EPIDEMIOLOGICAL ANALYSIS OF OCULAR MELANOMA IN UNIVERSITY CLINIC CENTER IN TUZLA, BOSNIA AND HERZEGOVINA

Amra Nadarevic Vodencarevic¹, Vahid Jusufovic¹, Svjetlana Terzic¹, Musfaha Burgic², Meliha Halibasic¹, Mersiha Sinanovic¹

¹Eye Clinic, University Clinic Centar Tuzla, Tuzla, Bosnia and Herzegovina

²Plastic and Maxillofacial clinic, University Clinic Centar Tuzla, Tuzla, Bosnia and Herzegovina

Corresponding author: Amra Nadarevic Vodencarevic, MD. Krecanska 15A/43, 75000 Tuzla, Bosnia and Herzegovina. Tel.: +38761720990. E-mail: amra_nadarevic@hotmail.com

ABSTRACT

Aim: Melanoma represents a malignant tumour arising from melanocytes. Uveal melanoma is the most common primary ocular malignancy among the adult population. The aim of the study was to examine epidemiological characteristics of ocular melanoma in University Clinic Centre in Tuzla, Bosnia and Herzegovina from January 2001 till November 2015. **Methods and Materials:** In this retrospective study we used all available medical documentation to investigate the clinical findings which included age, gender, tumour size, histopathological features and the precise anatomic origin of the ocular melanoma. **Results:** Over the 14 year period of this study, there were 32 patients with microscopically confirmed ocular melanoma at the Department of Pathology. All malignant melanoma were uveal origin. **Discussion and conclusion:** For early detection of the disease, regular checkups are necessary, especially in older population. As there is a limited number of reports on the epidemiology of malignant tumors of eye and ocular adnexa in our region, this is very important study. We conclude that this is a first study in Bosnia and Herzegovina that document the number of uveal melanomas.

Key words: Uveal melanoma, ocular tumors, enucleation

1. INTRODUCTION

Melanocytes originate from melanoblasts in the neural crest of the human embryo. Emigration to their target organs such as the skin or the eye, begins as early as at 2½ weeks of gestation (1). Melanoma represents a malignant tumor arising from melanocytes. Uveal melanoma, though rare, is the most common primary intraocular malignancy in adults. Its incidence among the general population is quite low, with only 4.3-8.4 new cases per million per year (2-6). Choroidal melanoma is the most common uveal melanoma with 80%, follow with 12% of the ciliary body and only 8% the iris. Average age of onset is 50-60 years (2). Incidence of ocular melanoma is increasing with age, with a peak in seventh decade of life (7, 8). Uveal melanoma is typically unilateral, although bilateral cases have been reported (9). Patients may be diagnosed after developing symptoms of blurred vision, decreased visual acuity caused by secondary retinal detachment, pain or during a routine examination. This presentation of uveal melanoma primarily depends on size and location of the tumor. A number of factors influence prognosis. The most important are cell type, tumor size,

location of the anterior margin of the tumor, the degree of ciliary body involvement and extraocular extension. Data on the epidemiology of the tumors of the eye and ocular adnexa among Bosnian and Herzegovinian population is limited.

2. SUBJECTS AND METHODS

This is a single-centre retrospective study of a series of clinical cases of patients diagnosed with uveal melanoma between January 2001 and August 2015 from our database, in the Department of Ophthalmology at University Clinic Center in Tuzla (UCC Tuzla). UCC Tuzla is single health institution equipped for ocular melanoma diagnostics in this region of Bosnia and Herzegovina (B&H). After the enucleation of the eye, microscopically diagnosis of ocular melanoma was confirmed at Department of Pathology at University Clinic Center in Tuzla. In this study provisions of the Helsinki Declaration were followed. We included both patients from the locations served by our hospital as well as those who had been referred to us from other areas in B&H. In this study we included only ocular melanomas that were confirmed after pathological study of enucleated globes. We did not include

