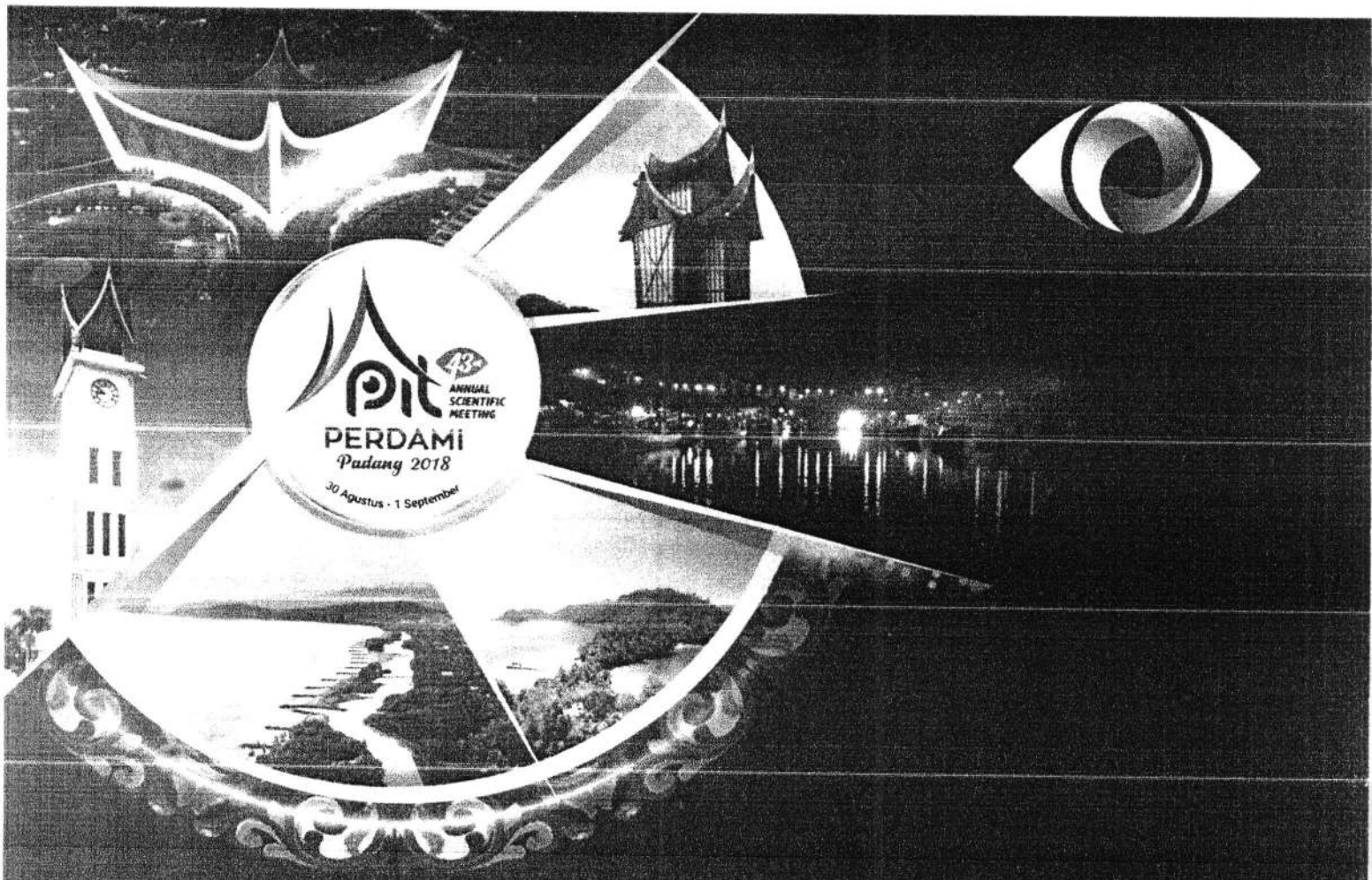

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Benign Eyelid Tumor

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ABSTRACT

The eyelids are composed of four layers, skin and subcutaneous tissue including its adnexa, striated muscle, tarsus with the meibomian glands and the palpebral conjunctiva. The eyelids may be affected by wide spectrum of benign and malignant lesions. Benign and malignant can arise from each of the eyelid layers.To diagnose eyelid lesions one must first understand the anatomy of the eyelid and especially the eyelid margin and its characteristics. Eyelid lesions are more often than not benign. Accurate diagnosis by an ophthalmologist is based on history and clinical examination when in doubt, any suspicious lesion should undergo biopsy. Benign lesions of the eyelid represent upwards of 80 percent of or 3 times more frequent than malignant neoplasms while malignant tumors account for the remaining. It can be helpful to categorize eyelid lesions into inflammatory, infectious and neoplastic. The more common benign eyelid lesions are presented and classified by origin with each discussion highlighting the important clinical features, defferential diagnosis, pertinent systemic associations, histopathology, and treatment. They are epithelial tumors, adnexal tumors, milia, acquired sebaceous gland hyperplasia, sebaceous adenoma, eccrine hidrocystoma, syringoma, apocrine hidrocystoma, cylindroma, tricho epithelioma, vascular tumors, neural tumors, lesi xanthomatous, melanocytic lesion, and infection lesions.

Keywords. *anatomy, eyelid, benign, diagnosis, histopathology*

INTRODUCTION

As tumors in the other organs, tumors of the eyelid can be classified according to their tissue or cell if origin and as benign and malignant.[1,2,3] Accurate diagnosis by an ophthalmologist is based on history and clinical examination when in doubt, any suspicious lesion should undergo biopsy.

Examination Anatomy of Eyelid

To diagnose eyelid tumor one must first understand the anatomy of the eyelid and especially the eyelid margin and its characteristics[3]. The eyelids are composed of four layers : skin, muscle, fat, tarsus, conjunctiva and adnexal structures including the approximately 100 eyelashes, glands of Zeis, glands of Moll, meibomian glands, and the associated vascular and lymphatic supply.[1,6] Benign and malignant can arise from each of the eyelid layers.[1,8]

