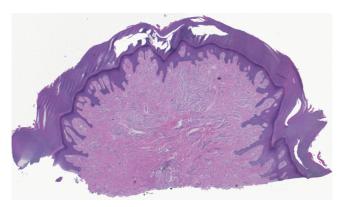
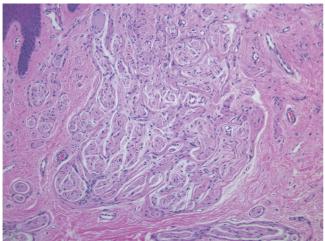
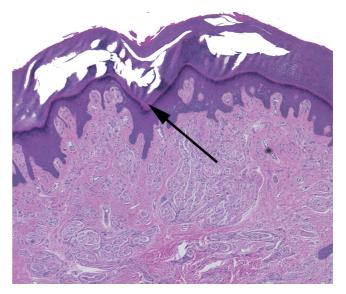
1

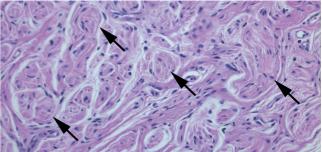
Shape on Low Power

- Polypoid, 3
- Square/rectangular, 8
- Regular acanthosis, 15
- Pseudoepitheliomatous hyperplasia above abscesses, 19
- Proliferation downward from epidermis, 23
- Central pore, 32
- Palisading reactions, 36
- Space with a lining, 40
- Cords and tubules, 52
- Papillated dermal tumor, 59
- Circular dermal islands, 66
- (Suggestion of) vessels, 70



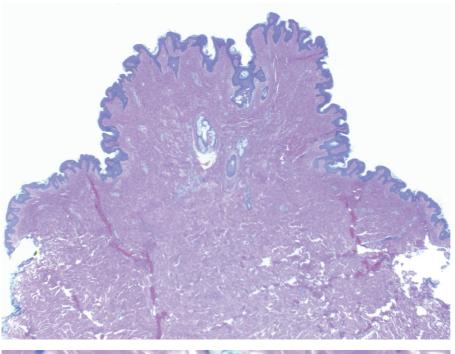


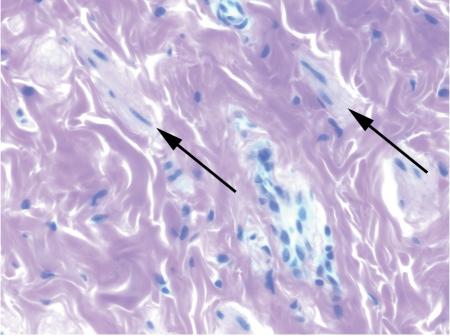




- Polypoid shape
- Acral skin [thick stratum corneum with stratum lucidum (long arrow)]
- Dermal nerve bundles (short arrows)

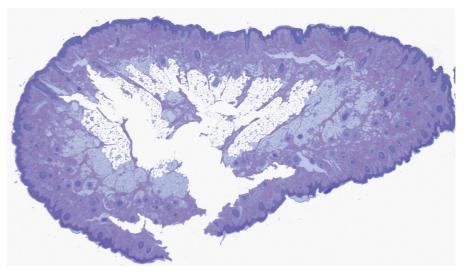
4 Shape on Low Power | Polypoid

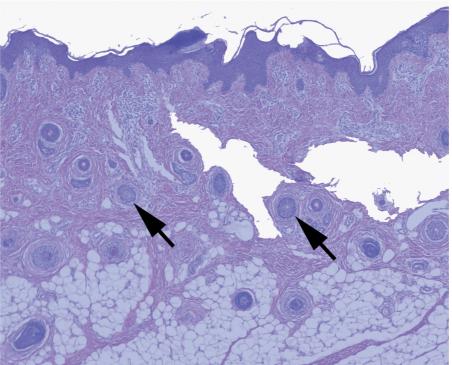




- Polypoid shape
- May see a slight invagination of surface epidermis with underlying sebaceous glands
- Surface epidermis often slightly acanthotic and hyperpigmented
- May see mammary ducts or apocrine glands deep
- Dermis with numerous smooth muscle bundles (arrows)

Accessory nipple

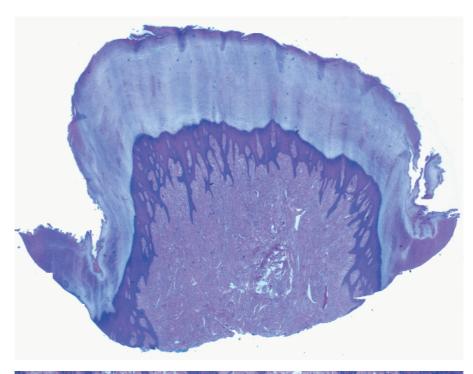


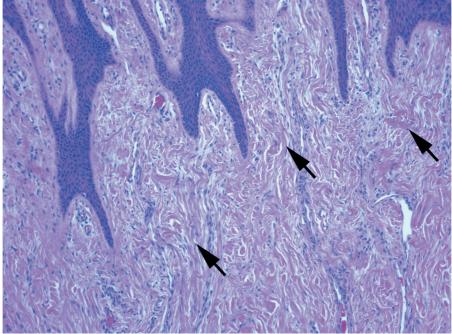


- Polypoid shape
- Thin epidermis
- Vellus hairs (arrows)
- Cartilage not always present

- Differential diagnosis of numerous vellus hairs
 - Eyelid/earlobe/sometimes facial skin
 - Vellus hair nevus

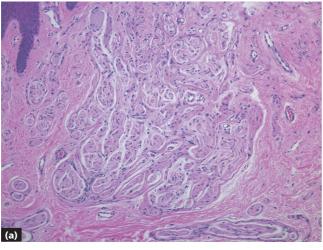
6 **Shape on Low Power** | Polypoid

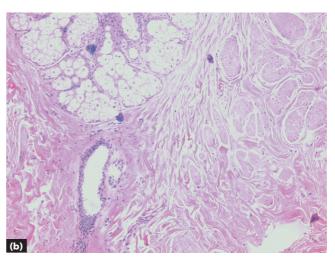


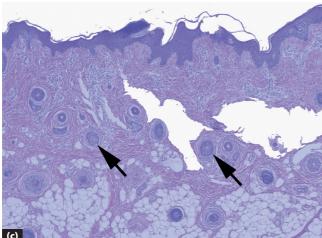


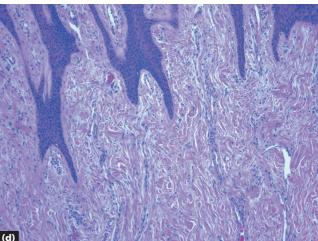
- Polypoid shape
- Acral skin
- Fibrovascular stroma [thick collagen (arrows)]

Digital fibrokeratoma





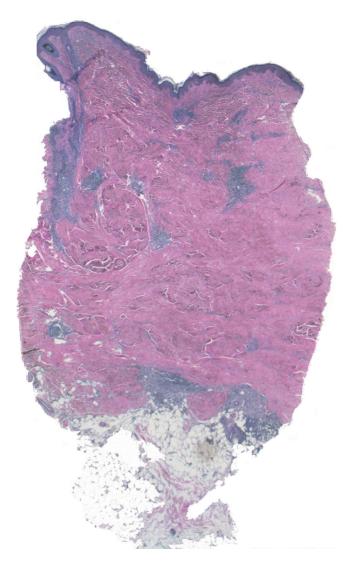


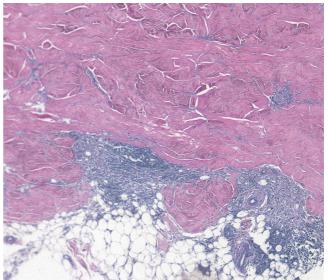


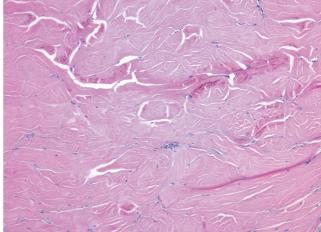
Polypoid shape

- a Accessory digit: nerve bundles in the dermis
- **b** Accessory nipple: sebaceous glands, mammary ducts or apocrine glands, smooth muscle bundles in the dermis
- **c** Accessory tragus: vellus hairs in the dermis

- **d** Digital fibrokeratoma: collagen in the dermis
- **Note** Other entities may also be polypoid, e.g. intradermal nevus, neurofibroma, fibrous papule

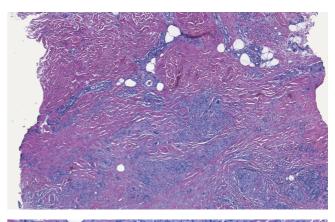


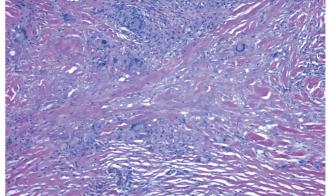




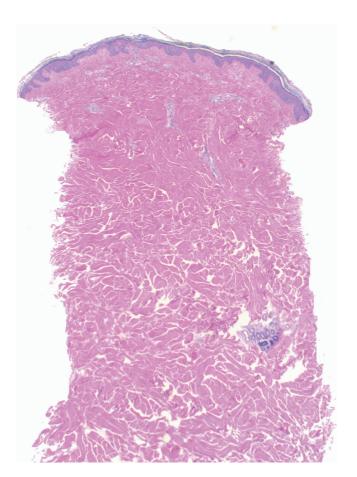
- Square/rectangular shapeThick, pink smudgy collagen in dermisPlasma cells around vessels
- Atrophic or absent adnexal structures

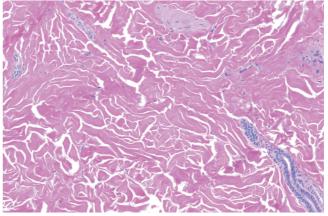






- Square/rectangular shape
- Altered, reddened collagen (necrobiosis) layered with inflammation
- Giant cells and plasma cells are prominent

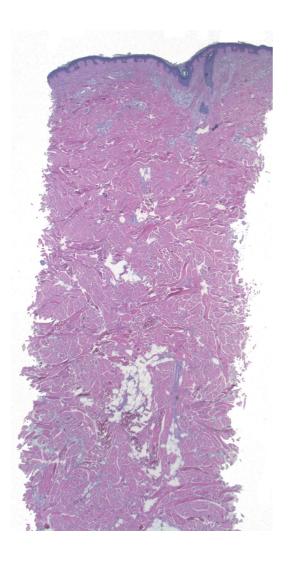


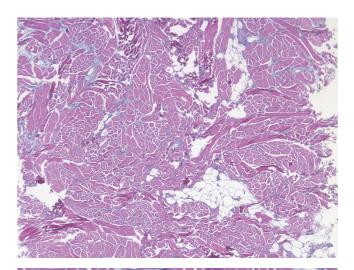


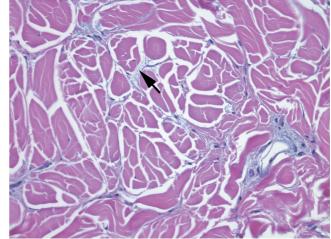


- Square/rectangular shapeNormal-appearing collagen bundles in dermis
- No increased mucin

