Orbital Metastasis from Urothelial Carcinoma of the Urinary Bladder

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Radical cystectomy with ileal conduit diversion remains the standard treatment for invasive bladder cancer. We report a patient with urothelial carcinoma of the urinary bladder and found metastasis to the orbit post radical cystectomy and ileal conduit diversion presenting as blurred vision and diagnosed by open biopsy. The orbit is an infrequent site of metastasis from bladder cancer cells. To the best of our knowledge, there are fewer than 10 case reports of orbital metastasis from urothelial carcinoma reported in the English medical literature.

Key Words: orbital metastasis, urinary bladder, urothelial carcinoma
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Several types of tumors can lead to orbital involvement. Metastatic disease to the orbit is relatively uncommon, with the incidence ranging from 1% to 13% among the reported series of orbital tumors [1–3].

Breast carcinoma is the most common primary source of orbital metastasis [1,4]. Other tumors in the order of frequency are lung cancer, alimentary tract malignancies, and less common cancers of the thyroid, prostate, kidney, testicles, pancreas, ovary, and liver.

There are fewer than 10 case reports of urothelial tumors of the urinary bladder with orbital or choroidal metastases. Here, we provide a new case of urothelial carcinoma of the urinary bladder with metastasis to the orbit.

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Case Presentation

A 60-year-old man presented with blurred vision in the right eye and progressive diplopia 8 months following radical cystectomy with ileal conduit diversion and three courses of chemotherapy (CT) (MVAC) for bladder cancer (pT3aN1Mo). Clinical examination of his eye found axial proptosis with chemosis of the conjunctiva. No light perception in his right eye was noted and the fundus examination showed disc edema. Extraocular movements were restricted in all directions, in particular elevation.

Hemogram and biochemical investigations were within normal limits. Contrast-enhanced computed tomography of the orbit showed an ill-demarcated soft tissue lesion at the upper medial aspect of the right orbit, involving retrobulbar spaces (Figure 1). The patient underwent a biopsy of the right orbital mass. Histologic findings showed irregular islands of transitional carcinoma, which were strongly positive for cytokeratin 7 and 20 (Figure 2). The

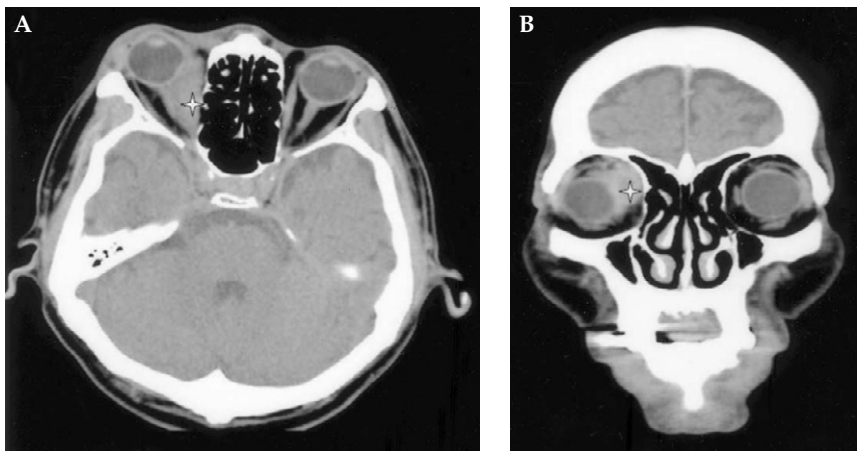

Figure 1. *(A) Axial computed tomography demonstrates an orbital mass (star) causing unilateral exophthalmos. (B) Coronal view shows intact adjacent bony structures.*