The examination of an eyelid lesion begins with history. History should include chronicity, symptoms (tenderness, change in vision, discharge), and evolution of the lesion. Other pertinent points include a history of skin cancer, immunosuppresion, fair skin or radiation therapy. Physical examination should include assessment of location, the appearance of the surface of the lesion and surrounding

skin including adnexal structures. The clinician should be assessing for any ulceration with crusting or bleeding, iregular pigment, loss of normal eyelid architecture, pearly edges with central ulceration, fine teleangiectasia or loss of cutaneous wrinkles.[2,6] Finally, a physical examination of the patient should include palpation of the edges and/or fixation to deeper tissues, and assessment of regional lumph nodes and the function of cranial nerves II-VII. A picture can be priceless for following disease progression or response to treatment. If pictures cannot be obtained, drawings and measurements are recorded for future comparison.[2,3,6]

Classification of The Eyelid Tumors

Benign lesions of the eyelid represent upwards of 80 percent of eyelid neoplasm. Table 1 lists the eyelid tumors according to their origin. Most eyelid tumors are of cutaneous origin, mostly epidermal[1,2] which can be divided into epithelial and melanocytic tumors. Benign epithelial lesions, cystic lesion, and benign melanocytic lesion are very common.[1] Inflammatory and infectious lesions that can simulate neoplasms are common. Only the more common benign eyelid tumors are included in this review.

Table 1. Major types of eyelid tumors[1]

Benign epithelial tumor

The most common benign tumors of the eyelid skin epithelium are squamous papilloma, pseudoepitheliomatous hyperplasia, seborrhoic keratosis, keratoacanthoma, and cutaneous horn.

1. Squamous papilloma

Squamous papilloma is the most common benign epithelial tumor of eyelid and is often sessile or pedunculated with papillary shape and keratinized surface. Squamous papillomata may be multiple. It typically occurs in middle-aged or older adults.

