# Hyperplasias and Benign Neoplasms of Adnexal Origin

By Kristy Charles, MD, and Emily Smith, MD

| Follicular Entities | Clinical Presentation | Pathology | Associations & Notes |
|---|---|---|---|
| Basaloid follicular hamartoma | Nonspecific skin-colored papule | Strands of basaloid cells with numerous epidermal connections. More pink than BCC with no cleft-ing. | • PTCH mutation<br>• The familial form is autosomal dominant and associated with milia, comedones, hyperpigmented pap-ules, hypotrichosis, hypohidrosis, and palmar pits. |
| Dilated pore of Winer | Papule with central pore on face of elderly | Large cystic follicle with small squamous buds. Pilar sheath acanthoma has thicker projecting fingers. | |
| Pilar sheath acan-thoma | Papule with central pore on upper lip of middle aged to elderly patient | | |
| Trichofolliculoma | Small, papule or nod-ule with tuft of hair at central pore on the face, scalp or upper trunk. | Multiple "baby" follicles empty-ing into a central large "mother" follicle. | |
| Fibrofolliculoma | Small, skin-colored to white papules on head, neck, or upper trunk. | Central follicle with radiating thin epithelial strands in a fibrovascu-lar stroma. | • Birt-Hogg-Dubé syndrome: Auto-somal dominant, folliculin mutation (Mtor pathway). Colonic polyposis, spontaneous pneumothorax, renal cell carcinoma, medullary thyroid carcinoma. |
| Trichodiscoma | | Fibrofolliculoma cut in a plane that does not show epithelial strands. Only see fibrovascular stroma. | |
| Trichoblastoma | Solitary, brown or blue-black nodule on scalp. | Dermal basaloid nodules in scle-rotic stroma. Papillary mesenchy-mal bodies. | • #1 tumor to grow in a nevus seba-ceous |
| Trichoepithelioma | Skin-colored papule(s) on nose, upper lips or cheeks. | Islands of basaloid cells in the upper dermis within fibrous stroma with horn cysts, cribriform (Swiss-cheese) nodules, papillary mesenchymal bodies and calcifi-cations. | • Brooke-Spiegler syndrome and mul-tiple familial trichoepitheliomas<br>• Rombo syndrome<br>• Bazex-Dupré-Christol syndrome |
| Desmoplastic trichoepithelioma | Solitary, firm, annular papule with central dell on upper cheek of young woman. | Infiltrative thin cords and nests of basaloid cells in upper dermis. Horn cysts and calcifications com-mon. Red sclerotic CD34+ stroma. | • AKA sclerosing epithelial hamar-toma<br>• Paisley tie differential: Desmoplas-tic trichoepithelioma, microcystic adnexal carcinoma (look for deep infiltration), morpheaform/infiltrative BCC, syringoma. |
| Trichoadenoma | Non-specific skin-col-ored papule on face. | Multiple red doughnuts in the der-mis (each ~ infundibulum). Often in pairs resembling eyeglasses. | |
| Pilomatricoma | Solitary, skin-colored or bluish nodule on head, neck, or proxi-mal upper extremities in childhood. "Tent sign" with stretching. | Large dermal ball with matrical (blue) differentiation, keratinize to form shadow cells. Often calcify or form bone. | • Derived from hair matrix cells<br>• Beta-catenin mutation (Wnt path-way)<br>• Conditions with multiple: Gardner syndrome, myotonic dystrophy, Rubinstein-Taybi syndrome, Turner syndrome, Trisomy 9, Sarcoidosis, HIV, Sotos syndrome. |
| Trichilemmoma | Skin-colored, verru-cous papule. | Lobular epidermal prolifera-tion of PAS-positive clear cells. Peripheral palisading and thick glassy eosinophilic basement membrane (eyeliner sign). | • Cowden syndrome (multiple hamar-toma syndrome): Autosomal domi-nant, PTEN mutation. Oral papillo-mas, acral palmoplantar keratoses, sclerotic fibromas, increased risk for breast, follicular thyroid and endo-metrial cancers. |

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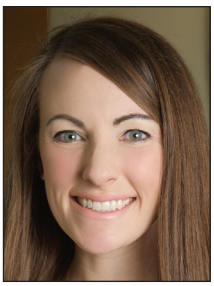

