

A CHOROIDAL MASS: AN UNUSUAL METASTASIS WITH UNUSUAL TREATMENT



Choroidal metastasis is rare in individuals with renal cancer.

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A 67-year-old male presented to the University Health Ophthalmology Clinic with Truman Medical Center with a 2-month history of photophobia and increasing flashes and floaters in the right eye (OD). He reported partial loss of his peripheral vision and intermittent loss of central clarity of vision. He said he experienced no pain with eye movement and reported no recent trauma.

The patient's medical history was significant for renal cell carcinoma (RCC), diagnosed in 2004 and treated by surgical resection without additional chemotherapy. The patient was referred by an outside physician after a choroidal lesion was noted in the periphery temporally OD.

On examination, his VA was 20/70-1 OD and 20/20-1 in the left eye (OS). Anterior segment evaluation was normal. Posterior segment examination was notable for a temporal choroidal lesion OD. Fundus color photography documented an amelanotic choroidal lesion with elevation OD (Figure 1). Fluorescein angiography was initially interpreted as indicating choroidal melanoma: amelanotic pigmentation with intrinsic vascularity and hyperfluorescence

with progressive leakage (Figure 2). B-scan ultrasound confirmed significant elevation of the retina and a large area of choroidal excavation measuring 15 mm by 16 mm by 6.7 mm (Figure 3).

Initial differential diagnosis included choroidal melanoma and choroidal metastasis from the previous RCC. The patient was referred to radiation oncology to determine eligibility for brachytherapy and to further determine the possibility of RCC metastasis. Due to the history of RCC without chemotherapy treatment, the presumed diagnosis was RCC metastasis to the choroid.

Further evaluation and workup by

oncology revealed multiple renal cell metastases to the abdomen. A decision was made not to proceed with brachytherapy for treatment of the choroidal lesion at this time. We instead planned to reevaluate after treatment was initiated for the renal cell metastases.

The patient returned to the eye clinic several months after starting systemic treatment with the oral chemotherapy agent pazopanib (Votrient, Novartis). The patient had a significant ophthalmologic therapeutic response to the drug; the choroidal lesion had shrunk to almost half its original size, as documented on color photography (Figure 4). The patient's VA had

AT A GLANCE

- Choroidal metastasis usually originates from primary breast or lung cancer. Metastasis from renal cell carcinoma (RCC) is more unusual.
- Although it is rare for the choroid to show metastasis from a primary RCC, this sometimes can be the first presenting sign that the patient has malignant RCC.
- This case report demonstrates a rare presentation of metastatic RCC that was treated with oral chemotherapy alone.



Figure 1. Color fundus photograph of amelanotic choroidal lesion temporal to the macula.

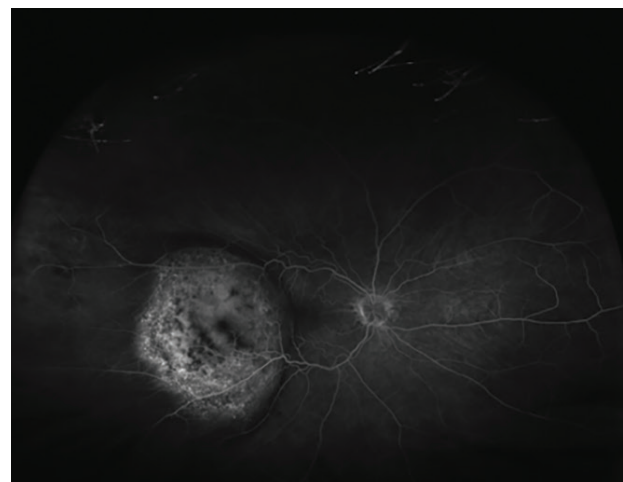


Figure 2. Fluorescein angiography shows leakage and hyperfluorescence surrounding the lesion.

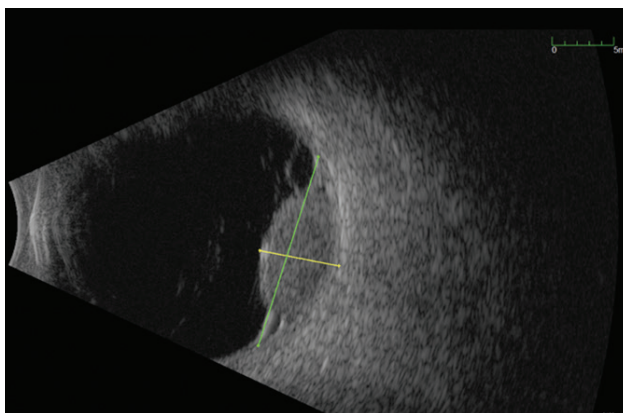


Figure 3. Ocular ultrasound shows an elevated mass, 15 mm by 16 mm by 6.7 mm.

improved to 20/40 OD and remained 20/20-1 OS.

Ocular ultrasound demonstrated a significant decrease in the size of the choroidal mass and elevation of the retina (Figure 5).

The patient was seen again at 3 and 6 months after this visit, and stabilization of the choroidal lesion was noted. VA continued to improve, with most recent measurement at 20/30 OD. At the most recent visit, 18 months after the start of oral pazopanib, complete regression of the choroidal metastasis was noted. The patient was officially diagnosed with malignant neoplasm of the right choroid secondary to metastasis of RCC, and successful treatment was achieved with the oral chemotherapeutic agent alone.