2. Seborrhoic keratosis

Seborrhoic keratosis is a common benign skin lesion that affects middle-aged and older individuals.[1,2,5] They are well-demarcated warty plaques that may vary in size, degree of pigmentation, and shape of surface which may be greasy. Three cases of histopathologically confirmed seborrhoic keratosis were clinically felt to be a skin tag, an epidermal cyst, and an eyelid nevus.

3. Pseudoepitheliomatous hyperplasia

Pseudoepitheliomatous hyperplasia is not a discrete lesion but rather refers to a pattern of reactive changes in the epidermis that may develop over areas of inflammation or neoplasia. It is a reactive process that may clinically and histopathologically be confused with basal cell or SCC.[1,2] Papillomas, seborrhoic keratosis and pseudoepitheliomatous hyperplasia can all be managed with shave excision at dermal-epidermal junction.[2]

Keratoacanthoma

This lesion is typically a dome-shaped nodule with central keratin-filled crater and elevated, rolled margin. It usually develops over a short period of weeks to a few months and may regress spontaneously. There is along-standing debate as to whether those lesions are

benign reactive lesions or a variant of SCC.[1,2]

5. Cutaneous horn (non specific keratosis) Cutaneous horn is a descriptive, nondiagnostic term referring to extuberant hyperkeratosis. This lesion may be associated with a variety of benign or malignant histologic processes, including seborrhoic keratosis, verruca vulgaris, and SCC or BCC. Biopsy of the base of the cutaneous horn is required to establish a definitive diagnosis.[1,2]

Benign melanocytic eyelid tumors

Melanocytic lesions of the skin are common and may arise from nevus cells, dermalmelanocytes, and epidermal melanocytes; all derive embryologically from the neural crest. The location of the melanocytic cells affects the clinical appearance of the various types of the melanocytic lesions.[1,2]

1. Freckles (ephelis)

Freckles are small, flat brown skin spots scattered over sun-exposed areas, including the eyelids that characteristically darken with sunlight exposure and fade in the absence of sunlight[1]. Ephelids appear from hyperpigmentation of the basal layer of the epidermis. No treatment s necessary other than sun protection.[2]

2. Lentigo simplex

These lesions are small, flatbrown-to-black lessions that clinically are distinguishable from junctional nevi. They are not affected by exposure to light. No treatment is necessary. Melanin-bleaching preparations may achieve cosmetic improvement.

3. Solar lentigo

These lesions are light to dark brown in color and develop in chronically sun- exposed areas of the skin.[1] Solar lentigines are uniformly hyperpigmented an somewhat larger than simple lentigines. No treatment is necessary, but sun protection is recommended. Melanin bleaching preparation or cryotherapy may help fade the pigmentation of solar lentigines.

4. Eyelid nevi

Eyelid nevi are the third most common benign lesions encountered in the periocular region (after papillomas and epidermal inclusion cyst). Nevi are not apparent clinically at birth but begin to appear during childhood and often develop increased pigmentation at the time of puberty.[2]

a. Congenital nevi

Congenital nevi are common, present in the skin in about 1% of newborns. They may vary in size from small to giant and have a small lifetime risk for malignant transformation. Variants of congenital nevi present as split nevus or kissing nevus, and nevus of Ota (oculodermal melanocytosis).[1,2]

b. Acquired nevus

Acquired nevi develop in childhood and may grow during adolescence. Sun exposure may affect their development and density. They can located anywhere in the eyelid skin and eyelid margin and may involve the conjunctiva. The nevi are flat or elevated, usually pigmented, lesions. Histologically, the three main types of acquired nevus, according to the location of nevus cells, are the junctional nevus, the intradermal nevus, and the compound nevus, which involves both dermoepidermal junction and dermis. Junctional nevi are relatively rare and are seen in younger patients; with advancement of age, more compound nevi and later intradermal nevi are seen. The intradermal nevus is the most common and most benign type of nevus, very rarely transforms to melanoma.[1,2]

Asymptomatic benign nevi require no

treatment. Nevi may become symptomatic if they rub on the ocular surface or enlarge and obstruct vision. They are managed with shave excision or wedge resection of the eyelid margin.[2]

5. Dermal melanocytosis

Also known as nevus of Ota, blue nevus of the periocular skin. Dermal melanocytosis proliferate in the region of the first and second dermatomes of cranial nerve V. The eyelid skin is diffusely brown or blue, and pigmentation may extend to adjacent forehead. Approximately 5% of cases are bilateral.

