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Complimentary Article

# Gland, Secretion, Adnexa - Apocrine Hidrocystoma

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## Preface

Apocrine hidrocystoma was initially described by Mehregan in 1893. A terminology of "black hidrocystoma "was precedent for pigmented apocrine hidrocytsoma. The benign tumefaction is frequent in adults and depicts an equivalent gender or a slight female predisposition [1].

A cystic dilatation of apocrine secretory glands is incurred on account of blockage of apocrine or eccrine sweat glands and the sequential lesions are cogitated as hidrocystoma. Secretions of apocrine glands discharge into hair follicles followed by an effluence onto the skin surface. Modified apocrine glands are cogent as glands of Moll situated in the eyelids, ceruminous glands in the external ear and as the mammary glands.

Hidrocystoma is additionally termed as a sudoriferous cyst and emerges as an infrequent, benign adnexal sweat gland tumour. Miniature benign sweat gland tumours demonstrate an apocrine or eccrine sub-categorization on account of mechanics of glandular secretions.

Apocrine hidrocystoma is commonly solitary and exceptional [1,2].

Eccrine hidrocystoma can be multiple and are clinically indistinct from apocrine hidrocystoma.

## Disease Characteristics

Hidrocystoma denominates a cystic dilatation of secretory glands and are principally of two subtypes contingent to the gland of origin- apocrine or eccrine. Apocrine hidrocystoma is a tumefaction of obscure origin, although a sequestration of epithelial cells at the embryonic stage can initiate a congenital cyst formation. Traumatic implantation of epithelial cells in a specific tissue or organ is implicated [2,3].

Apocrine hidrocystoma incorporates benign, cystic dilatation of apocrine secretory glands whereas eccrine hidrocystoma enunciates a cystic dilatation of eccrine glands.

Apocrine hidrocystoma also arises in conjunction with disorders such as nevus sebaceous.

Hidrocystoma, concomitantly referred to as "sudoriferous cyst ", normally depict dimensions betwixt 1.5 to 15 millimetres. Giant apocrine hidrocystoma can be cogitated within eccrine or apocrine subcategory.

Apocrine hidrocystoma typically generates an oily, foamy effluvium whereas eccrine subtype demonstrates watery discharge. Multiple lesions of apocrine hidrocystoma are contingent to exceptional, inherited syndromes such as the Schopf -Schulz- Passarge syndrome and Goltz -Gorlin syndrome [3,4].

## Clinical Elucidation

Idiopathic apocrine cyst can be propounded on history and clinical examination. The dermal lesions are essentially asymptomatic, skin coloured, well demarcated, dome shaped, solitary or multiple translucent nodules with a minimal bluish tinge and a magnitude of 10 millimetres or above. Superficially smooth, brownish lesions depict a focal gray or blue black pigmentation. Clinical simulation of a cyst, nevus, actinic keratosis or syringoma can be enunciated. Apocrine hidrocystoma is frequently cogitated at peri-orbital region, lateral or outer canthus, face, cheek, chin, lips, palms, head and neck, aerola, penis, external genitalia, torso, fingers, axilla or anal region. The face is a common site. Adjunctive apocrine glands infrequently demonstrate the benign tumefaction [4,5].

Orbital tumours necessitate a demarcation from conditions such as dacryops, dermoid cyst or a lacrimal gland aggregation.

Lesions of hidrocystoma are thick walled, translucent and occasionally fissure spontaneously. The flesh coloured, bluish or dark blue pigmented nodules simulate a basal cell carcinoma or melanoma on visual inspection.

Multi-locular, frequently distended cysts are cogitated in the dermis, abutting the eccrine and apocrine glands. Thermal variations do not modify the magnitude of apocrine hidrocystoma, in contrast to eccrine hidrocystoma [5,6].

Apocrine hidrocystoma displaying adenomatous hyperplasia and papillomatosis enunciate clinical attributes identical to the non-proliferative analogues. The nomenclature of apocrine cystadenoma essentially denotes attributes such as papillomatosis along with adenomatous and luminal cell hyperplasia.

Apocrine hidrocystoma with proliferative features or apocrine cystadenoma is contemplated as a benign hidrocystoma with an absence of nuclear atypia or appreciable mitosis.