patients that were clinically confirmed with ocular melanoma but as a treatment method was selected other than enucleation. We analyzed clinical variables: age, gender, eye affect, tumour origin and size, histopathologic findings according to Callender classification. Clinical diagnosis of melanoma was established by comprehensive ophthalmology examination and ultrasonography. Ultrasound examination was performed with (10MHz transducer, UltraScan®, ALCON). Tumors were classified according to the size of the largest basal diameter (LBD) and the maximal tumour's height (H), based on the COMS criteria for grouping tumors into medium and large tumors (medium: $2.5 < H \leq 10$ mm and $LBD < 16$ mm; large: $H > 10$ mm or $LBD > 16$ mm) (10,11). Thus, tumors with $LBD \leq 10$ mm were considered small, $10 < LBD \leq 16$ mm were considered of medium size, and > 16 mm were considered large. Tumors with $H \leq 2.5$ mm were considered small, $2.5 < H \leq 10$ mm were considered of medium size, and > 10 mm were considered large.

3. RESULTS

Over the 14-year period of this study, there were 32 patients with microscopically confirmed ocular melanoma at the pathology department of UCC Tuzla, of which 56% were male (n:18) and 44% female (n:14). The intraocular location of the tumour, based on biomicroscopy, funduscopy and ultrasonography, was noted in the following distinct areas of the eye: iris, ciliary body and choroid. The majority of malignant melanoma 32, were uveal in origin. All 32 patients with uveal melanoma in this study underwent enucleation with a clinical diagnosis of uveal melanoma in our department. Among 32 uveal melanomas, 27 (84%) cases had choroidal involvement, 4 (13%) cases had ciliary body involvement and 1 (3%) case had iris involvement. The right eye was affected in 45% (n:15), left one in 55% (n:18). No one of these 33 patients had family history of uveal melanoma. Choroidal melanoma most commonly appeared in the 7th decade of life. The mean age at diagnosis ($\pm$ standard deviation) was 61.66 ± 12.71 years (range 33-84). Histopathologic findings according to Callender classification showed the following types of melanoma with 61% mixed cell melanoma (n:20), followed by 27% spindle B cell (n:9) and in the end with 12% epithelioid cell type melanoma (n:4). We found no pure spindle-A cell type melanoma in our study. Basal diameter of choroidal melanoma ranged from 7 mm up to 22mm, an average of 15.48 ± 3.53 mm. Height of the tumour was a minimum of 6 mm to a maximum of 18 mm, an average of 10.81 ± 2.82 mm. When grouped by LDB 3.7% of the tumors were small, 59.3% were medium and 37.0% were large. When grouped by height, 51.9% of the tumors were medium and 48.1% were large. At the moment of diagnosis no one of the patient had any metastasis.

4. DISCUSSION

In our analyzed population, more often the male patients were exposed to malignant melanoma than female patients, similar findings were reported in several studies (12, 13, 14). The importance of this study is in the fact that this is the first study of uveal melanoma in B&H. Currently B&H is one of the rare European countries that don't have National Cancer Register. We advocate on formation of Caner Register that

would receive lists of newly diagnosed cases on a regular basis from all over the country. Enucleation has been for a long time the standard method for treating uveal melanomas all over the world. Currently in B&H is still standard method as our patient come to doctor too late.

5. CONCLUSION

We conclude that annual screening programs for uveal melanoma should be carried out to detect disease early, when melanomas are small and potentially easier to treat. Currently many patients with melanoma have asymptomatic tumors. This fact emphasizes the importance of routine and period examinations. It should be noted that some developed countries have their own guidelines for the diagnosis and treatment of uveal melanoma. We believe that this should be implemented as soon as possible in our region as well. Successful treatment depends on the ability of ophthalmologist to detect the tumour while it is still small. It is important to emphasize in the end that in a last few years a lot of has been done developing ocular oncology. It is very important to mention that ocular oncology is very special in many ways. It requires interaction ophthalmologists, radiologists, pathologist and oncologists. Thirty years ago, in the late 80s of the last century, the goal of ophthalmologists around the world was that at the time of diagnosis of uveal melanoma to save a person's life. Today it is very different. The appetite increased. Thanks to advances in ocular oncology, ophthalmologist set a new goal and that is to be kept persons eye and in some cases even to preserve visual acuity.

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