Adnexal tumor of the eyelids

The term adnexa refers to skin appendages that are located within the dermis but communicate through the epidermis to the surface. The tumor originate from hair follicles, sweat glands, sebaceous glands, and accessory lacrimal glands. Their consistency can be cystic, solid, benign and malignant. Cystic lesions may occur due to duct obstruction, trauma, surgery or inflammatory process. The precise etiology of the solid adnexal tumors is mostly unknown.

A. Cystic lesions

1. Epidermal inclusion cysts (epidermal cysts)

These cysts usually present a smooth dome-shaped elevation of varying size that may have an opening. They often have a central pore, indicating the remaining pilar duct. They may be pigmented. When a cyst is ruptured, reactive inflammation can develop around it. Recommended treatment for small cysts is marsupialization, excising around the periphery of the cyst but leaving the base of the cyst wall to serve as the new surface epithelium. Larger or deeper cysts may require a complete excision, in which case the cyst wall should be removed intact to reduce the possibility of reccurence.[1,2]

2. Hidrocystoma

Hidrocystomas are common cysts, arise from sweat glands, and are also known as sudoriferious cysts or ductal cysts of sweat gland origin[2]. They are divided into two types such as apocrine and eccrine. In Saudi population, sweat gland hidrocystoma is the most frequent lesion which could be due to characteristic dry climate.[4]

a. Apocrine hidrocystoma

This is a retention cyst which usually appears as a solitary translucents, often bluish, cystic nodule in the eye margin of adult people.[1,2] It originates from a blocked excretory duct of a Moll's gland. The cyst is filled with clear or milky fluid. It usually measures 1-3 mm in diameter but may reach 10-15 mm in diameter. Treatment for superficial cysts is marsupialization. Deep cyst require complete excision of the cyst wall.

b. Eccrine hidrocystoma

The ductal retention cysts of eccrine sweat glands appears as a solitary clear cystic lesion on an eyelid of adult person, but not in the eyelid margin. It measures 4-10 mm in diameter. Treatment consist of surgical excision.

B. Sweat gland tumor

There are two types of sweat glands such as eccrine and apocrine. In the eyelids, eccrine sweat glands are distributed over the eyelid skin while the apocrine glands are the glands of Moll that are associated with eyelashes and, therefore, their tumors are usually in the eyelid margin.

1. Syringomas apocrine.

Syringoma is a common benign eccrine sweat gland tumor of the eyelid, especially in young women. The lesions are usually multiple and appear as yellowish, waxy nodules measuring 1-3 mm. Because the eccrine glands are located within the dermis, these lesion lie

too deep to allow shave excision. Removal requires complete surgical excision, which is often best accomplished in a staged fashion.[2,7]

2. Pleiomorphic adenoma

Pleimorphic adenoma of the skin, known also as benign mixed tumor or chondroid syringoma, is very rare in the eyelids. They arise from skin sweat glands and clinically appear as intradermal multilobulated mass. Histologically, they are identical to pleiomorphic adenoma of the lacrimal glands. Treatment is complete surgical excision at the time of the primary exploration.[1,2]

3. Eccrine spiradenoma

This uncommon benign tumors appears as a solitary nodule 1-2 cm diameter that may be tender and painfull. It tends to occur in early adulthood, and eyelid involvement is rare. Treatment is surgical excision.[1,2]

Hair follicle tumor

Several rare benign lesions may arise from eyelashes, eyebrows, or vellus hairs in the periocular region.

