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Case report

Triple orbital metastases from prostate cancer

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ABSTRACT

Prostate carcinoma, when metastatic, typically involves bone and produces both osteoblastic and osteolytic changes. A 73-year-old man was admitted to our department because of unilateral progressive proptosis and visual blurriness for 3 months. The patient had a history of prostate adenocarcinoma diagnosis 5 years ago. We report a case of orbital involvement presented that intraorbital mass (including periocular structures), temporal bone and temporal muscle from prostate cancer. The mass was removed with total excision. Despite the frequency of bone metastasis in prostatic carcinoma, triple orbital metastases are extremely rare. The best of our knowledge, prostate adenocarcinoma and its triple (temporal bone, temporal muscle and intraorbital mass) orbital metastases have not been published previously. Metastatic orbital tumor secondary to prostate cancer should be considered in patients who have varying degrees of eye symptoms.

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1. Introduction

The latest estimates of global cancer incidence show that prostate cancer is the sixth most common cancer in the world (in the number of new cases), the third most common cancer in men, the most common cancer in men in Western populations [1]. The most frequent metastatic sites in prostate cancer are bone (85%), lymph nodes and further visceral metastases (liver, central nervous system, lungs) (45%) [2]. About 30% of patients with prostate cancer have regional or distant metastasis at the time of diagnosis [3]. Bone metastases of prostatic cancer are the most common form of distant spreading. The most frequent sites of bone metastases are the pelvis and vertebrae [4]. Despite the frequency of bone metastasis in prostatic carcinoma, orbital

metastases are extremely rare [5]. We report a case of orbital involvement presented that intraorbital mass (including periocular structures), temporal bone and temporal muscle from prostate cancer.

2. Case report

A 73-year-old man was admitted to our department because of unilateral progressive proptosis, pain and visual blurriness for 3 months. The patient had a history of prostate adenocarcinoma diagnosis 5 years ago. He underwent radical prostatectomy. The maintenance androgen ablation was planned after surgery. The patient received total androgen blockade with luteinizing hormone releasing hormone analog and flutamide. Complete physical examination was normal except for the

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ophthalmologic examination. A moderate degree of left-sided proptosis and ipsilateral visual loss were detected in ophthalmologic examination. Magnetic resonance imaging (MRI) of the cranium and orbita showed that tumor divided two part one of them – a lateral-orbital mass measuring 5 cm × 3 cm and the other intra orbital part is 3 cm × 3 cm, and CT (computed tomography) scan of orbita show that tumor metastases of lateral orbital wall and sphenoid wings (Fig. 1A and B). There were no other visceral metastases at presentation. Laboratory examination was normal ranges. Only serum prostatic specific antigen (PSA) level was 65.43 ng/mL. The mass was removed with total excision. Histopathologic examination from the



Fig. 1 – (A and B) MRI of the cranium and orbita showed that tumor divided two part one of them – a lateral-orbital mass and the other intra orbital part. CT scan of orbita show that tumor metastases of lateral orbital wall and sphenoid wings.

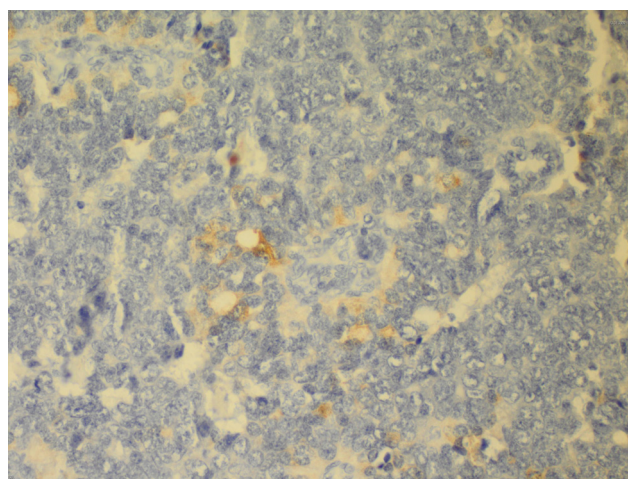


Fig. 2 – Infiltration of adenocarcinoma cells in peri-orbital fibrous tissue. In some tumor cells, focally positive PSA immunostaining (PSA × 40).

orbital mass indicated a malignant epithelial tumor metastasis that may have arose secondary to prostate carcinoma. Immunohistochemical staining was made. Immunohistochemical staining for CK-7(Cytokeratin-7), CK-20(Cytokeratin-20), S-100 antibody, TTF-1(Thyroid transcription factor-1), EMA (Epithelial membrane antigen), HMB-45 Antibody, NSE (Neuron-specific enolase) and prostate specific antigen (PSA) were performed on formalin-fixed paraffin sections. PSA and NSE were found positive, but the other markers were negative (Fig. 2).

3. Discussion

Orbital metastasis of a neoplasm is an uncommon entity in adults and it represents only 2–9% of orbital tumors [6,7]. The first case of metastatic prostatic carcinoma to the eye was reported in 1872 [8]. There are two routes of metastasis to the orbital region. The first one is through lung metastases, where tumor emboli pass via pulmonary circulation. Secondly, prostatic or vertebral lesions may seed into Batson's plexus and reach the cranial venous sinuses [5]. The most common epithelial tumors are adenocarcinomas originating from the breast, lung, prostate, stomach, thyroid, and kidney [4,5]. The most common sites of metastasis beyond the periprostatic region are the pelvic nodes and the pelvic, lumbosacral spine, and long bones [5]. Soft-tissue metastases of prostate cancer are very rare. Prostate carcinoma accounts for 3–10% of orbital metastases encountered in clinical practice [9,10]. Review of the literature, of 142 cases of metastases to the temporal bone from distant primary malignancies, only 8 cases were found due to prostate adenocarcinoma [11,12] and the other paper, they found only a case secondary to prostate cancer out of 23 cases with metastasis to the orbit [13]. The other series of 227 cases with metastatic orbital tumor, only 3 cases were prostate cancer history [14]. De Potter et al. published 7 cases with orbital metastasis from prostate cancer [15]. The most common finding on CT is a well-defined, contrast enhancing, intraconal mass

and osteoblastic lesions and the usual presenting symptoms are visual loss, ptosis, ocular pain, osteoblastic lesions of the orbital wall and diplopia due to the orbital involvement. Ulucak et al. reported that a case of prostatic cancer metastasizing to the left orbital cavity. Neither Ulucak et al. are reported their case nor the other cases presented dumb-bell metastases from prostate cancer [6]. Due to the fact that patients with metastatic orbital disease have poor prognosis; treatment is usually palliative and may include radiotherapy, chemotherapy, surgery, or a combination of these modalities. The goal of surgical debulking is usually palliative (i.e. to address morbid proptosis or optic neuropathy). In cases of diagnostic uncertainty, an orbital biopsy may be all that is necessary [16].

Our patient had a history of prostate adenocarcinoma diagnosis 5 years ago. Histopathologic examination from the orbital mass indicated a malignant epithelial tumor metastasis that may have arose secondary to prostate carcinoma. Best of our knowledge, prostate adenocarcinoma and its triple orbital metastases that intraorbital mass (including periocular structures), temporal bone and temporal muscle from prostate cancer have not been published previously. Metastatic orbital tumor secondary to prostate cancer should be considered in patients who have varying degrees of eye symptoms. The prognosis of orbital metastasis due to prostate cancer seems to be better than the other oculo-orbital metastatic cancers [7].

Conflict of interest

None declared.

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Ethics

The work described in this article has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to Biomedical journals.

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