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Case Report Open Access

Melanoma of the Ciliary Body of the Young Subject: A Case Report

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Abstract

Uveal melanomas are the most common primary intraocular. We report a case of melanoma of the ciliary body from the left eye of a 21 y old patient. Ophthalmological examination of the left eye revealed the presence of a poorly pigmented tumor that presses back the lower temporal equatorial lens. The bottom of the eye is uninterpretable. The ultrasound measurements of the tumor were 3.5 mm thick over 10 mm in diameter. The diagnosis of ciliary body melanoma was posed. However, the patient has atypical karyotypic abnormalities that might suggest an ocular metastasis of another unknown primitive tumor.

Keywords: Melanoma; Ciliary body; Atypical karyotypic abnormalities; Young subject

Introduction

Uveal melanoma is the most frequent type of intraocular primary tumor. It mostly affects people of the Caucasian race and is rare among black and Asian individuals [1]. Contemporary metastases at diagnosis of the primary tumor are found in 2% of cases, and they affect the liver in the vast majority of cases. We report the case of a young Algerian girl with ciliary body melanoma with contemporary metastases at diagnosis, but with no liver metastases.

Observation

A 21 y old girl was addressed for suspected malignant melanoma of the ciliary body of the left eye, lasting for six months. Visual acuity was 10/10 in the right eye, and there was no light perception in the left eye. Intraocular pressure was 10 mmHg in the right eye and 41 mmHg in the left eye. The ophthalmological examination was normal for the right eye. However, the left eye showed predominantly lower temporal episcleral vasodilation, a neovascularization over the entire iris area, a total white cataract, an iridocorneal angle closed over 360°, and the presence of a lightly pigmented tumor repressing the lower temporal lens equator. The ocular fundus was uninterpretable. Ultrasound measurements revealed the tumor was 3.5 mm thick and over 10 mm in diameter.

Before this picture, the diagnosis was made of malignant melanoma of the ciliary body, and the only therapeutic indication was enucleation because of the blindness and pain associated with ocular hypertension. Enucleation was performed the day after admission. An anatomopathological examination performed on the work piece enucleation confirmed the presence of malignant melanoma of the 10 × 10 mm whitish ciliary body. We also observed a proliferation of epithelioid cells little joined together, and the mitotic index was low. The tumor nibbled the sclera without embolus, and the anterior chamber angle was closed with a synechia without invasion of the iris. The papilla was not overrun. Immunohistochemical examination revealed mutations of *BRAF* genes on exon 15 (Figure 1), with exon 11 being normal (Figure 2), but there were no mutations for *NRAS* (Figure 3), *CKit* (Figure 4), or *PDGFRA*. The staging was essentially the head-thorax-pelvis-abdominal scan. This scan highlighted the cerebral stage, the presence of two right and left frontal lesions of progressive appearance (Figures 5 and 6), the thoracic level, the presence of a nodular lesion of 7 mm non-specific right fowler (Figure 7), a right retractable apical infiltrate consistent with intercurrent infection site, and a plural bilateral effusion in histopathological examination, which did not show any histological signs of malignancy. In the subdiaphragmatic stage, the liver was of normal size and appeared homogeneous without a focused, suspicious lesion (Figure 8). However, we found large mesenteric, necrotic masses, which developed in the pelvic area accompanied by a diffuse intraperitoneal effusion. Ultrasound-guided biopsy of the mesenteric masses confirmed the metastatic nature of these masses.

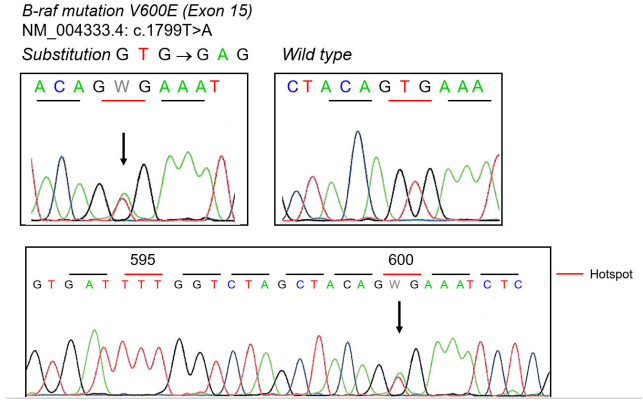

Figure 1: Mutations of *BRAF* genes on exon 15.