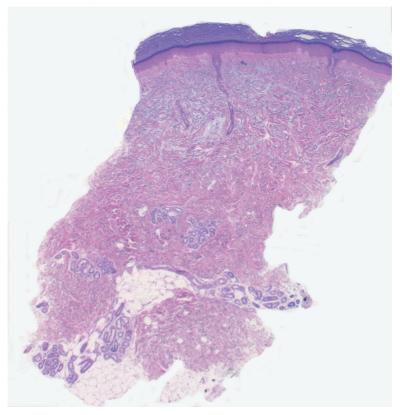
Normal back skin

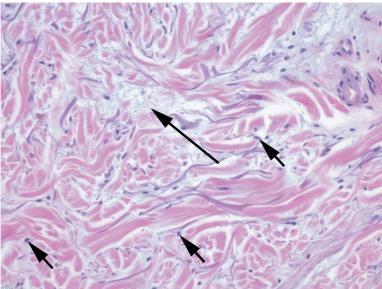






- Square/rectangular shapeSlight widening of space between collagen due to mucin (arrow)
- No increase in fibroblasts

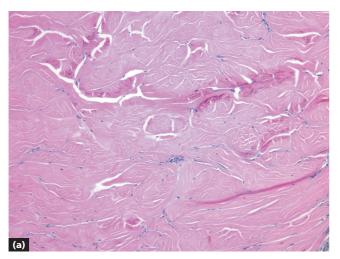


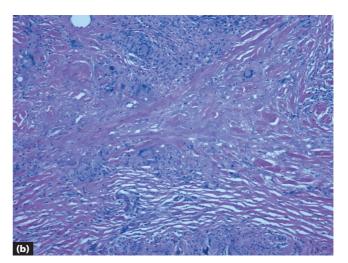


- Square/rectangular shape
- Slight widening of space between collagen due to mucin (long arrow)
- Increased fibroblasts (short arrows)

- **Note** Lichen myxedematosus is histologically similar but clinically different
- **Note** Nephrogenic systemic fibrosis may show similar findings

Scleromyxedema

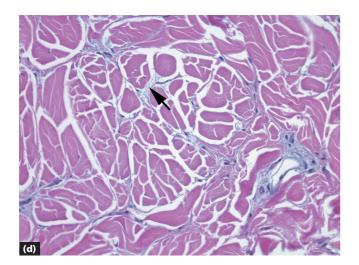


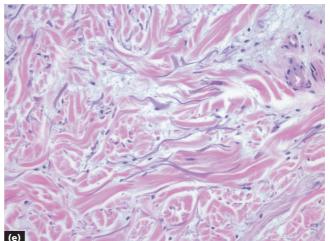




Square/rectangular shape

- a Morphea: thickened bundles of collagen with loss of fenestrations between collagen bundles
- **b** Necrobiosis lipoidica: reddened collagen sandwiched between layers of inflammatory cells (giant cells, plasma cells) (see also p. 39)
- **c** Normal back: normal-sized collagen bundles, no increased mucin



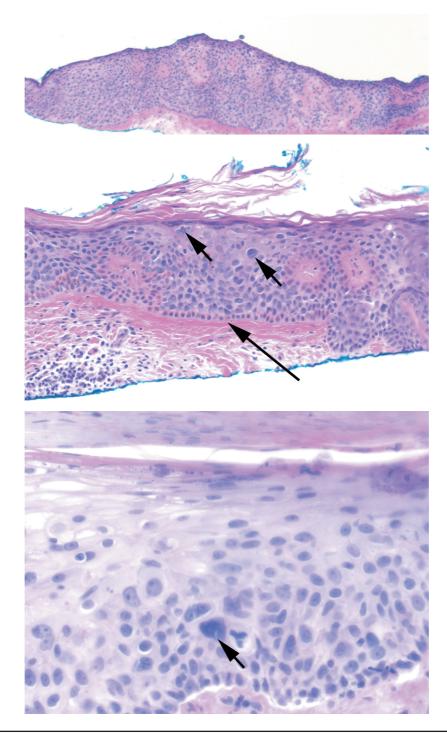


Square/rectangular shape (cont.)

- **d** Scleredema: mucin between collagen
- e Scleromyxedema: mucin and increased fibroblasts

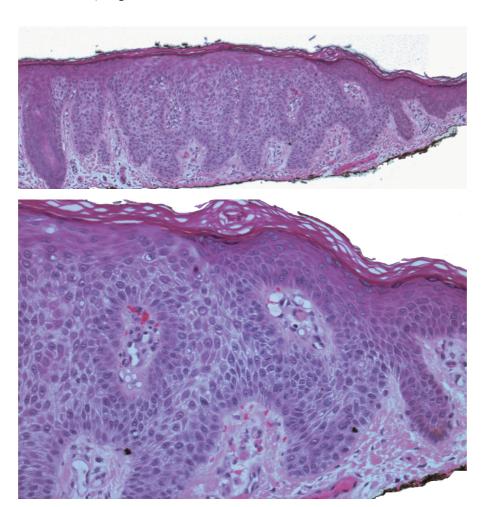
Key differences

Shape on Low Power | Regular acanthosis 15



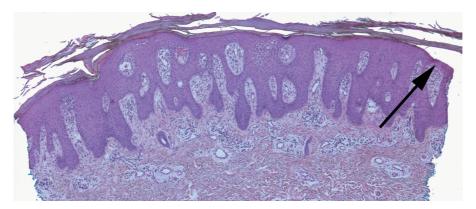
- Regular epidermal acanthosis
- Parakeratosis
- Full-thickness disorder of keratinocytes with atypical cells (short arrows) and mitoses
- Basal layer may appear normal ("eyeliner" sign) (long arrow)

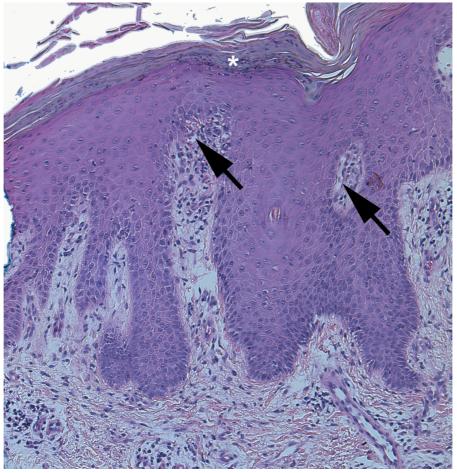
16 **Shape on Low Power** | Regular acanthosis



- Regular epidermal acanthosis
- Clear cells well demarcated from the normal epidermis and adnexal keratinocytes

Clear cell acanthoma

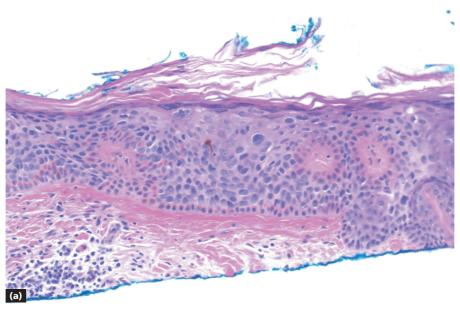


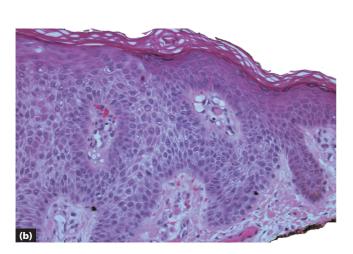


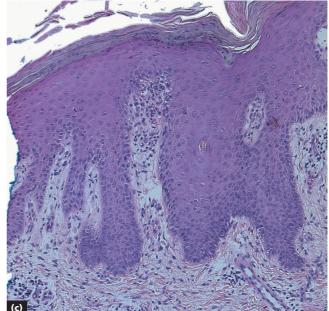
- Regular epidermal acanthosis
- Parakeratosis
- Neutrophils in stratum corneum (asterisk)
- Hypogranulosis

- Thinned suprapapillary plates (long arrow)
- Dilated vessels in papillary dermis (short arrows)

18 **Shape on Low Power** | Regular acanthosis



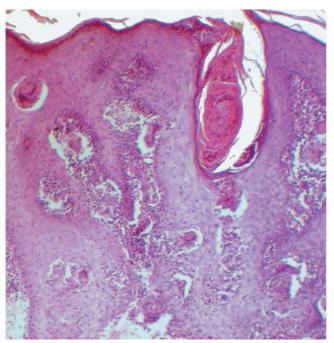


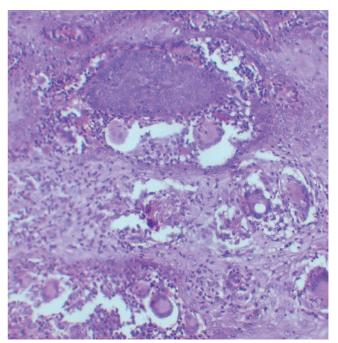


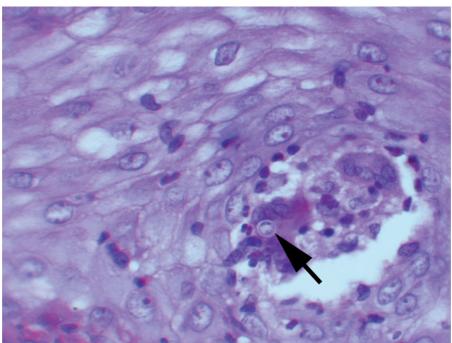
Regular epidermal acanthosis

- **a** Bowen's disease: disordered keratinocytes and atypical mitoses
- **b** Clear cell acanthoma: pale/clear keratinocytes well demarcated from normal epidermis
- **c** Psoriasis: confluent parakeratosis above thickened epidermis, neutrophils in stratum corneum, normal keratinocytes, thin suprapapillary plates, dilated vessels

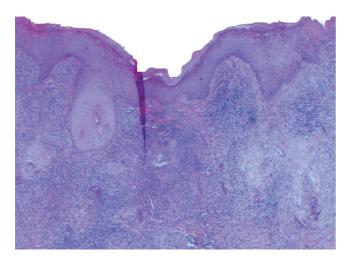
Key differences

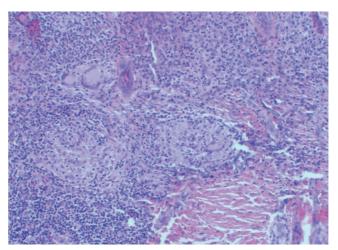


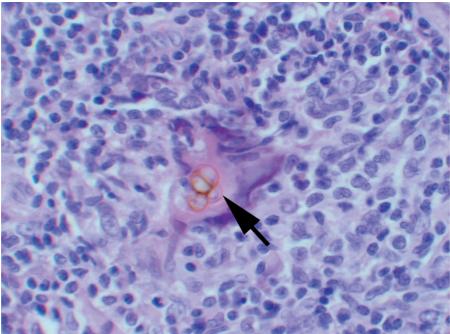




- Pseudoepitheliomatous hyperplasia above abscesses
- Yeast forms (arrow) that classically show broad-based budding