Apocrine cystadenoma or hidrocystoma with proliferative features exhibit a benign clinical course. The proliferative variant appears in the facial skin, groin, scalp, axilla, prepuce, penile shaft and urogenital region, zones which display an abundance of apocrine glands. The lesions can concur and abut nodules of syringocystadenoma papilliferum and nevus sebaceous of scalp.

Multiple apocrine hidrocystoma are infrequent and elucidated in Schopf Schulz Passarge syndrome or the denominated Ectodermal dysplasia syndrome. Hypotrichosis, hypodontia, nail dystrophy, palmoplantar keratoderma and periocular cysts are additional components of the syndrome. Multiple lesions of apocrine hidrocystoma can appear on eyelids [6,7].

Accurately discerning an apocrine hidrocystoma, particularly on specific clinical attributes, is a challenging exercise.

## Histological Elucidation

Incised cysts of apocrine hidrocystoma depict a collapsed epithelial lining and contained thin, clear, brown or black fluid. Fluid constituent is thus tinged on account of lipofuscin pigment or Tyndall affect, in contrast to the presence of melanin or haemosiderin.

Enlarged cystic cavities lined with epidermis are cogitated. Cuboidal or columnar apocrine secretory cells displaying decapitation secretion are enunciated within a perimeter of myoepithelial cells. The dual epithelial layer extends as peripheral projections within the dermal region.

The aforesaid morphological features are characteristic and the cyst is disconnected from the superficial epidermis. Inmost lining epithelial cells display abundant eosinophilic cytoplasm with apical snouts and secretions [7,8].

Multiple cystic spaces with focal papillary projections are enunciated in apocrine hidrocystoma.

Eccrine hidrocystoma demonstrates a singular cavity devoid of papillary projections and a dual layer of cuboidal epithelium.

Protuberations layered with proliferative epithelium and adenomatous hyperplasia is generally absent.

Cellular atypia and pleomorphism can be exemplified within the proliferative epithelium, nevertheless lesions depict a benign clinical progression.

Apocrine hyperplasia is concordant with hidrocystoma. Epidermoid metaplasia may appear in apocrine cystadenoma and requires a distinction from squamous cell carcinoma. Pigmentation within an apocrine hidrocystoma describes deposition of melanin as a principal mechanism of pigmentation [8,9].

Epithelium of eccrine hidrocystoma is devoid of decapitation secretion, in contrast to apocrine hidrocystoma.

Furthermore, granules reactive to Periodic acid Schiff's (PAS) stain and unilocular cysts with a distinctive myoepithelial lining is cogitated. Apocrine cystadenoma or hidrocystoma with proliferative features display cysts layered with dual layer of cuboidal or columnar epithelium. Myopeithelium is usually problematic to discern on conventional histology. Aspects such papillary outgrowth and adenomatous hyperplasia are exhibited in addition to cystic bodies. Focal cellular atypia and pleomorphism is elucidated.

On histology, apocrine cystadenoma is differentiated from non proliferative lesions on account of papillomatosis and/or adenomatous configuration. Proliferative element emerges as a focal or diffuse component.

An estimated half (50%) of apocrine cystadenoma enunciate true papillary articulations with a central fibro-vascular core. Granules reactive to periodic acid Schiff's (PAS) stain appear within the luminal cells. Focal decapitation secretion of apocrine subtype is cogitated. On account of cystic enlargement, luminal cells are compressed and apocrine secretion can be overlooked [9,10].

Apocrine cystadenoma with true papillary configurations depict nuclear pleomorphism and considerable mitosis (80%). Irrespective of presence of proliferative cells, lesions remain devoid of metastasis or reoccurrence. Apocrine cystadenoma with pseudopapillary fronds can display nuclear atypia (33.3%) or mitotic activity (25%).

Additionally, adenomatous hyperplasia, papillomatosis or cystic proliferation of apocrine glands is exemplified [11].