DISCUSSION

Choroidal metastasis is the most common intraocular malignancy. Most instances are metastasis from a primary breast or lung cancer. RCC with any metastasis presents with an overall poor prognosis, but treatment options are expanding.^{1,2} RCC is known to metastasize to the lung, bone, liver, and brain, but this cancer has also been reported to

metastasize to other sites less commonly. Although it is rare for the choroid to show metastasis from a primary RCC, it sometimes can be the first presenting sign that the patient has a malignant kidney tumor.³

According to Kurli and Finger,³ choroidal metastases of RCC usually present as nonpigmented or lightly pigmented dome-shaped masses; some may have a translucent or red appearance and can initially resemble choroidal melanoma.^{1,3} A patient with a history of RCC presenting with a new choroidal lesion warrants more suspicion for choroidal metastasis than for a primary choroidal melanoma.⁴

A-scan ultrasonography can be important in determining a diagnosis; RCC metastasis to the choroid is highly vascularized and tends to show higher internal reflectivity on A-scan than a melanoma. Because RCC metastasis can involve the entire uvea, full examination of the iris and ciliary body is warranted.⁵

Treatments for RCC metastasis vary. Chemotherapeutic agents for RCC metastasis initially targeted cytokines, but treatment now focuses on drugs that target angiogenesis.⁶

Our patient was treated with pazopanib, a tyrosine kinase inhibitor (TKI) that prevents tumor cell angiogenesis and proliferation. Several randomized controlled trials in RCC have shown pazopanib to be efficacious, with an objective response rate up to 30% with the drug compared to 3% with placebo.⁷

Sunitinib malate (Sutent, Pfizer) is also a TKI. In a phase 3 randomized clinical trial, pazopanib and sunitinib malate showed similar efficacy. However, patients using pazopanib reported fewer systemic side effects.⁶ In an observational study from 2013, Motzer et al reported median progression free survival of 10.3 months and overall survival of 29.9 months in patients with advanced metastatic RCC.⁸ This study further solidified the evidence that TKI chemotherapeutic drugs are effective in stopping progression of metastatic RCC and increasing survival.

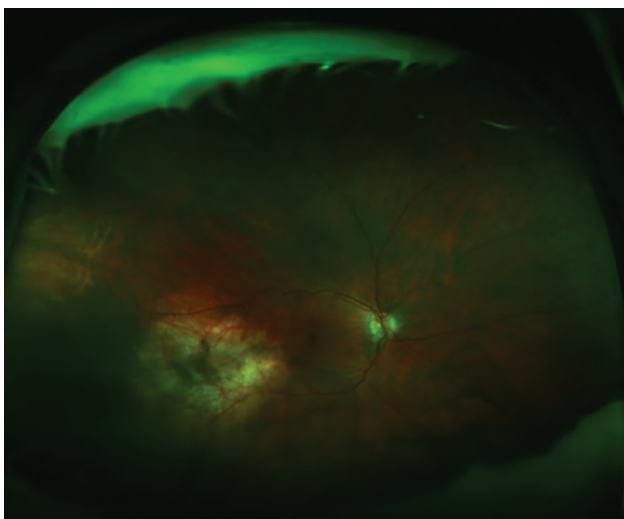


Figure 4. Color fundus photography 6 months after treatment shows shrinkage of the lesion.

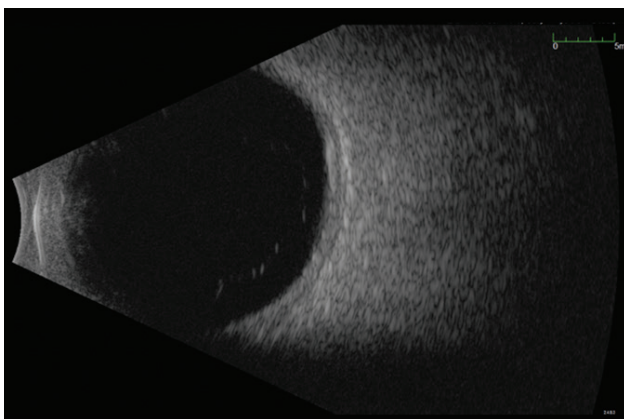


Figure 5. Ocular ultrasound shows decreased elevation of choroidal mass.

It is important to mention that other chemotherapeutic drugs have been studied for treatment of metastatic RCC. Mammalian target of rapamycin inhibitors, or *mTOR inhibitors*, such as temsirolimus (Torisel, Pfizer) and everolimus (Afinitor, Novartis), and antiangiogenic antibodies such as bevacizumab (Avastin, Genentech) are other agents targeting cell growth that have been used to treat RCC. Although these drugs have been shown to be efficacious with similar overall survival rates, the prevalence of side effects outweighs those reported with pazopanib.²

CONCLUSION

Choroidal metastasis is rare overall, especially in individuals with RCC. More clinical trials are needed to directly compare chemotherapeutic agents specifically in RCC metastasis to the choroid.

This case demonstrates a rare presentation of metastatic RCC that was treated with oral chemotherapy alone. Metastases to the choroid are unlikely to be from the kidney, but this possibility must always be considered in patients with

a history of RCC. It is important to recognize the differences between choroidal metastasis and choroidal melanoma by closely analyzing the patient's history and using clinical tools.

This case demonstrates the possibility of using only oral chemotherapy to slow or stop progression of metastases. We were able to maximize this patient's quality of life, as his treatment required no intravenous chemotherapy, brachytherapy, external beam radiotherapy, or enucleation. Close follow-up with ophthalmology and oncology are warranted to properly monitor patients' responses. Future studies may focus on the differences among oral chemotherapeutic agents directly—not only in efficacy but also in quality of life. ■

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