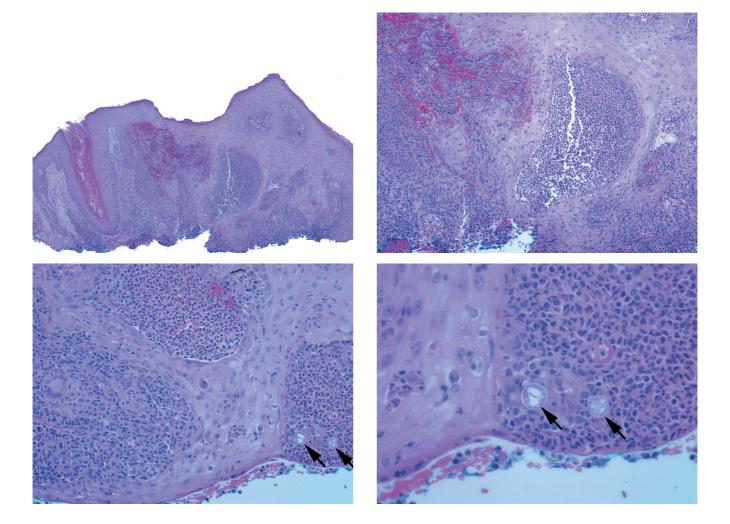




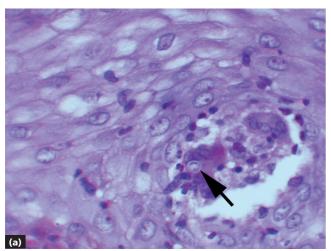


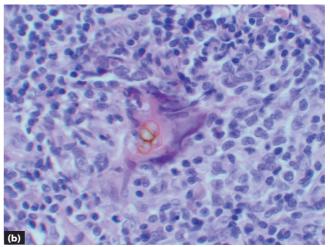
- Pseudoepitheliomatous hyperplasia above abscesses
- Brown-colored septate rounded "hot cross buns" (Medlar bodies, sclerotic bodies, copper pennies) (arrow)

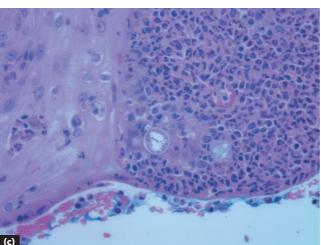
Chromomycosis



- Pseudoepitheliomatous hyperplasia above abscesses
- Large (80–200 µm) spherules containing endospores (arrows)



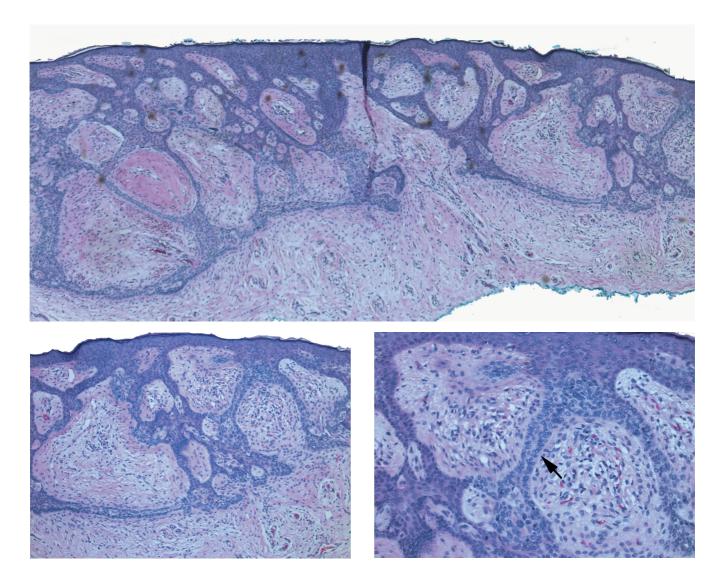




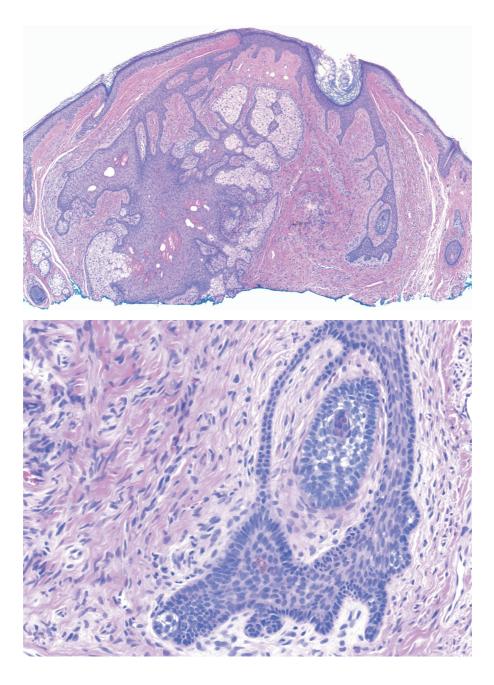
Pseudoepitheliomatous hyperplasia above abscesses

- a Blastomycosis: 8–30 µm yeast form (arrow)
- **b** Chromomycosis: 5–12 µm Medlar bodies
- **c** Coccidioidomycosis: 80–200 µm spherules with endospores
- **Note** Paracoccidioidomycosis (6–60 µm mariner's wheel; an uncommon infection in the United States), sporotrichosis (organisms usually not evident in biopsies), and tuberculosis verrucosa cutis may also show this pattern

Key differences

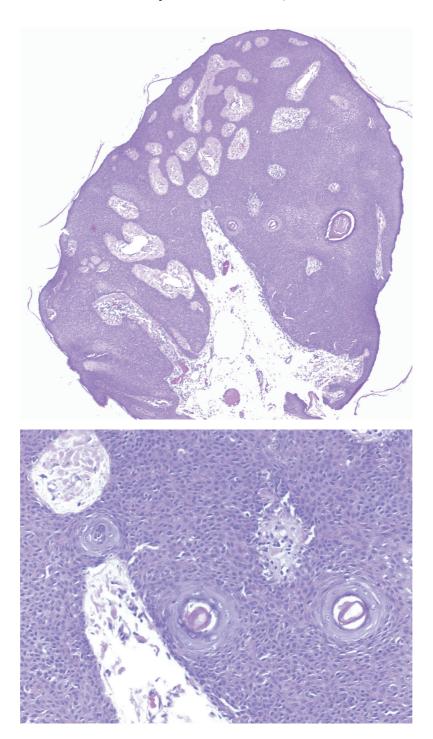


- Proliferation downward from epidermis
- Strands of basaloid cells in a fibrovascular stroma often emanating from strands of squamous epithelium
- Some hints of palisading of cells (arrow)

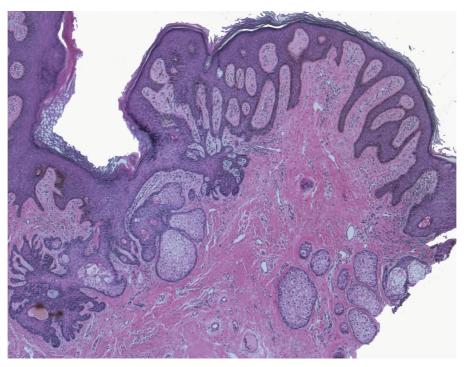


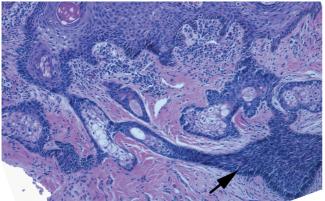
- Proliferation downward from epidermis
- Fibrotic stroma adjacent to the hair follicle has reticulated strands of epithelium
- This entity has overlap with trichodiscoma (some consider these a spectrum of the same entity)

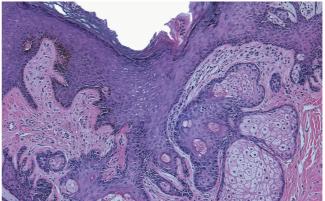
Fibrofolliculoma



- Proliferation downward from epidermis
- Normal-appearing keratinocytes with some arranged in squamous eddies causing intraepithelial fenestrations

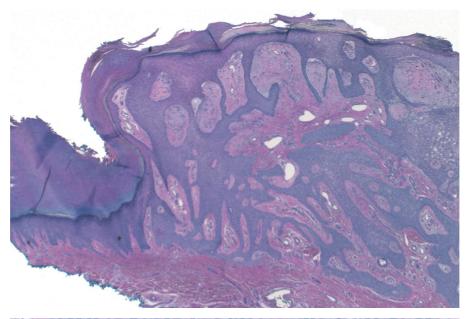


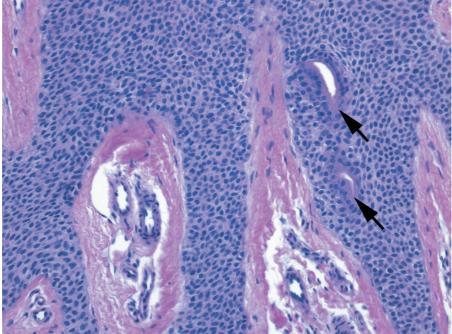




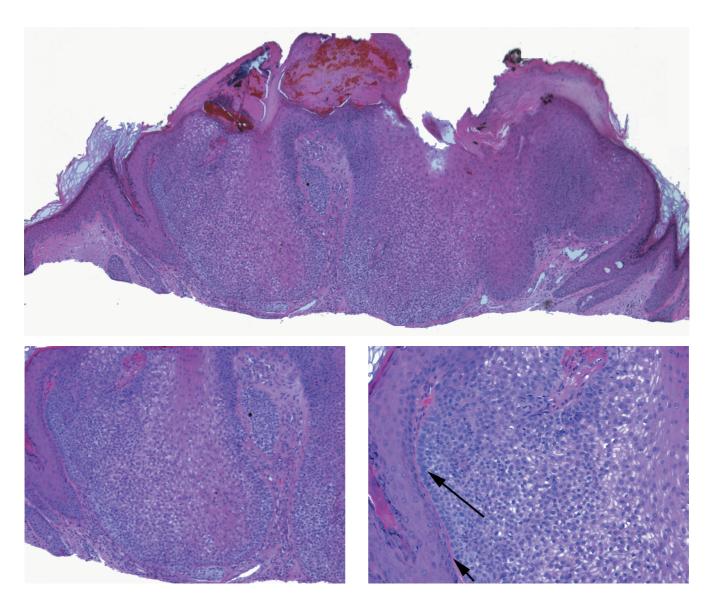
- Proliferation downward from epidermis
- Sebaceous glands, basaloid proliferations (arrow) connect to the epidermis
- Apocrine glands may be seen deep
- Absent terminal hairs in mature stage

Nevus sebaceus of Jadassohn



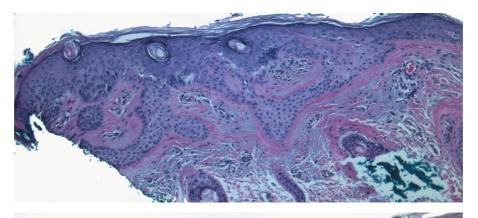


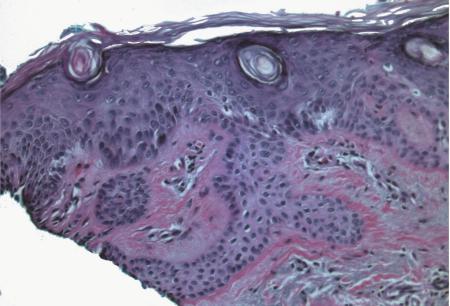
- Proliferation downward from epidermis
- Uniform blue cells with interspersed ducts (arrows)
- Fibrotic or hyalinized stroma with dilated vessels