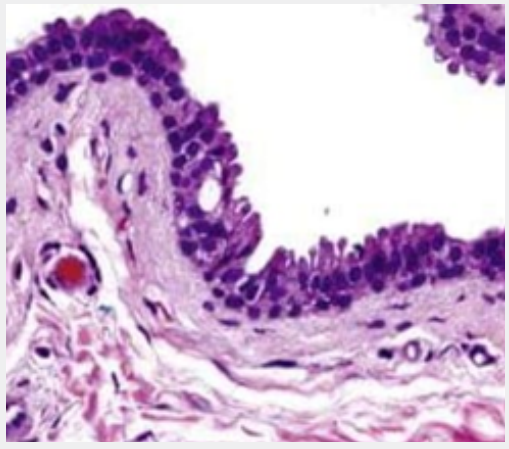

***Figure 1:*** *Columnar epithelial lining of apocrine hidrocystoma [12].*

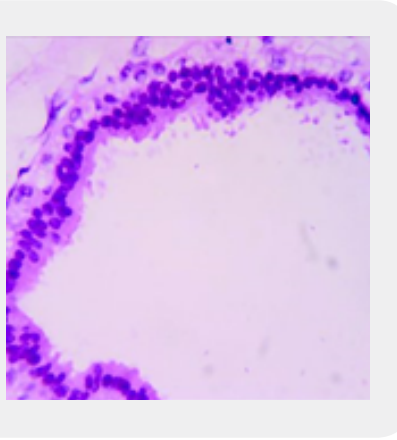

***Figure 2:*** *Decapitation secretion of apocrine hidrocystoma [13].*

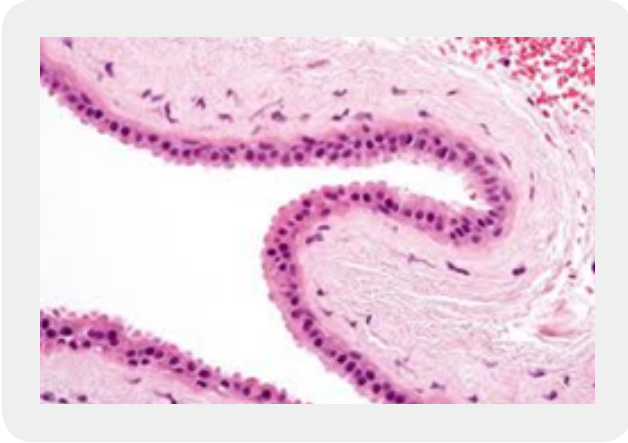

***Figure 3:*** *Cuboidal epithelium with myoepithelium lining an apocrine hidrocystoma [14].*

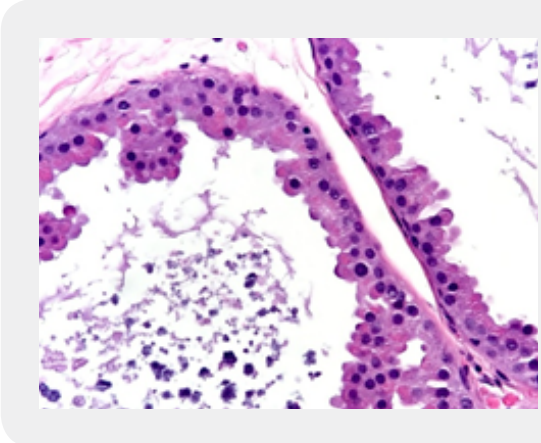

***Figure 4:*** *Cystic epithelial lining in apocrine cystadenoma composed of cuboidal epithelium [15].*

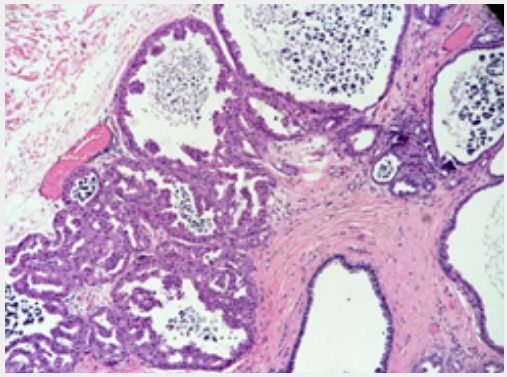

***Figure 5:*** *Cysts and convolutions of apocrine hidrocystoma [15].*

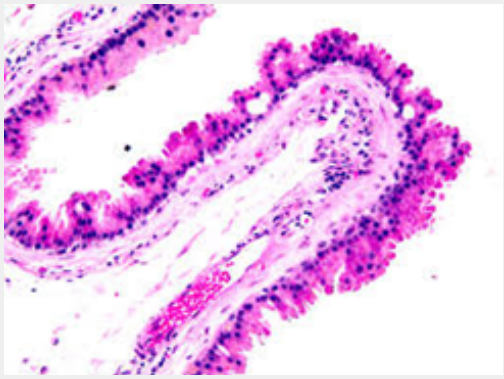

***Figure 6:*** *Epithelium lined cystic convolutions of apocrine hidrocystoma [15].*

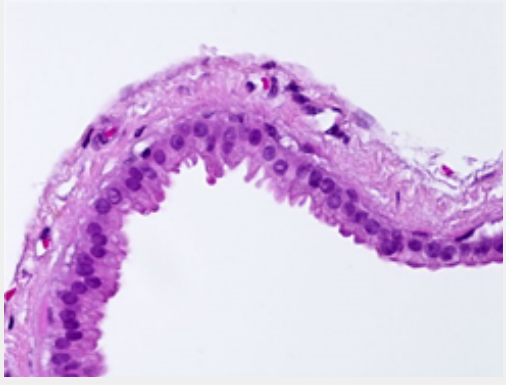