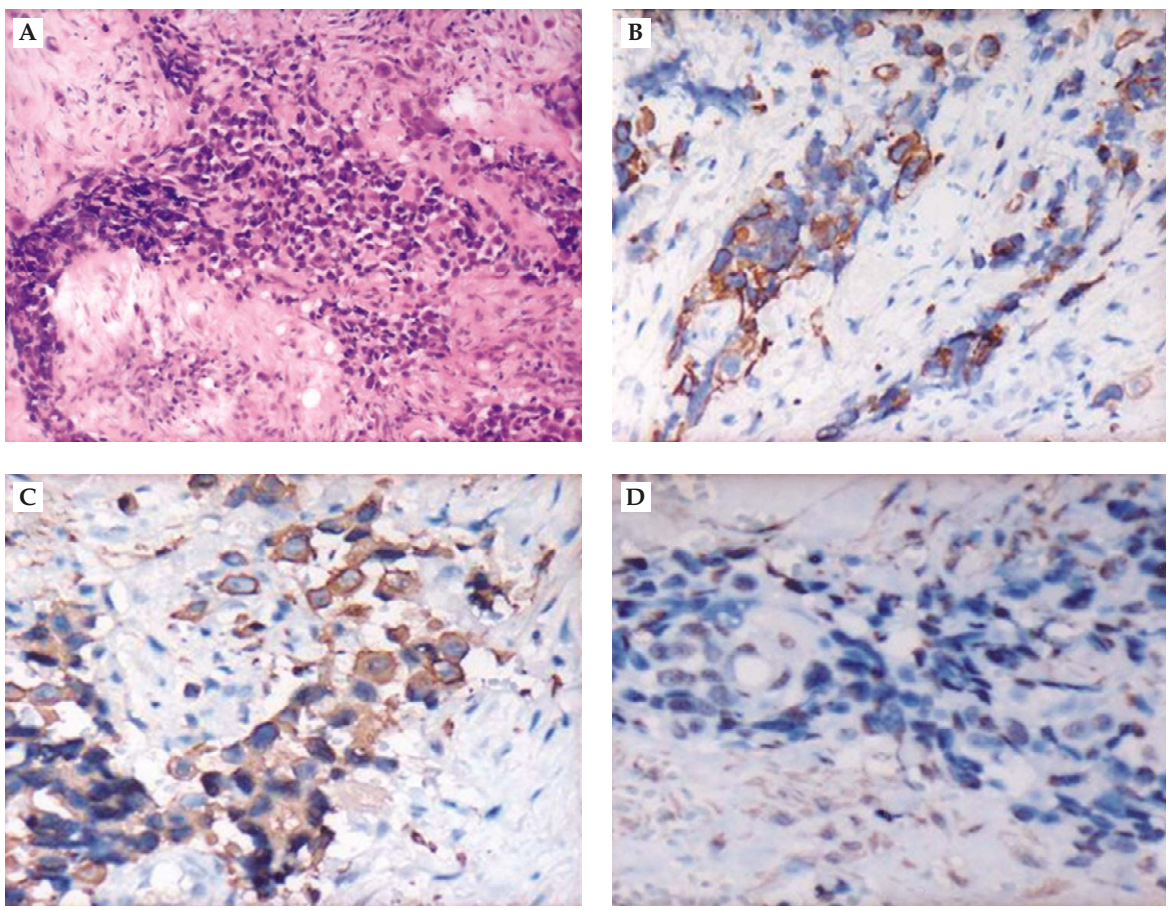

Figure 2. (A) *Infiltrating hyperchromatic cancer cells with high N/C ratio in desmoplastic fibrous stroma (hematoxylin & eosin, 100×). Immunohistochemical stains reveal that the tumor cells are immunoreactive for (B) cytokeratin 7 and (C) cytokeratin 20, and negative for (D) vimentin.*

sections were consistent with metastatic transitional carcinoma.

In view of a clinical course suggestive of metastatic transitional cell carcinoma (TCC), the fourth palliative systemic CT (MVAC) was started. No further metastatic site was detected on imaging surveys after 6 months. But there was no improvement in his vision during follow-up.

Table. Orbital metastases from urothelial tumors

Authors (reference)	Presentation	Origin	Treatment	Survival (mo)
Atta [10]	Nonspecific symptoms	Renal pelvis	Systemic CT + RT	1
Hugkulstone et al [11]	Proptosis	Bladder	Systemic CT + RT	5
Scott & Williams [12]	Proptosis	Bladder		4
Prat et al [13]	Proptosis	Bladder	Open surgery	8
Sheldon et al [14]	Proptosis	Bladder	RT (3600r)	4
Resnick et al [8]	Nonspecific symptoms	Bladder	Systemic CT + RT	18
Cieplinski et al [15]	Nonspecific symptoms	Bladder	Systemic CT + RT	1
Souza Filho et al [7]	Proptosis	Bladder	Systemic CT	1

CT = chemotherapy; RT = radiotherapy.

Discussion

Orbital metastases are uncommon, accounting for between 2.5% and 8.1% of all orbital space-occupying lesions [5]. The majority are adenocarcinoma and the most common primary site is the breast. Prostate, colon, and lung cancers can also metastasize to the orbit. TCC is a common bladder tumor, 10–15% of which will exhibit invasive behavior. About 50% of patients with invasive TCC will eventually develop distant metastases [6]. Lymph nodes, lungs, and bones are often involved.

Urinary tract carcinoma is an extremely rare source of ocular metastases. Souza Filho et al [7] reported the latest case of ocular metastases from carcinoma urinary bladder in 2005; seven cases of orbital metastasis from TCC of the bladder have previously been reported (Table). These included six men and two women, with a mean age of 64 years (range, 43–79 years). All cases presented with orbital metastases within 3 years of diagnosis of the primary tumors, which were all locally invasive. Most patients died within 6 months of developing metastatic disease.

From previous reports, we know that the natural history of these rare lesions is of rapid progression with early loss of vision and proptosis. A detailed metastatic work-up should be carried out to detect occult primaries at other sites. Fifteen percent of these lesions have been associated with lung involvement [8]. In our case, the palliation of this aggressive metastatic complication is obtained with multiagent CT (MVAC) without obvious adverse effect. Local radiotherapy may be combined with systemic CT from the experience of Resnick et al [8] but refused by the patient himself.

Presenting symptoms vary due to the affected site in the ocular region. When the tumor infiltrates the choroids, blurred vision is the predominant result, whereas glaucoma might occur in cases with manifestations in the anterior eye. Exophthalmus and bulb divergence occur when large tumors are present [9].

In our case, the 60-year-old man had an interval of 8 months between diagnosis of the primary bladder tumor and the development of orbital metastasis. It highlights the possibility of metastasis to the ocular region in patients with urothelial carcinoma and the need for a high index of suspicion by the treating physician whenever a patient with urothelial carcinoma presents with nonspecific eye symptoms. A prompt ophthalmologic and radiologic evaluation is required to diagnose and treat these lesions correctly.

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膀胱泌尿上皮癌合併眼窩轉移

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對於侵入性膀胱泌尿上皮癌，根除性膀胱切除合併迴腸導管重建是標準的治療方法，我們提出一個的病例是有關膀胱移形上皮細胞癌在術後出現合併視力減退，並經病灶切片証明為眼窩轉移的個案報告。泌尿上皮腫瘤合併眼窩轉移是十分罕見的。根據文獻記載，病例報告數仍不到十例。

關鍵詞：眼窩轉移，膀胱，泌尿上皮癌
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