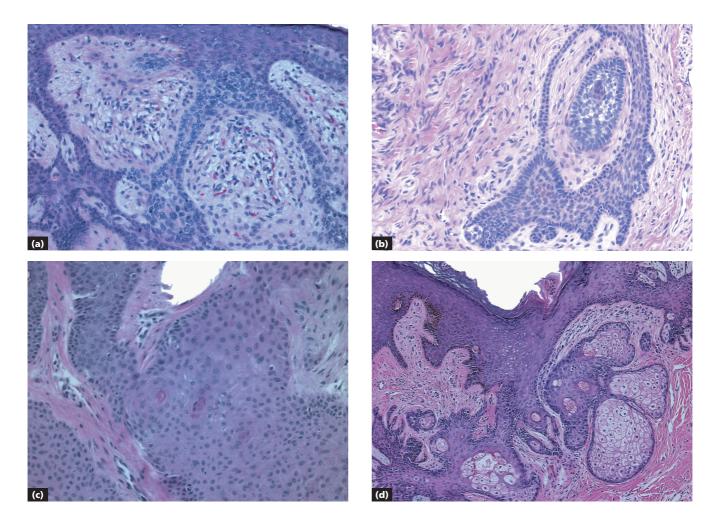
- Proliferation downward from epidermis
- Proliferation composed of pale/clear cells
- Peripheral palisading (long arrow) with thickened basement membrane (short arrow)

Trichilemmoma





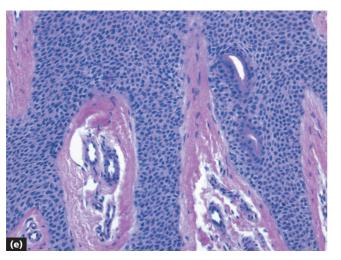
- Proliferation downward from epidermis
- Pale cells in columns with "windows" of dermis in between
- Peripheral palisading

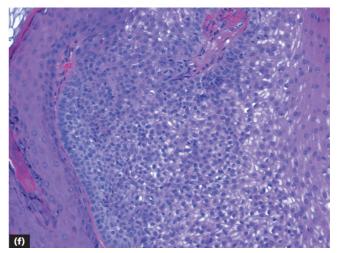


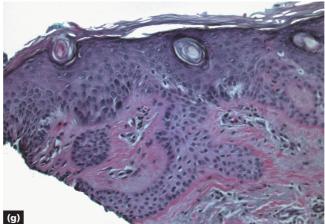
Proliferation downward from epidermis

- **a** Fibroepithelioma of Pinkus: strands of basaloid epithelium in fibrovascular stroma
- **b** Fibrofolliculoma: hair follicle with adjacent fibrotic stroma and reticulated epithelium
- **c** Inverted follicular keratosis: squamous eddies
- **d** Nevus sebaceus of Jadassohn: proliferation of epidermis connecting to sebaceous lobules and basaloid proliferations

Key differences



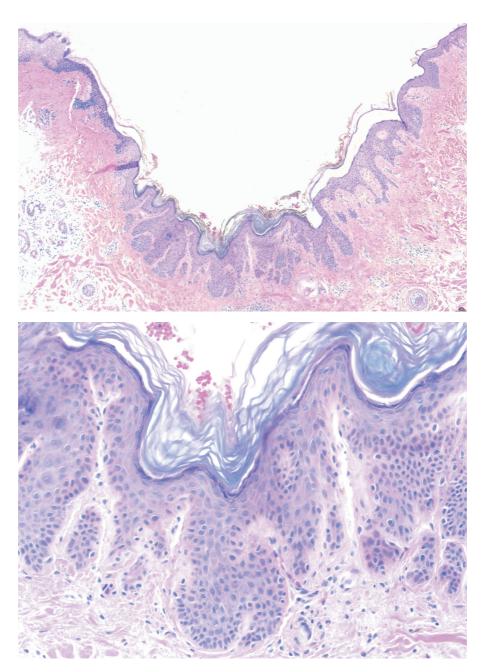




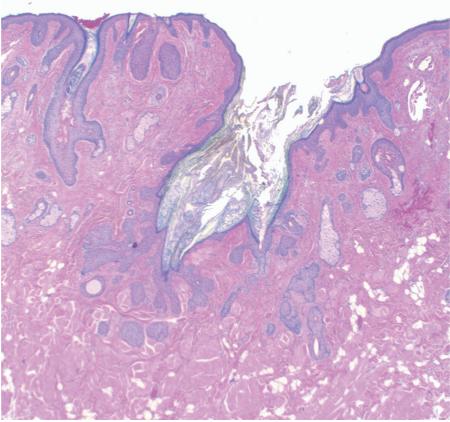
Proliferation downward from epidermis (cont.)

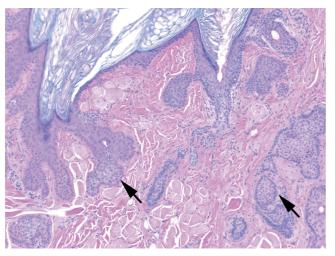
- **e** Poroma: uniform blue cells with interspersed ducts
- **f** Trichilemmoma: pale/clear keratinocytes with peripheral palisading and thickened basement membrane
- **g** Tumor of the follicular infundibulum: pale cells in columns with "windows" of dermis in between

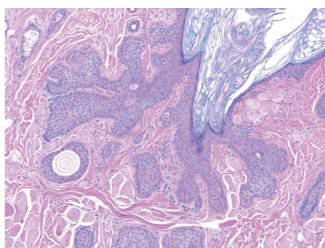
Shape on Low Power | Central pore



- Central pore
- Invaginated epidermis is acanthotic

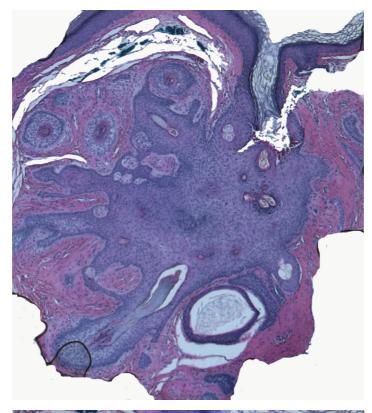


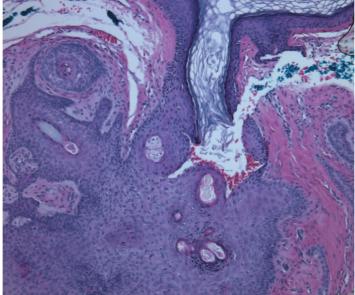




- Central pore
- Invaginated epidermis is acanthotic and has areas resembling outer root sheath with peripheral palisading around slightly pale cells (arrows)

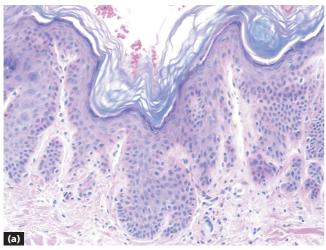
Shape on Low Power | Central pore

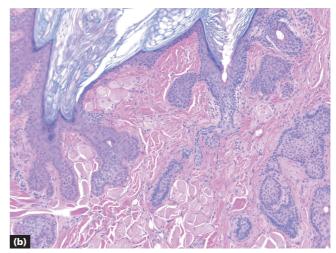


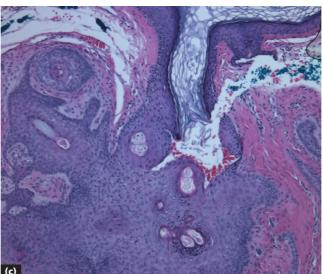


- Central pore
- Invaginated epidermis connects to a primary hair follicle
- Multiple secondary hair follicles radiating away from the central follicle

Trichofolliculoma



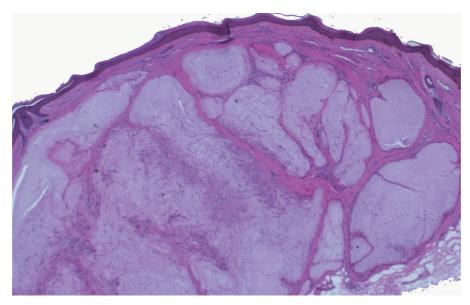


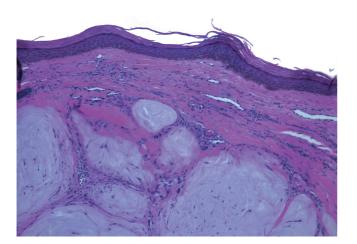


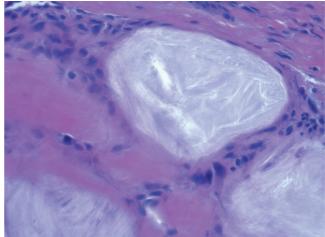
Central pore

- a Dilated pore of Winer: acanthotic epidermis
- **b** Pilar sheath acanthoma: epidermal acanthosis and areas resembling outer root sheath
- **c** Trichofolliculoma: primary follicle and surrounding secondary follicles

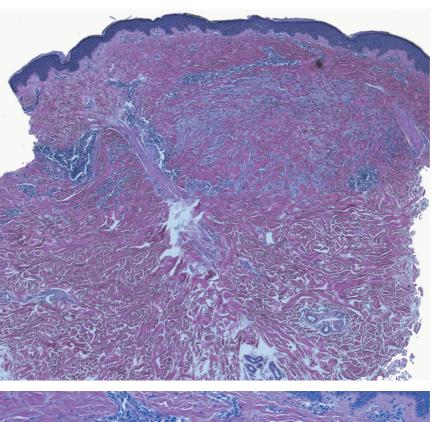
Shape on Low Power | Palisading reactions

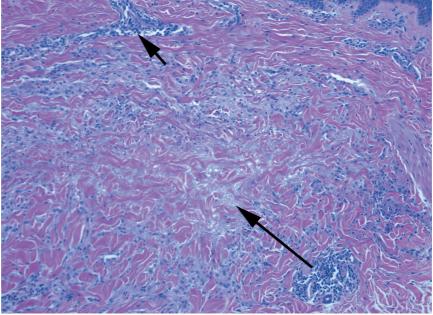






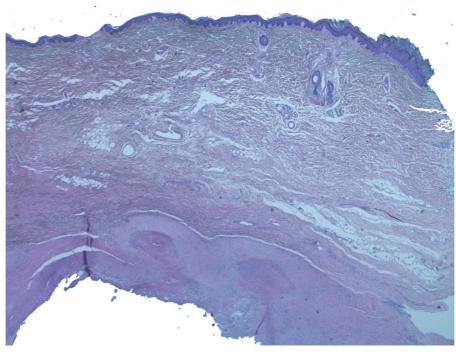
• Palisading of histiocytes around amorphous white – gray substance with a feathery edge

