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Case Report

Prostatic carcinoma presenting as unilateral proptosis - A rare case report

Vinay S. Kundargi*, Anup S. Desai, Siddannagouda B. Patil, Basavesh S. Patil, Ashokkumar N. Biradar, Nikhil A. Patil and Kshitiz Ranka

Department of Urology, B.L.D.E.U.'s Shri B. M. Patil Medical College, Hospital & Research Centre, Vijayapur, Karnataka, India

***Correspondence Info:**
Dr. Vinay S. Kundargi
Department of Urology,
B.L.D.E.U.'s Shri B. M. Patil Medical College, Hospital & Research Centre,
Vijayapur, Karnataka, India
E-mail: anupsd84@gmail.com

Abstract

Adenocarcinoma of prostate typically involves axial skeleton and has been infrequently reported in unusual sites like orbit. It is noteworthy that upto 1989, only 28 cases of occulo-orbital metastases of prostate cancer (PC) had been reported in the literature. PC is mostly known to metastasize to the bony skeleton. The lack of skeletal metastasis does not exclude the possibility of visceral/ distant metastasis, and serum PSA levels usually do not correlate with the extent of metastatic disease. Here in, we report a rare case of unilateral orbital metastasis from PC.

Keywords: Prostatic carcinoma; Adenocarcinoma; metastatic disease

1.Introduction

Among adults, orbital metastases are most commonly of epithelial origin and it would seem that orbital metastases are site specific, being not just a part of bony metastases [4]-[9]. Several epithelial tumours have been documented to show orbital metastases, including oesophageal[10], breast[11], pancreatic[12] and lung[13] cancers. Metastatic carcinoma to the orbit constitutes only between 2.3% and 7% of all orbital tumours[14][15]. Generally they are predominantly Bilateral, rarely unilateral orbital metastases are reported. PC accounts for only 3.6% of orbital metastases encountered in clinical practice. Serum PSA levels usually do not correlate with the extent of metastatic disease.[3]

It is noteworthy that upto 1989, only 28 cases of occulo-orbital metastases of prostate cancer (PC) had been reported in the literature.[1]

PC is one of the most common tumours in adult men and it often leads to widespread metastases to the axial skeleton and viscera [2][16]. When PC presents with metastasis in the orbit, it is usually a late event and often the patient is in the terminal stages of the disease [6][7]. However, the orbital presentation preceeded the diagnosis of PC in 60% of the cases reported in the series by Boldt and Nerad[6].

Prostate lesions may seed into Batson's plexus and reach the cranial sinus travelling up to the ophthalmic and vertex veins. The principal features of metastatic carcinoma to eye are blurring or distorted vision, proptosis, pseudohypopyon, secondary open angle glaucoma, non rhegmatogenous retinal detachment, disc edema and rarely pain. Treatment options for orbital metastasis include steroids to reduce orbital edema, radiotherapy, evisceration, chemotherapy or hormonal therapy and choice of therapy should be individualized to the patient. Here we are reporting a case of unilateral Orbital secondary from primary PC.

2. Case Report

A 68 year old male patient presented with history of forward protrusion of right eye (Figure 1) since 2 months which was insidious in onset, gradually progressive and history of diminution of vision in right eye of 1 year duration, insidious in

onset, gradually progressive, painless. No h/o trauma, redness, pain, discharge or watering of eyes. Past history of the patient revealed that he was operated in the right eye for cataract, 5 years earlier and history of having undergone transurethral resection of the prostate (TURP) for benign prostatic hyperplasia (BPH), 6 months back. Systemic examination was normal.

Table 1: Findings of ophthalmic examination

	Right eye	Left eye
Visual acuity	6/12	6/6
External appearance	Displaced forwards by about 4mm (24mm)	Normal
Extraocular movements	Limited abduction, limited dextroversion	Normal
Lids, Conjunctiva, Cornea	Normal	Normal
Pupil	2-3mm , RRR	2-3mm, RRR
Lens	Pseudophakia	grade 2 nuclear sclerosis with posterior subcapsular cataract
Fundus	Normal	Normal

Investigations revealed that Blood glucose levels, X-ray chest and lumbar spine and Ultrasonography (USG) of the abdomen were normal. Contrast enhanced Computerised tomography scan (CECT) (Figure 2) showed bulky extraconal soft tissue mass in right orbit. The mass was ill-defined and infiltration of right lateral rectus muscle was seen. Soft tissue fullness was present in the right temporal fossa. Fine needle aspiration cytology (FNAC) from the orbital mass revealed a malignant epithelial tumour metastasis secondary to PC. Previous histopathological report (Figure 3) following TURP revealed adenocarcinoma of prostate.

Bilateral Orchidectomy was done and Bicalutamide 50 mg once daily (antiandrogen therapy) was started for 6 months. Follow up after 1 month showed that proptosis had reduced. CT scan showed regression in tumour mass. PSA levels were 2.6ng/ml. After 6 months (Figure 4 and 5) there was no proptosis, PSA levels 0.3ng/ml. Antiandrogen treatment was stopped.