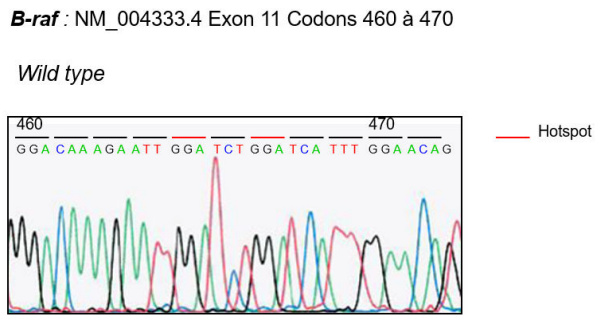

Figure 2: Wild type on exon 15 of *BRAF* genes.

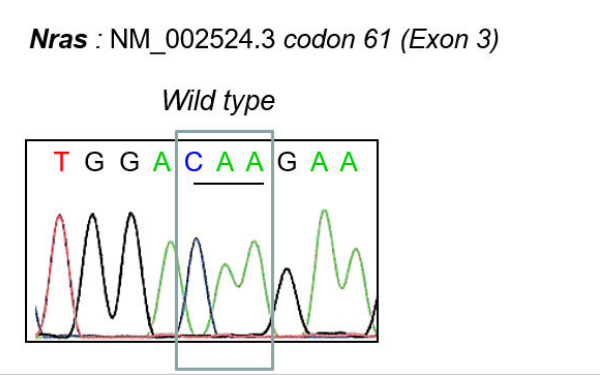

Figure 3: Wild type of *Nras* genes.

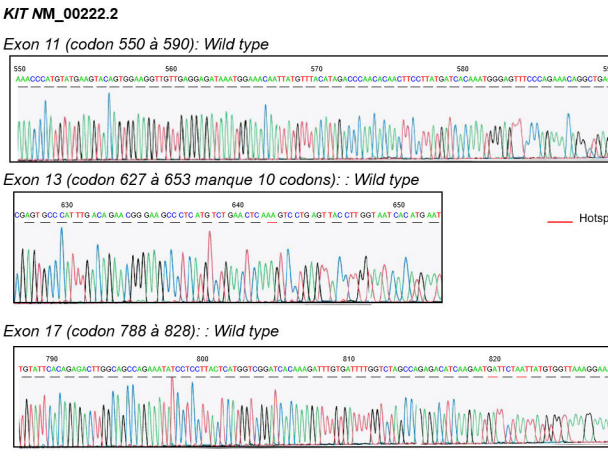

Figure 4: Wild type of *CKit* genes.

As compared with this picture of malignant melanoma of the ciliary body with multi-organ metastases, chemotherapy was indicated in the absence of other therapeutic methods with administration of Muphoran (Fotemustine). The evolution was marked by the rapid death of the patient two and half months later. The genomic analysis performed several months after enucleation from DNA extracted from the uveal melanoma tissue helped to highlight many anomalies, including a mosaic gain of chromosome 8, very numerous copy number variants (CNV) in loss and gain of chromosome 9, a mosaic loss of chromosome 10, and CNV on chromosomes 5, 7, 12, and 22. There was no CNV on chromosomes 3 and 6. Therefore, it is an atypical profile.

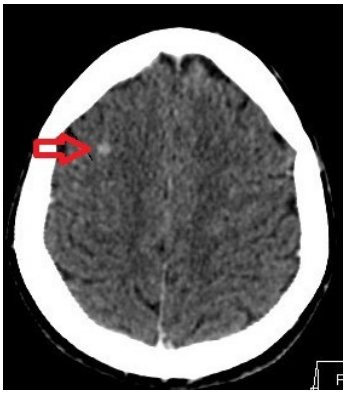

Figure 5: Left frontal lesion.

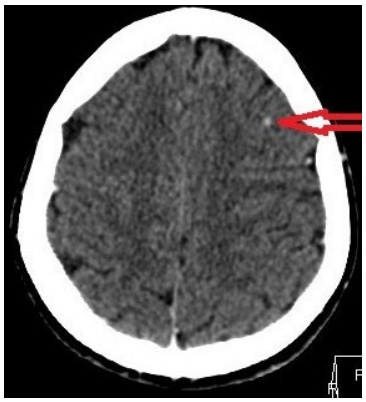

Figure 6: Right frontal lesion.