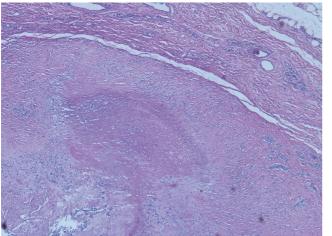


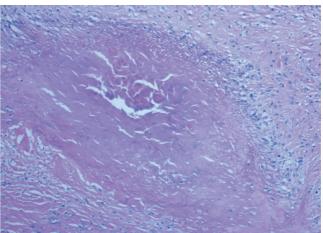


- Palisading of histiocytes around altered collagen, basophilic mucin (long arrow)
- Lymphocytes around vessels (short arrow)

Shape on Low Power | Palisading reactions

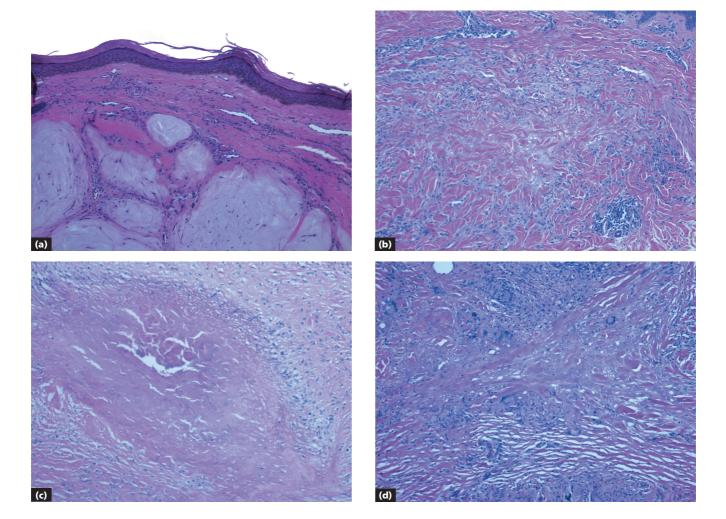






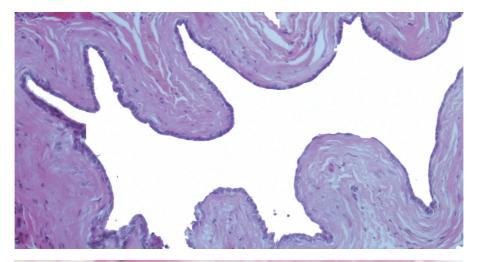
- Palisading of histiocytes around central pink fibrinThe reaction is often deep

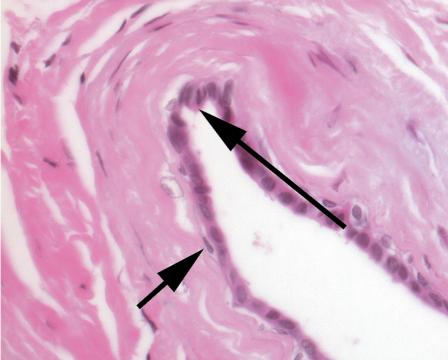
Rheumatoid nodule



Palisading reactions

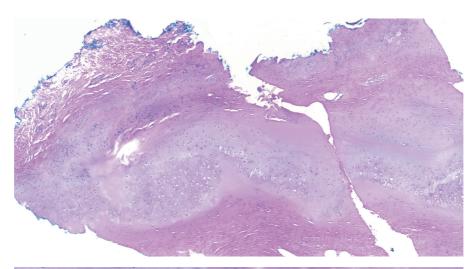
- **a** Gout: central white–gray feathery material
- **b** Granuloma annulare: central altered collagen interspersed with blue mucin
- **c** Rheumatoid nodule: central pink fibrin
- **d** Necrobiosis lipoidica: altered collagen surrounded by giant cells, plasma cells (see also pp. 9 and 13)

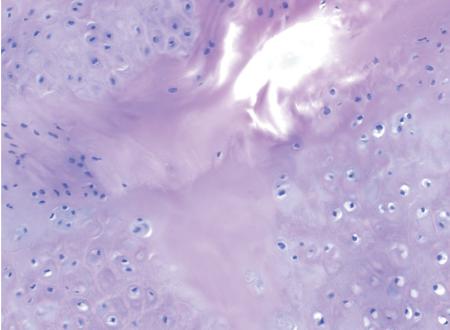




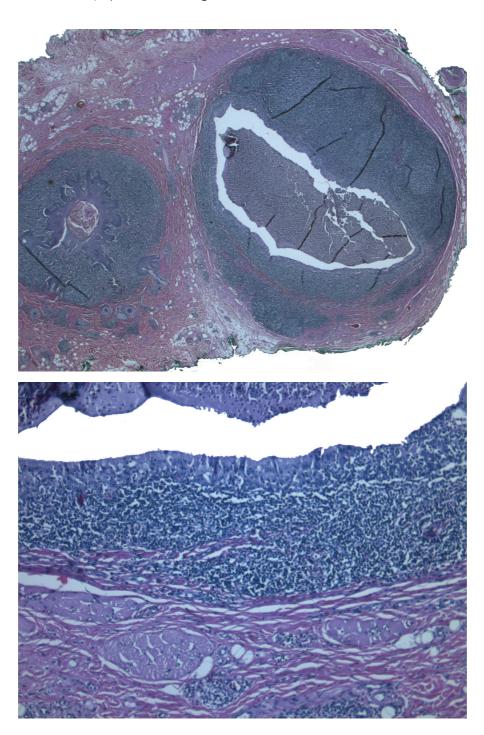
- Space with a lining
- Lining composed of an inner layer of cells with decapitation secretion (long arrow) and a compressed layer of myoepithelial cells (short arrow)

Apocrine hidrocystoma



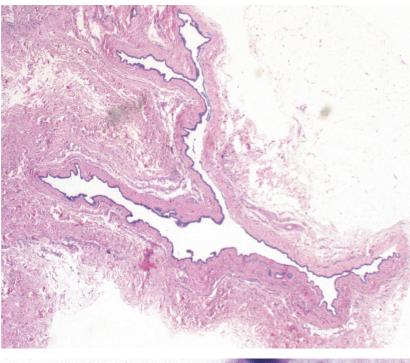


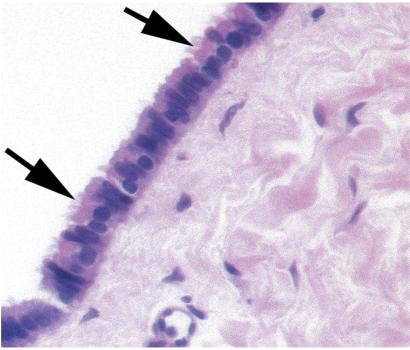
- Space with a lining
- "Lining" is not a true epithelial layer but is cartilage
- Centrally, there is degeneration of cartilage



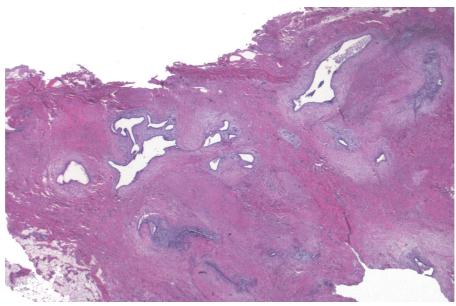
- Space with a lining
- Lining composed of squamous or sometimes cuboidal/ columnar epithelium often with squamous metaplasia
- Prominent lymphoid follicles in wall

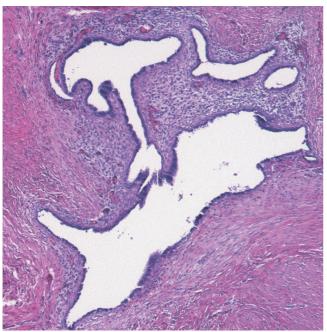


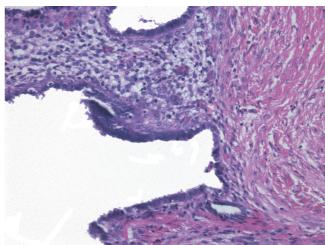




- Space with a lining
- Lining composed of cuboidal/columnar epithelium with cilia (arrows)

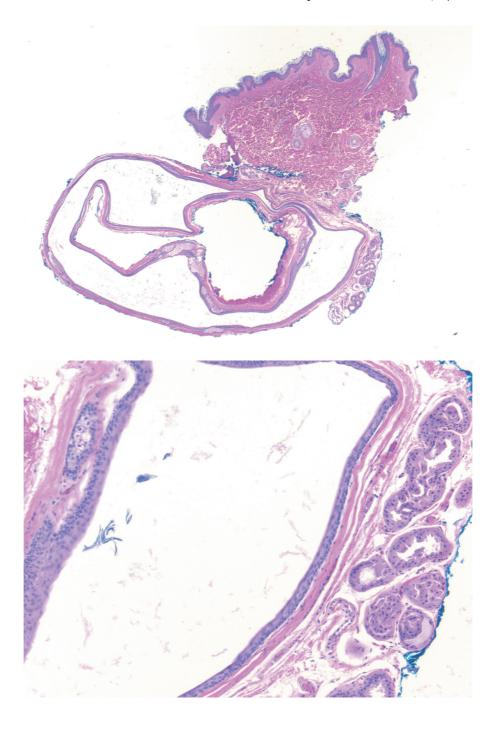




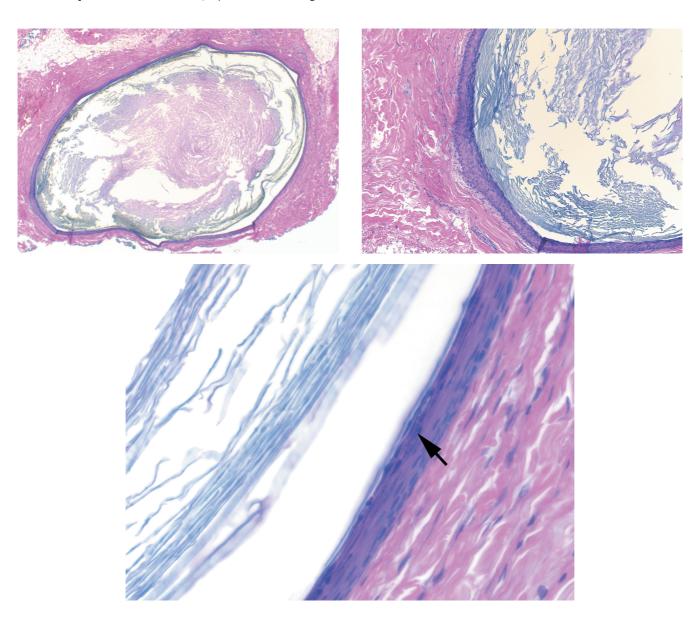


- Space with a lining
- Spaces embedded in a fibrovascular stroma (endometrial stroma)
- Lining composed of crowded blue cells
- Hemosiderin deposits common in stroma