Figure 1: Image showing proptosis of right eye at presentation (Pre treatment)

Figure 2: CT-Scan showing Bulky extraconal soft tissue mass in the right orbit. The mass was ill defined and infiltration of right lateral rectus muscle was seen. Soft tissue fullness was present in the temporal fossa

Figure 3: Histopathological slide stained with H and E showing features suggestive of adenocarcinoma of prostate.

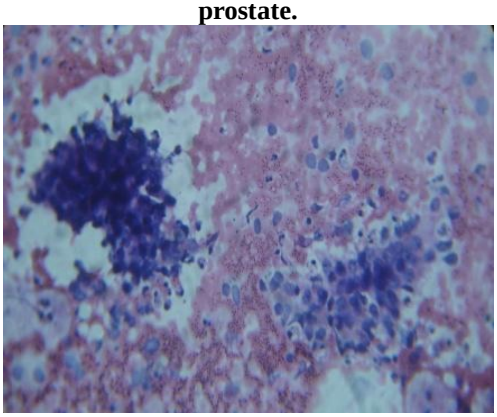
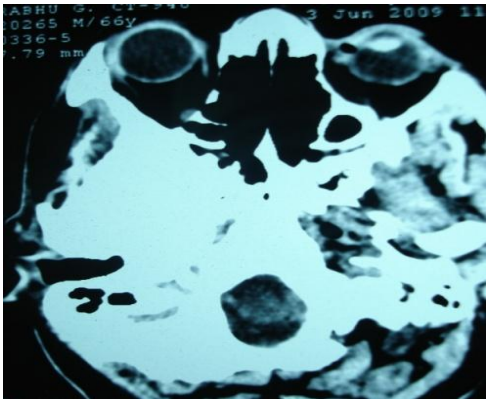


Figure 4: Resolution of proptosis following orchidectomy and Hormonal treatment

Figure 5: CT-scan showing resolution of soft tissue mass in the right orbit following treatment



3. Discussion

PC is the third most common male cancer after non-melanoma skin and lung cancers. Adenocarcinoma of the prostate accounts for 3.6-4% of all orbital metastasis [17]. PC can spread to the orbit by either hematogenous or venous route. Hematogeous spread involves the ophthalmic branch of the internal carotid artery, whereas venous spread is through the Bateson's venous plexus and the cranial venous sinuses (ophthalmic vein). In general, patients present with ocular symptoms such as decreased vision, diplopia, proptosis and periorbital edema. Metastasis to the bony orbit although rare, has been reported in the past [18][19]. Rarely, PC has been reported to metastasize to the optic canal and the pituitary region [20][21]. Most cases of soft tissue orbital metastasis secondary to PC involve the uveal tract.[22]-[26].

Osseous metastases from PC constitute the most common form of distant spread [27]. The most frequent sites involved are the pelvis, spine, femur and ribs [27]. The orbit is rarely involved. Urological malignancies in general and PC in particular are especially uncommonly metastasize to the orbit and the orbital tumour as the primary manifestation of occult carcinoma of the urological system is even more unusual[15][28].

One of the largest series of eye and orbit metastases reported that of Ferry and Font [8] in which the prostate was the site of primary tumour in only 3 cases (1.3%). In yet another series, the same authors found that only between 3.5% - 4% of metastatic tumours to the orbit were from prostate primaries [9]. Fredman examined 112 patients (141 eyes) with metastatic tumours of the eyes and orbit and found the breast to be the most common primary site [29]. The prostate was the 5th most common neoplasm to involve the eye in that study.

Adenocarcinoma prostate typically involves axial skeleton and has been infrequently reported in unusual sites like orbit. The most frequent orbital signs are proptosis, limited extraocular motility and globe displacement. The most common symptoms are pain, diplopia and decreased vision. Our patient was a 68year old male, who had undergone prostatectomy for BPH, presented with h/o forward protrusion of right eye. The age, and the presenting complaints of our patient, with the significant surgical history correlated well with the earlier reported studies, suggested the probability of an orbital metastasis from a probable prostatic carcinoma. Histopathology of specimen showed adenocarcinoma of prostate. CT scan of the orbit and FNAC confirmed malignant epithelial tumour metastasis secondary to prostate malignancy.

Treatment options for orbital metastasis secondary to PC mainly include androgen blockade therapy and cranial irradiation. Radio-therapy includes both external beam radiation and plaque radio-therapy. However, irradiation is mainly reserved for patients who fail hormonal therapy. Lastly, enucleation although rarely used, is indicated in patients with ocular pain and complete loss of vision.

Hormonal therapy is effective in 70% to 80% of patients, with an average response of 18 months. Irradiation is generally effective in the treatment of distant metastases from carcinoma of the prostate. A study by Shittu *et al*[30], reported a case series, suggesting resolution in proptosis following B/L orchidectomy. Our patient showed regression of proptosis on CT and decreases in PSA levels following B/L orchidectomy and use of Bicalutamide has been reported to be useful in the management.

4. Conclusion

Secondary orbital metastases account for only 12% of newly diagnosed orbital masses. PC accounts for only 3.6% of orbital metastases encountered in clinical practice. Here, we report a rare case of unilateral orbital secondary from primary PC. The proptosis resolved over time following bilateral orchidectomy and hormonal therapy.

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