

An uncommon conjunctival nevus: juvenile conjunctival nevus with balloon cell differentiation

Clinical presentation

A 14 year old woman presented a pigmented conjunctival lesion, recently modified. It was locally excised.

Histopathology

The conjunctival specimen showed a compound type nevus with nevus cells located within both the epithelium and the substantia propria. There was a nested and confluent growth pattern of melanocytes in the junctional component. We observed focus of pagetoid spread. In the substantia propria many of the nevus cells had clear cytoplasm with centrally located nuclei. There was no evidence of cellular atypia, or mitosis. Conjunctival cysts were present in the subepithelial component. A lymphocytic host response was present in the substantia propria.

The melan-A and HMB45 stains were positive within the nevus cells as well as the within the clear cells located in the substantia propria

Diagnosis

Juvenile conjunctival compound nevus with balloon cell features

Discussion

In children and adolescents, rapidly growing conjunctival nevi can look very concerning clinically and are often biopsied. Under the microscope, they also show concerning histologic patterns. Juvenile conjunctival nevi often show confluent growth pattern in the junctional component, absence of maturation with depth. In addition, a prominent inflammatory infiltrate is present in about half of the lesions and may obscure the architecture of the nevus and foster misleading impression of cytological atypia. Most juvenile conjunctival nevi are compound type. The presence of cysts helps one differentiate between conjunctival nevi and melanoma as cysts are rarely seen in melanoma.

Balloon cell nevi are benign melanocytic tumors typically found in the choroid(Naumann et al. 1966; Yanoff & Zimmerman 1967)and skin and rarely in the conjunctiva or iris (Morcos et al. 2014). They represent histologic variants of the more common nevocellular nevi in which greater than 50% of nevus cells are large and foamy. They are most common in patient under age of 30, affecting male and female equally(Wolkow & Freitag 2019). Clinically, they are undistinguishable from more common nevi. Thompson et al. reported a total of 13 documented cases in literature of conjunctival balloon cell nevi, with only one being located in the caruncle(Thompson et al. 2015). The age at presentation ranges from 7 to 44 years. Balloon cell nevi are characterized histologically by nests of large cells that lack melanin pigment and have a clear or vacuolated cytoplasm with centrally located nuclei. The vacuolated cytoplasm may be the result of several different processes, including being filled with fat or undergoing lipomatous transformation. The prevailing hypothesis is that the balloon cells are merely altered nevus cells with a defect in melanin synthesis. Ultrastructural examination shows the balloon cells are formed by vacuolization of melanocytes secondary to enlargement and disintegration of melanosomes(Kim et al. 2007). This finding suggests that apoptosis may be involved in the development of this lesion. The presence of balloon cells does not in itself indicate benignity as they have been found in malignant melanomas of the skin, conjunctive and in uveal melanomas(Margo 1988). The histologic differential diagnosis here is balloon cell melanoma. The morphologic characteristics of the cells, including mitotic activity and prominence of nucleoli, are helpful in distinguishing benign and malignant disease. Balloon cells in skin malignant melanoma simply represent a morphologic feature, not a specific subtype of melanoma. Balloon cell malignant melanomas of the skin did not affect metastatic potential, and the prognosis is similar to other types of cutaneous melanomas.

In literature, the bulbar conjunctiva is the most common location for balloon cell nevi, followed by the caruncle and palpebral conjunctiva.

Immunohistochemistry is very helpful in correctly establishing the diagnosis of balloon cell nevus since this entity will stain as ordinary nevi. Balloon cells stain positively for S-100 and melan-A. The balloon cells are weakly PAS, HMB-45 can be negative or weakly/focally positive(Jakobiec et al. 2009).

Bibliography

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