Cutaneous endometriosis

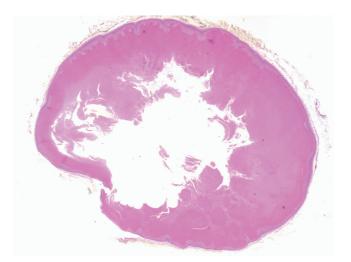


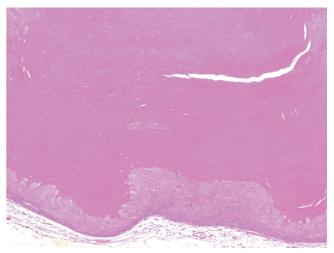
- Space with a lining
- Lining composed of squamous epithelium
- Walls contain adnexal structures

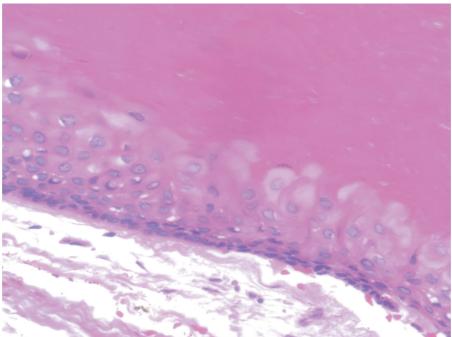


- Space with a lining
- Lining composed of squamous epithelium with a granular layer (arrow)
- Cyst contents composed of flakes of keratin

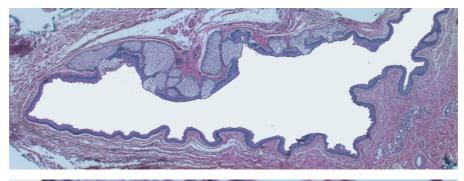
Epidermal inclusion cyst

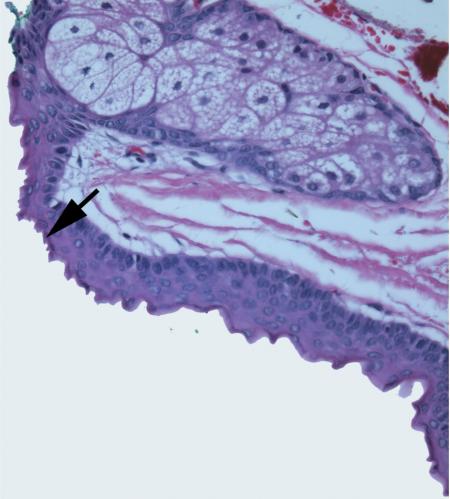






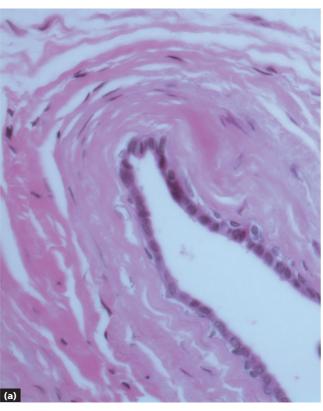
- Space with a lining
- Lining composed of squamous epithelium without a granular layer
- Cyst contents composed of dense pink keratin

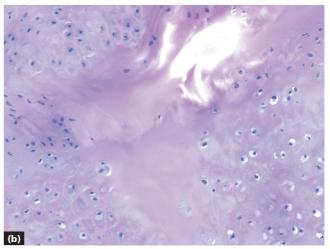


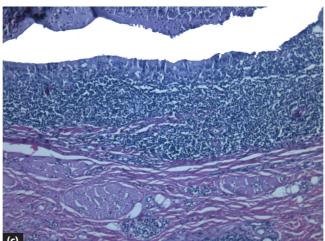


- Space with a lining
- Lining composed of layered epithelium with a bright pink crenulated keratin (arrow)
- Sebaceous glands in wall

Steatocystoma

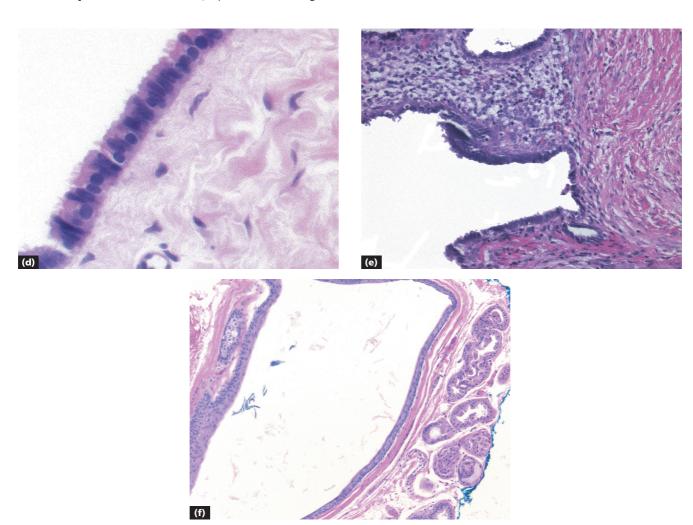






Space with a lining

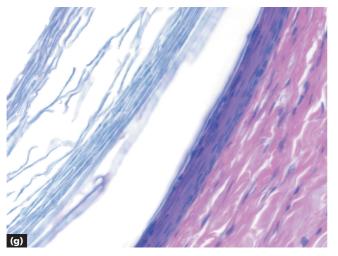
- a Apocrine hidrocystoma: decapitation secretion
- **b** Auricular pseudocyst: degeneration surrounded by
- **c** Branchial cleft cyst: prominent lymphoid follicles in wall

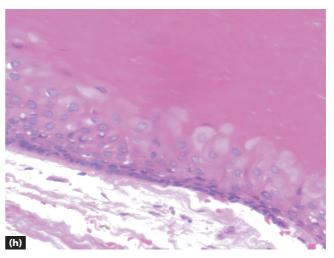


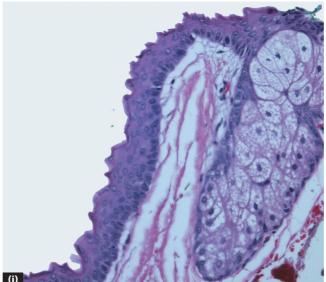
Space with a lining (cont.)

- **d** Cutaneous ciliated cyst: columnar epithelium with cilia; no structures in wall
- **e** Cutaneous endometriosis: fibrovascular stroma with glands
- **f** Dermoid cyst: sebaceous glands and other adnexal structures in wall

Key differences

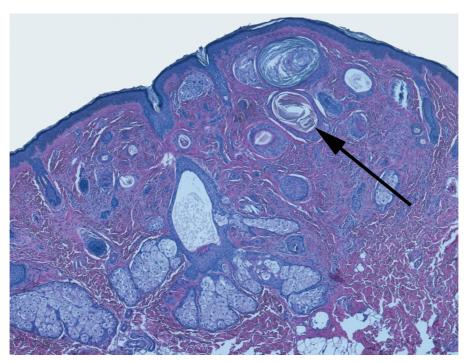


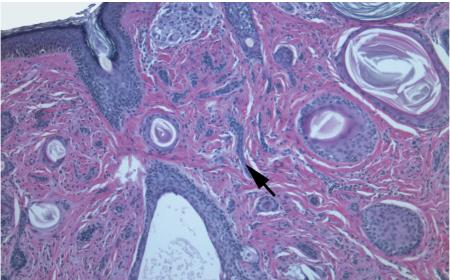




Space with a lining (cont.)

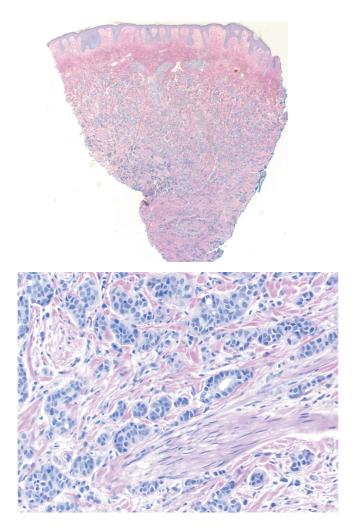
- **g** Epidermal inclusion cyst: epithelium with granular layer, flakes of keratin in center
- **h** Pilar cyst: epithelium without granular layer, dense keratin in center
- i Steatocystoma: crenulated keratin lining the cyst; sebaceous glands in wall
- **Note** Bronchogenic cysts are uncommon, and are diagnosed by clinical history and the presence of columnar epithelium +/- cilia, +/- cartilage in the wall; venous lakes are common and are composed of flattened endothelial cells with erythrocytes in the space

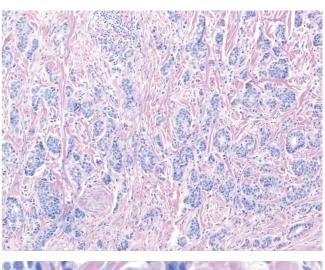


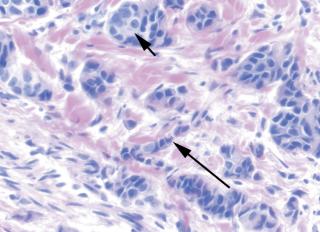


- Cords and tubules in dermis
- Numerous horn cysts (long arrow) in fibrotic stroma
- Tubules of two-layered epithelium (short arrow)
- Calcification often present
- Confined to dermis

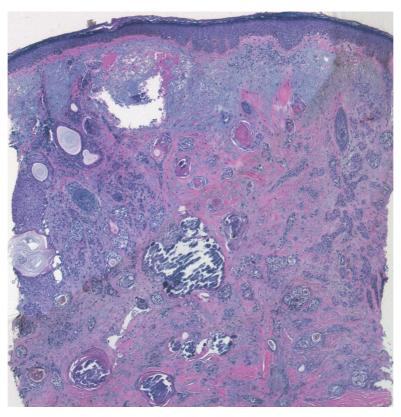
Desmoplastic trichoepithelioma

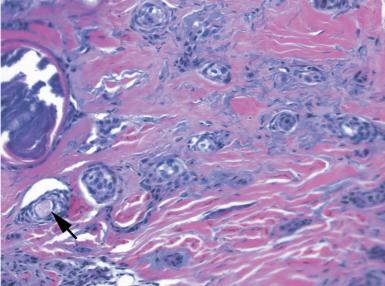






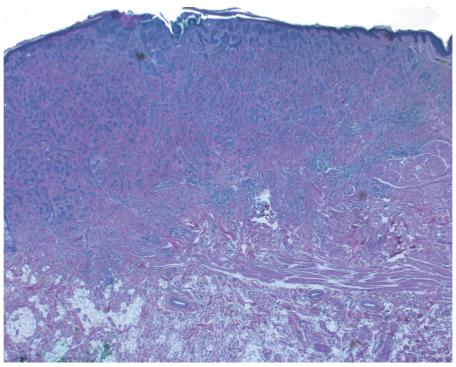
- Cords and tubules in dermis
- Tubules of single-layered ("Indian filing", long arrow) and multilayered epithelium
- Some cells forming gland-like structures (short arrow)
- Other metastatic carcinomas may look like this need clinical history; immunohistochemistry may be helpful

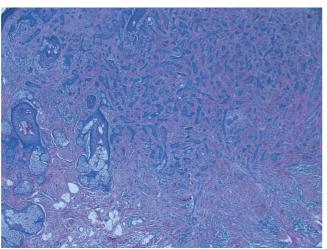


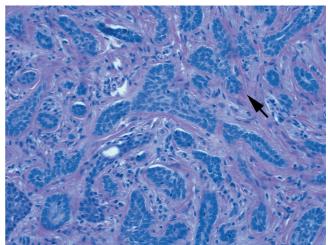


- Cords and tubules in dermis
- Tubules of epithelium connect to islands of epithelium with duct-like spaces (arrow)
- Deeply infiltrative (fills dermis)
- Perineural involvement