1. Trichoepithelioma

These are benign tumors of hair follicle origin, may appear solitary in adult or multiple that usually in children and adolescents. It appear as a firm elevated nonulcerated skin-colored nodule. Simple excision is curative.[2,7]

2. Trichofolliculoma

This is a hamartoma representing the most differentiating form of hair follicle tumors. Clinically, it appears as a single, slightly elevated, dome-shaped nodule, often with a central umbilication with white hairs growing from it. Surgical excision is curative.[2,7]

3. Trichilemmoma

This is a benign tumor from the outer layers of the hair follicles in adults, that appear as a small nodule with either smooth skin- colored papules or warty lesion with irregular rough surface that can be mistaken for verruca or cutaneous horn.[1,2] Treatment is surgical excision, cryosurgery, or laser.[2,7]

4. Pilomatrixoma (calciflying epithelioma of malherbe)

These lesions most often affect young adults and usually occur in the eyebrow and central upper eyelid as a reddish purple subcutaneous mass attached to overlying skin. They may become quite large. Excision is curative.

Sebaceous gland tumors

Tumors of the sebaceous glands in the ocular region originate in the meibomian glands, glands of Zeis, the caruncle, and the skin of the eyebrow.

1. Sebaceous gland hyperplasia

These lesions presents as a yellowish, elevated, soft, in elderly people. They often tendency have central umbilication and fine teleangictasia so it may sometimes be mistaken for BCC. When sebaceous gland hyperplasia occurs in the meibomian glands in the tarsal palte, the eyelids may become thickened and ectropic. This condition may coexist with chronic blepharitis and the possibility of sebaceous gland carcinoma must be considered.

2. Sebaceous gland adenoma

These are rare lesions presenting clinically as tan, yellow, or reddish nodules in elderly people. If it appears in a young person, it may indicate Muir-Torre syndrome.[2,9]

Stroma tumors of eyelid

Most of the eyelid stromal tumors are rare. They can be classified according to their tissue of origin: fibrous tissue tumors, fibrohistiocytic tumors, lipomatous tumors, smooth muscle tumors, skeletal muscle tumors, neural tumors, lymphoid and leukemic tumors, bone and cartilage tumors, secondary tumors, metastatic tumors and hamartomas and choristomas. Because of their rarity, only the more common tumors are reviewed.

Fibrohistiocytic tumor

1. Xanthelasma

Xanthelasma palpebrarum is a very common localized usually bilateral subcutaneous eyelid lesion. Most patients with xanthelasma are normolipemic, but about one-third have primary hyperlipidemia, especially Types II and III, and also patients with secondary hyperlipidemia.

Clinically, xanthelasma occurs in middle-aged or elderly patients as flat or slightly elevated yellowish-tan soft plaques in the inner canthi. It can generally be observed. Surgical excision should be considered for larger or cosmetically unacceptable lesions (Shield).

2. Juvenile xanthogranuloma

Eyelid lesions in juvenile xanthogranuloma (JXG) may appear as a localized solitary lesions or as a part of a systemic disease. JXG is a nonneoplastic, often self limited, histiocytic proliferation, which usually starts in infancy. Adult-onset xanthogranuloma has been reported. The eyelid lesion appears as an elevated orange or reddish- brown nodule.

3. Fibrous histiocytoma

The eyelids are a rare location for fibrous histiocytoma (FH) that may involve superficially the eyelid skin and deeply the tarsus.

Vascular tumors

Benign vascular tumors of the eyelid can be congenital hamartomatous lesions such as capillary hemangioma, nevus flammeus, and arteriovenous malformation, or acquired such as cavernous hemangioma and granulation tissue. The eyelid may be involved by orbital vascular lesions, such as lymphangioma, that may extend anteriorly.

1. Capillary (infantile) hemangioma

This is the most common vascular tumor of the eyelid. It is usually congenital and manifests at birth or within the first couple of weeks. Typically, it grows rapidly during the first 6-12 months, and after a stable period, it involutes gradually until the age of 4-7 years. It may involve the conjunctiva and the orbit.[1,2]

Clinically, there are two variants such as superficial and deep. The superficial lesions, which are elevated, reddish-purple in color and of a soft consistency, with small surface invagination-hence the term "strawberry nevus". They bleach by application of direct pressure. Involvement of the eyelid margin is common. The deep variant is in the subcutaneous tissue and is bluish in color.

