterior retroperitoneal. An open approach has been recommended in tumour >6 cm or in the case of extension to adjacent organs.² However, recent results have shown that the minimally invasive approach is a feasible and oncologically safe approach in selected patients, regardless of tumour's size.^{4,10}

Learning points

- Adrenal metastatic melanoma represents an infrequent diagnosis, usually related with a bad prognosis.
- Surgical resection with curative intent has shown higher survival rates than non-surgical strategies.
- The presence of unresectable disease, as well as elevated serum lactate dehydrogenase, represents the principal contraindication surgery.
- Disease-free interval ≥ 1 year and partial response to systemic therapy represents favourable prognostic features.
- A minimally invasive approach is a feasible and oncologically safe option in selected patients.

Contributors MDM is responsible for idea, drafting and review. IGS is responsible for review. IM-G is responsible for image editing and drafting. AdlHR is responsible for formatting.

Competing interests None declared.

Patient consent Obtained.

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