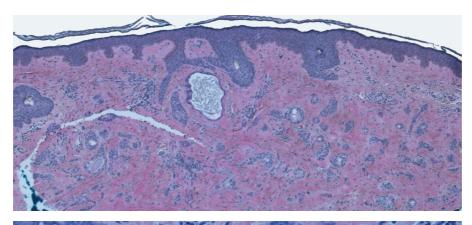
Microcystic adnexal carcinoma

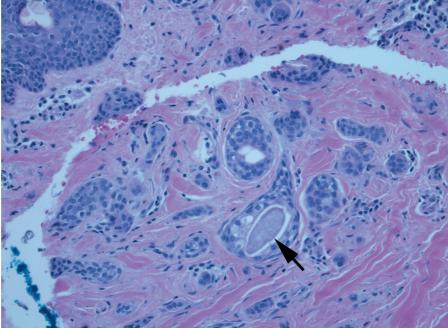




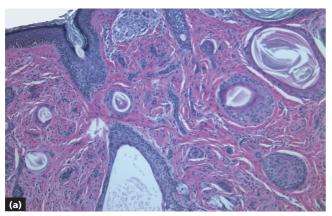


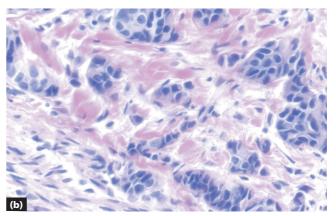
- Cords and tubules in dermis
- Cords of epithelium composed of basaloid cells with hints of peripheral palisading
- New collagen forming around islands (arrow)
- Deeply infiltrative

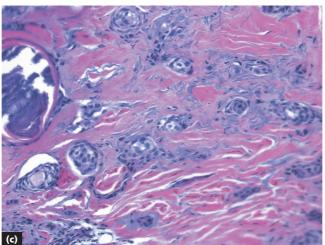




- Cords and tubules in dermis
- Restricted to upper dermis
- "Tadpoles" of epithelium with duct-like structures in heads (arrow)
- Darker cells at periphery, clear cells in center
- Eosinophilic cuticle lining lumina
- No horn cysts

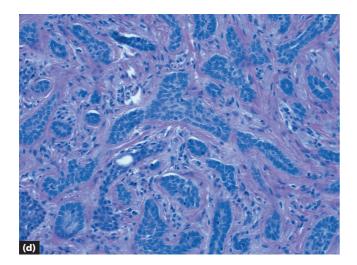


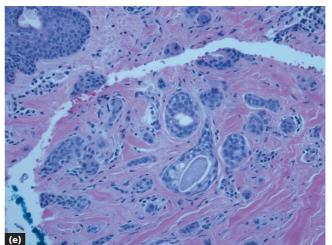




Cords and tubules

- a Desmoplastic trichoepithelioma: horn cysts, no clear cells, circular areas of epithelium surround keratin
- **b** Metastatic breast carcinoma: single filing of atypical cells, deeply infiltrative
- **c** Microcystic adnexal carcinoma: like syringoma with tadpole-like structures but deeply infiltrative, perineural involvement

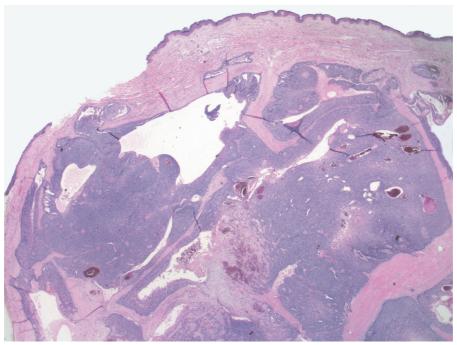


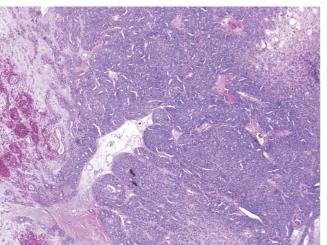


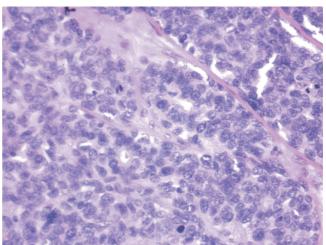
Cords and tubules (cont.)

- **d** Morpheaform basal cell carcinoma: infiltrative cords of basaloid cells with hints of peripheral palisading; may have some duct-like structures (but fewer than **c**)
- **e** Syringoma: superficial tadpoles with clear cells

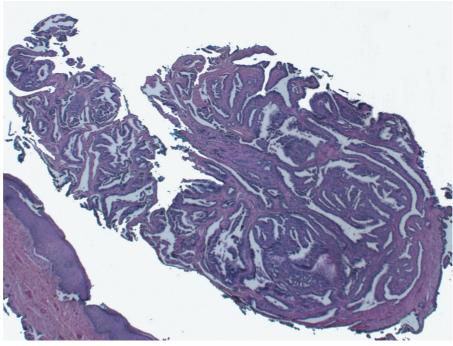
Key differences

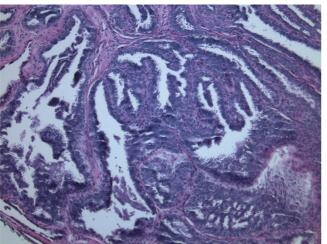


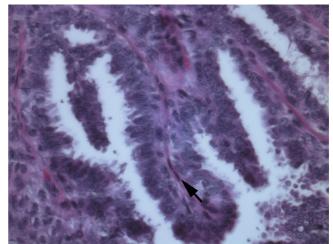




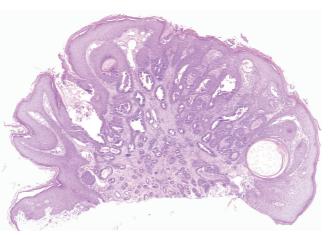
- Papillated dermal tumor
- Disordered layers of epithelium in large papillations with some tubules
- Variable cytological atypia and mitotic figures
- Acral location

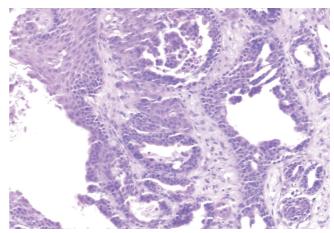


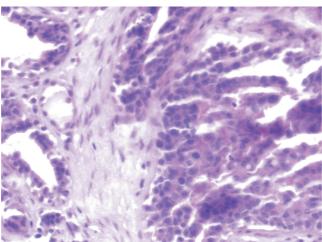




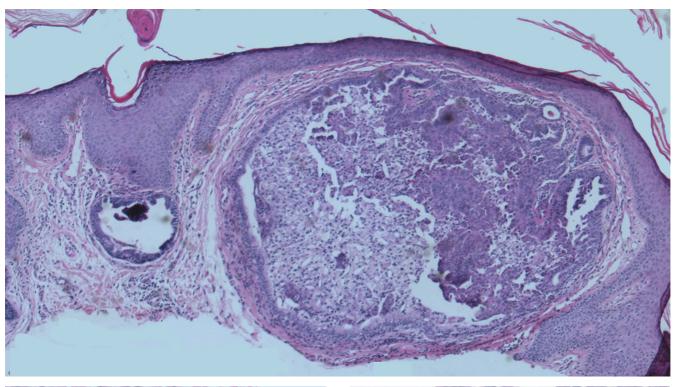
- Papillated dermal tumor
- Finger-like projections have cores of collagen/fibroblasts (arrow)
- No connection to epidermis

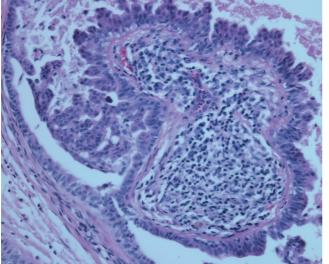


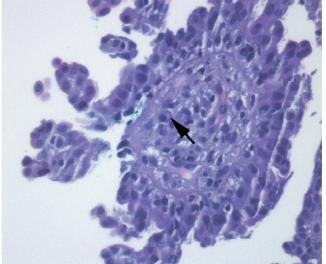




- Papillated dermal tumor
- Islands of epithelium with papillated projections
- With or without epidermal connection

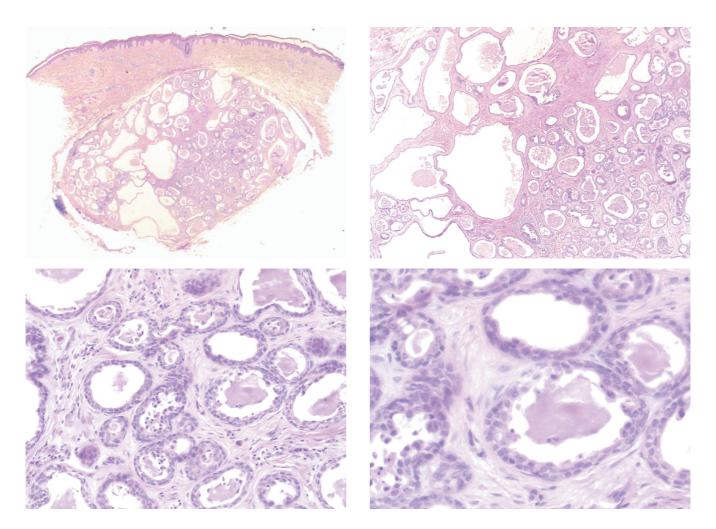




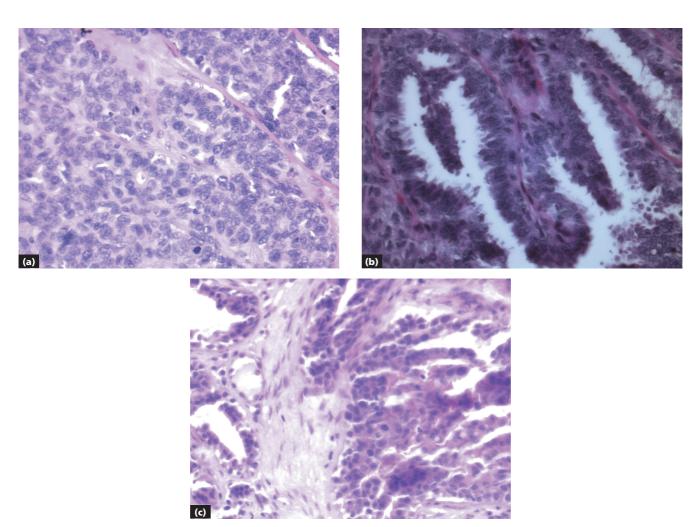


- Papillated dermal tumor
- Papillations contain numerous plasma cells (arrow)
- Tumor often connected to epidermis