2. Nevus flammeus (port-wine stain)

This is a diffuse congenital, mostly unilateral, vascular malformation of the face with involvement of the eyelids and periocular area. It always presents at birth and may become darker and more prominent over time; it never disappears on its own. Clinically, the lesion is flat, exhibits a deeper, more purple hue than capillary hemangioma and unlike capillary hemangioma, it does not bleach on pressure. About 10% of the patients with nevus flammeus of the eyelid are associated with Sturge-Weber syndrome. In such cases, the brain may be involved, and glaucoma is common.

3. Cavernous hemangioma

Cavernous hemangioma is rare in the eyelid. Typically, it arises in the second to fourth decades of life. It demonstrated a slow progressive enlargement and does not regress spontaneously. The lesion is usually not well-circumscribed. The color depends on its depth. The superficially located lesion has a bluish color while the deeper-located lesions may display little or no change of the overlying skin. Cavernous hemangioma of the eyelid may be associated with several syndrome.[1,2,7]

4. Pyogenic granuloma

This is the most common acquired vascular lesion of the eyelid. The term "pyogenic

granuloma" is a misnomer since it is neither pyogenic nor granuloma. This reddish-pink mass may occur anywhere in the eyelid, usually following trauma or surgery, grow rapidly, and may bleed easily when touched.

Neurogenic tumors

Neurogenic tumors of the eyelid originate from peripheral nerves.

1. Neurofibroma

Neurofibroma is an important neural tumor that can affect skin in all parts of the body. Th eyelid can be involved by neurofibroma in three different ways: solitary, mulitiple localized and plexiform neurofibroma. Plexiform neurofibroma is considered pathognomonis of type 1 NF (von Recklinghausen's disease. Solitary neurofibroma.[2,9]

2. Schwannoma (neurilemmoma)

This is a benign tumor that rarely appears in the eyelid. Multiple schwannomas can occur in patients with neurofibromatosis while solitary tumors are not associated with this disease. Clinically, it appears as a slow-growing, firm, well-defined mass that can simulate a chalazion.[2,9]

Dermoid cysts, a common hamartoma, often appears clinically as an eyelid tumors, but usually is an orbital lesion with contiguous extension to the eyelid. A localized rare hamartoma in the eyelid is ectopic lacrimal gland, which appears in childhood and may be a part of a complete choristoma, and a source of benign tumor.

Inflammatory and infectious lesions that stimulate neoplasms

1. Chalazion

Chalazion is a very common localized lipogranulomatous inflammatory lesion of the sebaceous gland of the eyelid, most often of meibomian gland. It usually occurs spontaneously due to noninfectious obstruction of sebaceous gland ducts. Clinically, it can present in any part of the four eyelids as a dome-shaped smooth elevation that may be reddish in color. The lesion may rupture posteriorly through the palpebral conjunctiva and appears as a granulation tissue, or anteriorly through the skin. The chalazion may mimic various real neoplasia, the most important one being SGC[2,7].

2. Molluscum contagiosum

These are common skin lesions, seen more in children, caused by the pox virus that often affects the eyelid and the periocular skin. Molluscum contagiosum is found frequently in patients with AIDS[1,2].

Clinically, it presents in most cases as multiple small (1-5 mm in diameter) dome-shaped, skin-colored nodules with typical central umbilication in most of them1. Lesions in the lid margin may cause follicular conjunctivitis[1,2]. Treatment is observation, excision, controlled cryotherapy, or curettage[6].

3. Verruca vulgaris

These are common skin lesions that are caused by the wart virus, a DNA virus that belongs to the papova group[1,2,5]. Clinically they present as circumscribed, elevated papillomatous hyperkeratotic lesion, resembling squamous papilloma. Cryotherapy may eradicate the lesion and minimizes the risk of viral spread[2].

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