***Figure 7:*** *Cuboidal epithelium with fibro-connective stroma in apocrine hidrocystoma [16].*

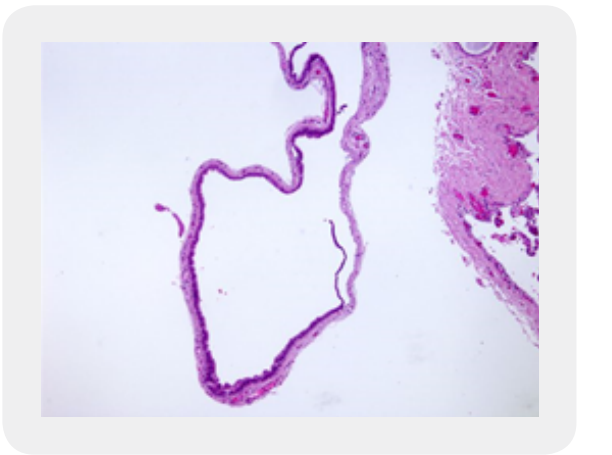

***Figure 8:*** *Convoluted, epithelium lined cysts in apocrine hiidrocystoma [16].*

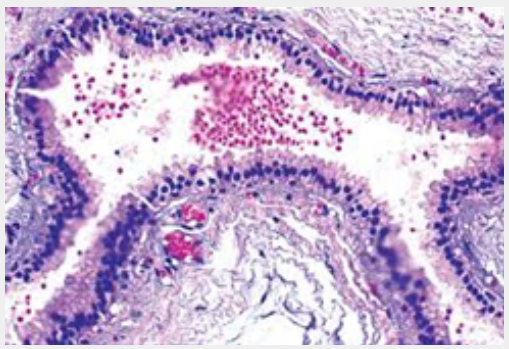

***Figure 9:*** *Cuboidal epithelium, red cell extravasation in cysts of apocrine hidrocystoma [16].*

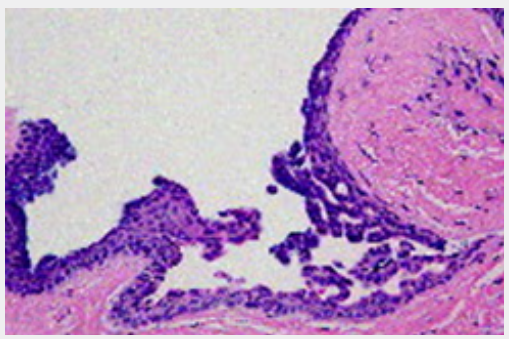

***Figure 10:*** *Epithelial proliferation and papillae lining a cyst of apocrine hidrocystoma [16].*

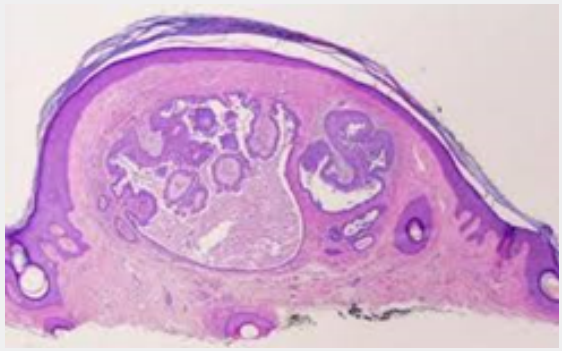

***Figure 11:*** *Sub-dermal nodule of apocrine hidrocystoma with cysts, papillae and superimposed stratified epithelium [17]*

