

## Ocular disorders as the first symptom of testicular cancer- A case literature review

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### Abstract

**Background:** The involvement of the eye as the first systematic occurrence of primary testicular cancer is rare. Ocular symptoms can hide a malignancy in testis, especially in young patients.

**Methods:** PubMed, Embase, and Scopus were searched from January 1, 1970, until July 31, 2020, to identify articles about ocular disorders as the first manifestation of testicular cancer. There were only five studies that described cases with visual symptoms.

**Conclusion:** It is essential, regardless of the rarity of the case, that any physician must examine the testicles in young men with vision disorders.

**Keywords:** Testicular cancer; germ cell tumor; seminoma; non-seminoma; ocular metastasis; choroid metastasis.

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### I. Introduction

Testicular cancer is the most common neoplasm in young males aged 15 to 35 years. The involvement of the eye as the first systematic occurrence of primary testicular cancer is rare and constitutes 1.5% of all metastatic testicular cancers [1].

Most testicular cancers come from germ cells and are classified according to their histological appearance into seminomas and non-seminomas. Testicular germ cell tumors usually appear as nodules or painless swelling in one testicle. As the first appearance of such a tumor, metastatic disease occurs in 10% of cases [2]. Our review aimed to identify studies reporting ocular disorders as the first symptom of testicular cancer.

### II. Literature Search

We performed an in-depth review of the literature in PubMed, Embase, and Scopus from January 1, 1970, until July 31, 2020, to identify articles about ocular disorders as the first manifestation of testicular cancer. The following search string ("testicular cancer" OR "germ cell tumor" OR "seminoma" OR "non-seminoma") AND ("ocular metastasis" OR "choroid metastasis") was used. Reference lists of all relevant studies and reviews were scanned further for additional studies.

### III. Results

Five studies that described cases with visual symptoms which led to the diagnosis of their underlying malignancy were identified (Table 1). The average age of onset is 25.2 years (20-35). The first symptom that led them to the doctor is vision loss, while they have been reported acute pain, headache, and blurred vision. The

initial eye examination showed eye lesions, and then history and clinical examination revealed a mass in the testicle.

In one-third of the cases, metastatic eye disease was the first sign of testicular cancer. Of these, 2% detect primary foci in the testis. There are no known primary foci in the ophthalmic diagnosis of uveal metastases in 34% of cases. Immediately everyone underwent further imaging tests, which showed the presence of a mass in the testicle. Other findings from CT examinations included metastases in the chest (mediastinum, lungs) and retroperitoneal space. Blood tests displayed elevated levels of human chorionic gonadotropin, AFP and LDH in all cases. There was an affected renal function in one case, and positive anti-nuclear antibody (ANA) and a positive anti-ribonucleoprotein antibody.

All patients underwent orchiectomy and were administered a chemotherapy regimen consisting of bleomycin, etoposide, and cisplatin. Only one died of septic shock due to pyelonephritis in five cases. The rest were reported cancer-free, with little improvement in vision. The histopathological report revealed two cases of choriocarcinoma, one non-seminomatous tumor, one seminoma and one mixed germ cell tumor.

#### **IV. Discussion**

In men aged between 15 to 34 years, germ cell tumors are the most frequent type of solid tumor [1]. Their accuracy has doubled over the past four decades and is approximately 2-3 per 100,000 men per year. There is geographic variance in north European countries like Denmark; it is 6-7 per 100,000 men. Seminomas are less clinically aggressive than non-seminomatous germ cell tumors. Non-seminomatous germ cell tumors represent 50% of germ cell tumors. Metastases from these tumors are usually regional to the retroperitoneal lymph nodes below the renal vessels. The most common organ metastasis is in the lungs. Non-pulmonary visceral metastasis is not that common and rarely the single metastatic localization [2-5].

Ocular metastasis is an infrequent site for testicular germ cell metastasis. A choroid lesion is difficult to differentiate from a primary choroid carcinoma. Medical history, ophthalmological examination and physical examination can help the differential diagnosis. The diagnostic procedures to confirm the diagnosis include fluorescein angiography, ocular echography, fine needle puncture aspiration, CT and magnetic resonance [6-7]. If the other diagnostic test cannot set a diagnosis, then fine needle aspiration should be considered. Metastasis in the eye precedes the diagnosis of primary testicular cancer. Treatment of these tumors includes the systematic treatment of the primary tumor. Local treatment choices can be just an observation of external radiotherapy and enucleation. Due to the abundant blood flow of the uvea, every tumor with a tendency of hematogenous metastasizing can be found in it. 40 % of those lesions usually accrue in the macular region due to the higher posterior choroidal blood flow and easy macular symptom detection. Cough, chest pain, hemoptysis, and swallowing breath are symptoms of lung metastasis. Bone pain and central nervous symptoms are rare. In choriocarcinoma, gynecomastia may occur due to the production of human chorionic gonadotropin [8-10].

#### **V. Conclusion**

It is essential for a young man to self-examine the testicles at regular intervals so that any pathology can be detected in time. In a young patient who comes for vision disorders, the doctor needs to have a clinical examination of the testicles regardless of the doctor's specialty.

#### **References**

- [1]. Ferry A.P., Font R.L. Carcinoma metastatic to the eye and orbit: a clinicopathologic study of 227 cases. *Arch Ophthalmol.* 1974;92:276-286
- [2]. Bosl GJ, Motzer RJ: Testicular germ-cell cancer. *N Engl J Med* 1997;337:242-253.
- [3]. Bojanić N, Nale D, Mičić S, Jančić A, Vuksanović A, Vuković I. Isolated eyeball metastasis of non-seminomatous germ cell testicular tumor. *Vojnosanit Pregl.* 2011;68(11):985- 987.
- [4]. Chruscicki D, Sutton S, Sutton L, Spontaneous Intraocular Hemorrhage in Metastatic Testicular Cancer *Retinal Physician*, Volume: 9, Issue: April 2012, page(s): 52-53
- [5]. Shields CL, Shields JA, Gross NE, Schwartz GP, Lally SE. Survey of 520 eyes with uveal metastases. *Ophthalmology.* 1997;104(8):1265-1276. doi:10.1016/s0161-6420(97)30148-1
- [6]. Bains S, Jain A, Sharma K. Choroidal metastasis as the presenting feature in a case of testicular choriocarcinoma. *Saudi J Ophthalmol.* 2012;26 (2):249-251.
- [7]. Singh D, V, Gupta V, Singh S, K: Choroid Metastasis from Testicular Carcinoma: A Rare Entity. *Urol Int* 2016;96:367-369.
- [8]. Myadam R, Gohar A. Testicular Seminoma Presenting with Bilateral Blindness: Looking Beyond the Eye. *Cureus.* 2020;12(4):e7534. Published 2020 Apr 4. doi:10.7759/cureus.7534
- [9]. Camarillo Gómez C, Sánchez Ronco I, Encinas J: Choroidal metastases (in Spanish). *An Sist Sanit Navar* 2008;31(suppl 3):127-134
- [10]. Galetović D, Bućan K, Karlića D, Lesin M, Znaor L: Bilateral choroidal metastases of kidney carcinoma (in Croatian). *Acta Med Croatica* 2010;64:221-224.