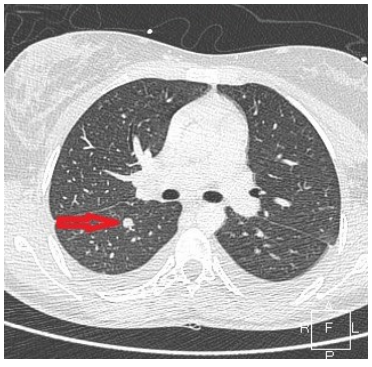

Figure 7: Nodular lesion of the right fowler.

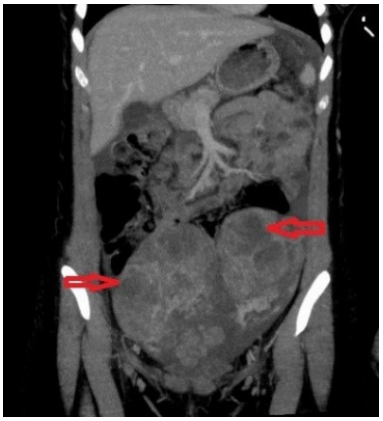

Figure 8: Coronal section of the abdomen showing the homogeneous liver and supra-mesocolic mesenteric masses, including the large vessels of the abdomen, namely the inferior vena cava and the abdominal aorta.

Discussion

Choroidal melanoma is the primary eye malignancy most common in adult men. Its usual evolution is slow and its metastases usually reside in the liver in over 92% of cases. Metastases can rarely be found in the lung, bone, at skin and subcutaneous level, lymph node, brain, or adrenal sites.

The positive diagnosis of ciliary body melanoma is based on clinical examination and imaging, and it is confirmed by pathological examination of the tumor either by biopsy or after enucleation. The tumor is revealed by a decrease in vision, but also through ocular pain associated with ocular hypertension [2] due to the invasion of the anterior chamber angle and lens opacification. This description was found in our observation with blindness discovered through the examination associated with eye pain and hypertonia.

In our observation, the patient had no liver metastases during staging, in contrast to literature data in which the development of choroidal melanoma and a ciliary body is marked mainly by the occurrence of liver metastases with a time of extremely variable latency [3]. This absence of liver metastases is an exception and an observation, without eliminating the probability of subclinical liver injury detected during staging. However, our patient developed lung, mesenteric, and cerebral metastases. The presence of extra-hepatic metastases has been reported by other authors, including Gotzamanis et al. [4].

The prognosis of ciliary body melanoma depends on the size and histology of the tumor. Large tumors and tumors of the epithelioid type have the worse prognosis [2]. As shown by our observation, lesions of the ciliary body typically have a poorer prognosis. The rapidity of death in the case of our patient was probably related to the presence of brain metastases, which are generally less frequent but can be explained by the disease duration, which was not specified but probably exceeded one year.

Enucleation was therapeutic indication in this case associated with palliative chemotherapy. Most authors are unanimous in supporting enucleation in cases of large tumors accompanied by painful blindness [5,6]. Cytogenetic approaches have showed over the last 15 years, from tumors obtained after enucleation, that uveal melanoma presents karyotypic anomalies in relatively simple rule, especially a monosomy 3 (the loss of a chromosome of the pair) in about 50% of the tumors; a gain of 6p (short arm of chromosome 6); and 8q isochromosomes, resulting in an excess of the long arm of chromosome 8 [7,8]. In the case of our patient, we have an atypical profile made up of chromosomal abnormalities, including on chromosomes 8-10. However, we did not note abnormalities on chromosomes 3 and 6 in our observation. Could this atypical genomic profile observed in our case explain the absence of liver metastases and the variability of the observed metastases (pulmonary, mesenteric, and cerebral)?

Mutations in the *N-RAS* gene are present in 5% to 20% of melanomas. As for *BRAF* gene mutations, the most common is the replacement V600E mutation (formerly V599E), present in nearly 66% of melanoma cases. This corroborates the results found in the case of our patient. The mutations related to the *BRAF* gene seem to be an early element in the development of melanoma, metastatic disease progression [9], and vascular proliferation associated with tumor development [10].

Conclusion

This observation reveals once again the seriousness of uveal melanoma and, in particular, that of the ciliary body in young individuals. The absence of liver metastases and atypical genotypic profile of our patient make this observation exceptional. Faced with this malignant melanoma of the metastatic ciliary body, without liver metastases with *BRAF* gene mutations and atypical karyotypic abnormalities, we might consider ocular metastasis from another primary tumor that could be an unknown involutive cutaneous melanoma.

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