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| Follicular Entities | Clinical Presentation | Pathology | Associations & Notes |
|---|---|---|---|
| Tumor of follicular infundibulum | Solitary, small, keratotic papule on head or neck in adult. | Plate-like horizontal epidermal proliferation in papillary dermis. Isthmic differentiation. | • AKA isthmicoma due to isthmic origin. |
| Proliferating trichilemmal cyst | Firm, lobulated nodule on scalp of elderly woman. | "Rolls and scrolls." May form new cysts in confines of mother cyst. | • With loss of p53 may become a malignant proliferating trichilemmal cyst. |
| **Eccrine Entities** | **Clinical Presentation** | **Pathology** | **Associations & Notes** |
| Eccrine hidrocystoma | Smooth, translucent, flesh-colored to bluish papule on head and neck. | Simple cyst lined by columnar or cuboidal cells. | • Multiple in periorbital region: ectodermal dysplasia.<br>• Multiple in general: warm climates, hyperhidrosis, Graves' disease. |
| Syringoma | Numerous small, flesh-colored or yellowish papules, most common on lower eyelid. | Paisley-tie pattern of tadpole shaped ducts. | • Eruptive: Adolescent females, skin types V and VI. Located on anterior neck, chest, trunk, axillae, upper medial arms, and/or periumbilical region.<br>• Clear cell variant in diabetes. |
| Poroma | Slow-growing, flesh-colored or red and ulcerated, exophytic papule with epidermal collarette, most often on palms/soles. Can be mistaken for pyogenic granuloma. | Epidermal proliferation of monotonous cells with interspersed ducts lined by eosinophilic cuticle. May look like SK at low power. | Variants:<br>• Eccrine poroma<br>• Hidroacanthoma simplex (only epidermis)<br>• Dermal duct tumor (only dermis)<br>• Syringofibroadenoma (see row below) |
| Syringofibroadenoma | Variable presentation. Most common on lower extremities. | Multiple thin anastomosing cords of benign epithelial cells within dermis. Prominent loose fibrovascular-myxoid stroma. | • Schöpf-Schulz-Passarge syndrome: Autosomal recessive or sporadic, Wnt10A mutation. Apocrine hidrocystomas, PPK, hypohidrosis, hypodontia, hypotrichosis, nail dystrophy, syringofibroadneomas<br>• Clouston syndrome: Autosomal dominant, GJB6 (connexin 30). Hypotrichosis, nail dystrophy, PPK, mental retardation. |
| Spiradenoma | Solitary, 1-2 cm, red-brown, deep-seated nodule. Can be painful. | Large, round dermal islands of blue cells peppered with black lymphocytes and eosinophilic hyaline droplets. | • Brooke-Spiegler syndrome: Autosomal dominant, CYLD mutation (NF-kB pathway). Multiple cylindromas, spiradenomas, trichoepitheliomas<br>• Painful tumors: BANGLE – blue rubber bleb nevus, angiolipoma, neuroma, glomus tumor, leiomyoma, eccrine spiradenoma. |
| Nodular hidradenoma | Slow-growing, firm, flesh- colored or red to blue, solid or cystic nodule. | Well-circumscribed, non-encapsulated solid-cystic nodular dermal lesion. Cuboidal cells admixed with clear cells and cuticle lined ducts. Bright red zones of basement membrane zone reduplication around vessels. | • Features of eccrine and apocrine origin |
| Chondroid syringoma | Firm nodule on head or neck. Commonly mistaken for cyst. | Circumscribed dermal nodule with epithelial cells in cords, ducts or tubules in a myxoid-cartilaginous stroma. | • AKA mixed tumor<br>• Analogous pleomorphic adenoma of salivary gland |

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| Apocrine Entities | Clinical Presentation | Pathology | Associations & Notes |
|---|---|---|---|
| Apocrine hidrocystoma | Smooth, translucent, flesh-colored to bluish papule in periorbital region. | Similar to eccrine hidrocystomas but with decapitation secretion. | • Schöpf-Schulz-Passarge syndrome (see above) |
| Erosive adenomatosis of the nipple | Unilateral, erythematous, eroded, crusted papule of the nipple in middle-aged women. Associated with ulceration and serosanguineous discharge. | Endophytic proliferation of tubular structures in the dermis with verrucous or ulcerated surface. No atypia or necrosis. | |
| Hidradenoma papilliferum (HPAP) | Small, unilateral, flesh-colored subcutaneous nodule on female vulva. Associated with pain or discharge. | Dermal blue solid-cystic nodule with maze-like internal structure that "looks like one can HIDe in it." No epidermal connection (versus SCAP). | • AKA papillary hidradenoma |
| Syringocystadenoma papilliferum (SCAP) | Asymptomatic, firm, pink papule usually on scalp. Increased size with papillated, hyperkeratotic surface at puberty. | Opens to the surface (versus HPAP). Blue papillary fronds (~ villi) extend upward into clear spaces with decapitation secretion. Prominent plasma cells present (versus HPAP). | • Likely both apocrine and eccrine origin<br>• Usually in association with another adnexal tumor; 40% arise in nevus sebaceous (2nd most common tumor).<br>• PTCH and p16 mutations<br>• Goltz syndrome: X-linked dominant, PORCN mutation (Wnt pathway). Fat herniation, osteopathia striata, coloboma, alopecia, lobster claw deformity. |
| Cylindroma | Slow-growing, pink, firm, hairless nodules on the scalp. | Islands of blue cells outlined by thick, eosinophilic basement membrane. Arranged in "jigsaw puzzle" pattern. | • "Turban tumors"<br>• CYLD mutation spectrum: Brooke-Spiegler syndrome and Familial Cylindromatosis |
| **Sebaceous Entities** | **Clinical Presentation** | **Pathology** | **Associations & Notes** |
| Nevus sebaceous | Linear, hairless, yellow, waxy, verrucous plaque on scalp. Becomes more prominent at puberty. | "Broad, bald, bumpy & bubbly." Multiple small sebaceous glands located high in dermis with frequent apocrine glands. Absence of hair follicles is a strong clue. | • Associated mutations HRAS, KRAS<br>• Nevus sebaceous syndrome (Schimmelpenning or Organoid-nevus syndrome): Extensive, congenital nevus sebaceous – typically linear. Ocular, cerebral, skeletal, cardiovascular and urologic defects. |
| Sebaceous adenoma | Smooth, well-circumscribed, flesh-colored, yellow or pink papule on head and neck of elderly. | Sebaceous lobules with increased peripheral basaloid cells (look more blue than normal). No atypia, necrosis, or invasive growth pattern. | • Muir-Torre syndrome: Autosomal dominant, MSH2, MSH6, MLH1, or PMS2 mutation (mismatch repair genes). Sebaceous neoplasms, keratoacanthomas, internal malignancies (colon, genitourinary, breast, hematologic). |

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