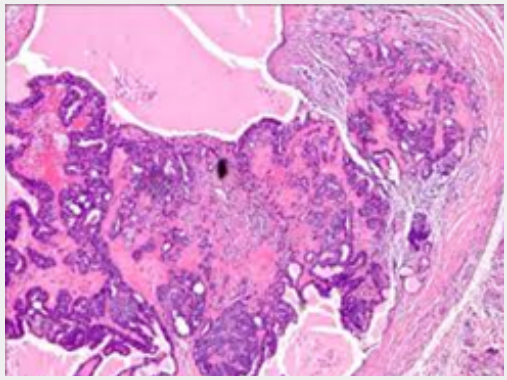

***Figure 12:*** *Apocrine hidrocystoma displaying convolutions, papillae, adenomatous configurations and bilateral epithelial lining [18].*

## Immune Histochemistry

Cysts of apocrine hidrocystoma or cystadenoma are layered with myoepithelial cells and are immune reactive to S-100 protein and calponin. Proliferative luminal cells of apocrine cystadenoma are immune reactive to human milk fat globule 1 (HMFG1). Additionally, luminal immune reactivity for cyto-keratins 7, 8 and 18 (CK7, CK8 and CK18) along with actin appears to be specific for apocrine cystadenoma. Nuclear staining with oestrogen or progesterone receptors seems to be absent in an apocrine cystadenoma. Normal apocrine glands do not display a nuclear staining with oestrogen or progesterone receptors [11,19].

Immune reactivity for neuro-endocrine markers, oestrogen and progesterone receptors is exhibited with apocrine hidrocystoma denominated as an apocrine cystadenoma.

Apocrine cystadenoma exhibits a diffuse, intense staining within the cystic adenomatous zones. Adjacent and dual layers of non-hyperplastic epithelium lining the cyst remain non reactive for oestrogen or progesterone receptors besides chromogranin.

## Differential Diagnosis

Hidrocystoma can extraneously recapitulate a haemangioma, lymphangioma, molluscum contagiosum, epithelial inclusion cyst and atypical basal cell carcinoma [10,11].

## Therapeutic Options

Apocrine hidrocystoma is generally subjected to surgical extermination or drainage. Punch biopsy is an alternative technique for eradicating the cyst. A simplistic needle puncture provides intermittent alleviation. Beneficial therapies include micro-dermabrasion and electrodessication. Surgical excision of the cyst with complete electrosurgical elimination of cyst wall is recommended to prevent tumour reoccurrence. Cystic recrudescence is exceptional [19,20].

## Contemporary Neoplasm

Endocrine mucin producing sweat gland carcinoma (EMPSGC) demonstrates clinical attributes, histology and immune- reactivity which recapitulates an apocrine cystadenoma. Endocrine mucin producing sweat gland carcinoma is cogitated as a lesion of obscure aetiology. Apocrine hidrocystoma is contemplated as a precursor lesion to endocrine mucin producing sweat gland carcinoma. Apocrine cystadenoma and endocrine mucin producing sweat gland carcinoma generally occur on facial skin. Cuboidal epithelial lining and adenomatous configuration is cogent in the evolution of aforesaid bilateral lesions [20,21]. Endocrine mucin producing sweat gland carcinoma demonstrates cytological atypia and infiltrating pattern of tumour progression, features which are absent in apocrine cystadenoma. Proliferative features with identical immune markers are applicable for the abovementioned lesions. Endocrine mucin producing sweat gland carcinoma demonstrates immune reactivity to oestrogen, progesterone receptors or neuroendocrine markers such as chromogranin, synaptophysin and neuron specific enolase [19,21].

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12. Image 1 Courtesy: Science Direct.

13. Image 2 Courtesy: Research gate.

14. Image 3 Courtesy: Basic medical key.

15. Image 4,5,6 Courtesy: Twitter.com

16. Image 7,8,9,10 Courtesy: Pathology outlines.

17. Image 11 Courtesy: Study Blue.

18. Image 12 Courtesy: SM Journals.

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