Syringocystadenoma papilliferum



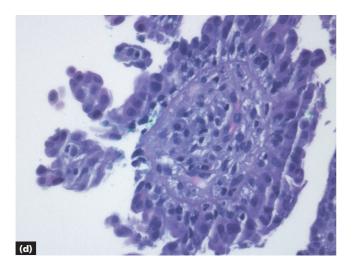
- Papillated dermal tumor
- Evidence of decapitation secretion
- Overlaps with papillary eccrine adenoma

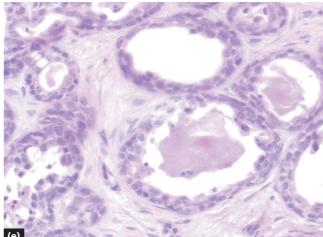


Papillated dermal tumor

- a Aggressive digital papillary adenocarcinoma: large tumor, atypical cells, and mitoses piled up
- **b** Hidradenoma papilliferum: thin papillations with fibrovascular cores
- **c** Papillary eccrine adenoma: islands of epithelium with papillated areas

Key differences

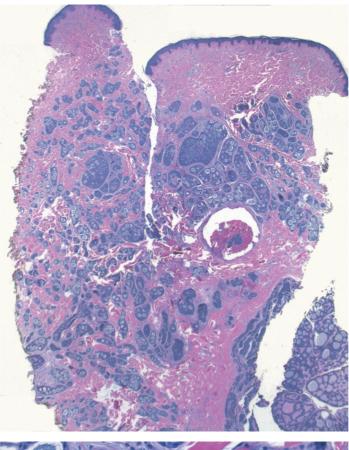


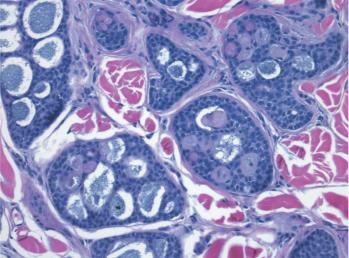


Papillated dermal tumor (cont.)

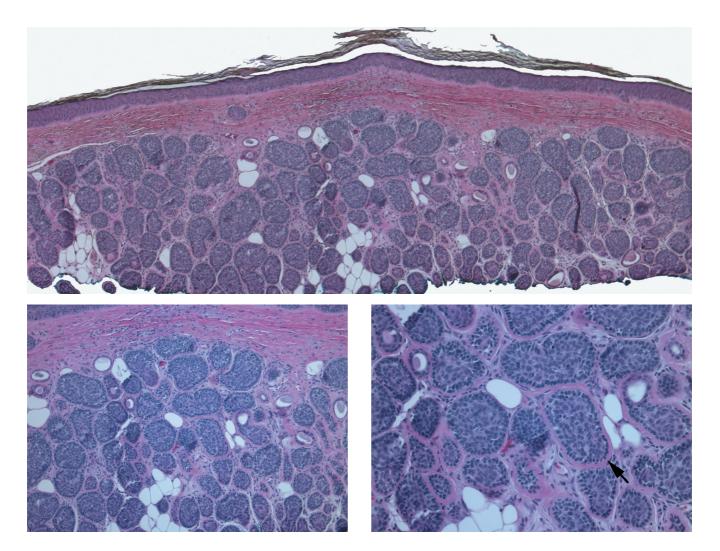
- **d** Syringocystadenoma papilliferum: broad papillations with plasma cells in cores
- **e** Tubular apocrine adenoma: decapitation secretion and papillations within islands

Shape on Low Power | Circular dermal islands



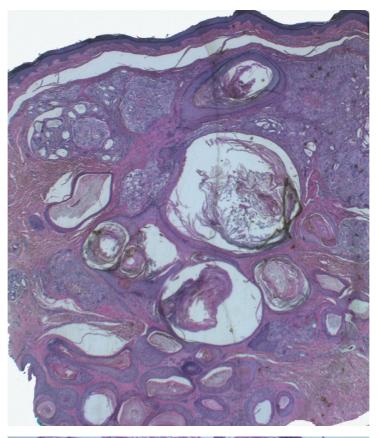


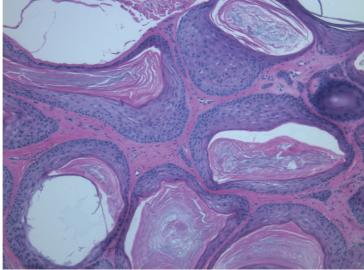
- Circular dermal islands
- Islands contain basaloid cells with a cribriform pattern of duct-like spaces filled with amorphous material



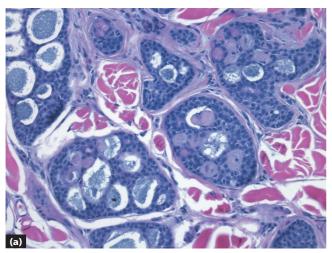
- Circular dermal islands
- Islands contain basaloid cells surrounded by a thick pink basement membrane (arrow)
- Islands arranged like a "jigsaw puzzle"

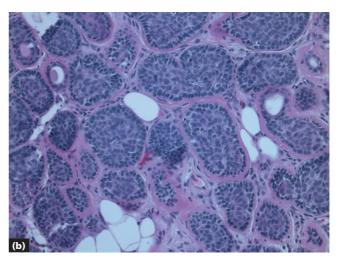
Shape on Low Power | Circular dermal islands

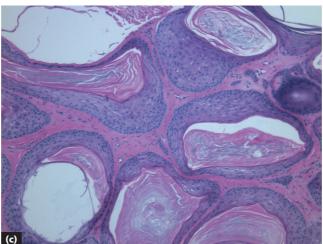




- Circular dermal islands
- Islands of epithelium with central flaky keratin (horn cysts)

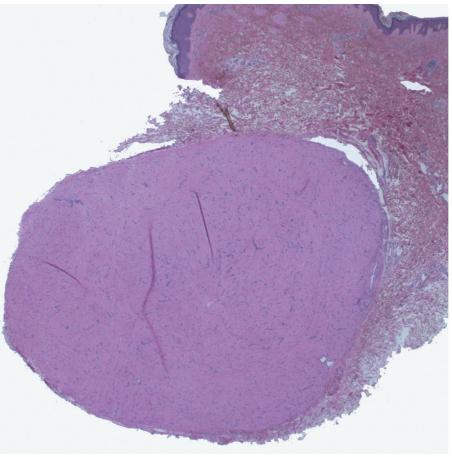


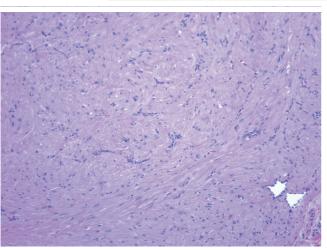


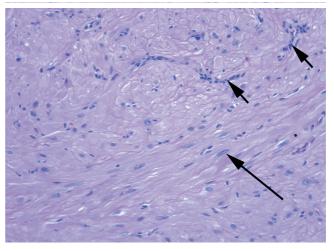


Circular dermal islands

- **a** Adenoid cystic carcinoma: cribriform pattern of duct-like structures
- **b** Cylindroma: puzzle-like arrangement, thick/pink basement membrane
- **c** Trichoadenoma: numerous horn cysts



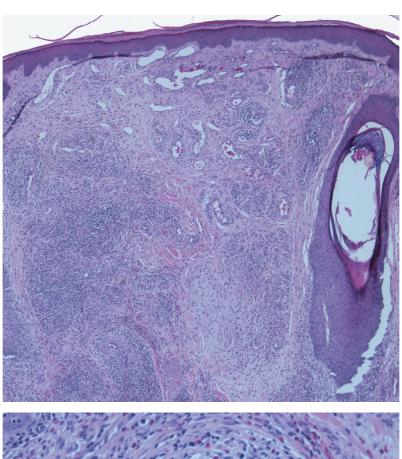


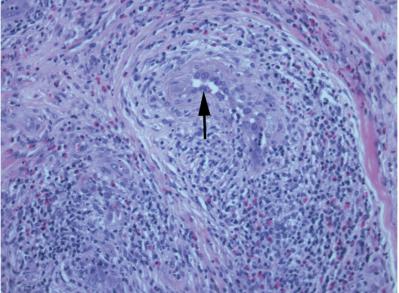


- (Suggestion of) vessels
- Circular pink mass in dermis
- Scar-like appearance

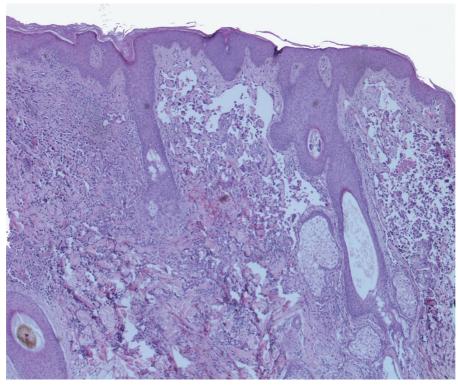
• Mass composed of smooth muscle cells (cigar-shaped nuclei, long arrows) with compressed vessels (short arrows) (sometimes dilated)

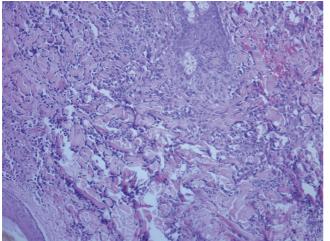
Angioleiomyoma

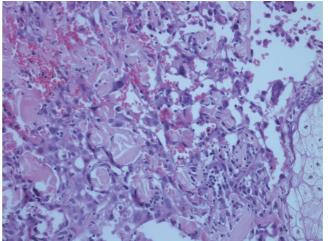




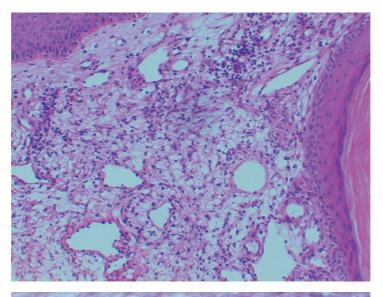
- (Suggestion of) vessels
- Numerous vessels with epithelioid ("hobnail") endothelial cells (arrow) surrounded by inflammation
- Clusters of epithelioid endothelial cells may mimic granulomas
- Eosinophils may be prominent

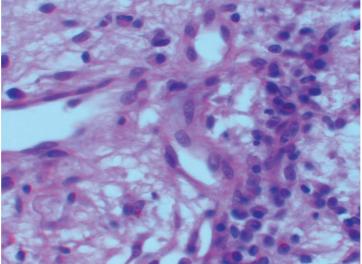






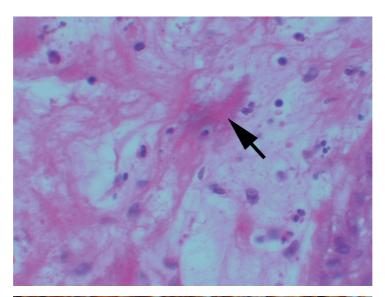
- (Suggestion of) vessels
- Maze-like arrangement of vessels lined by atypical cells
- Deeply infiltrative

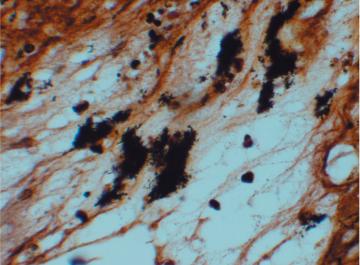




^{• (}Suggestion of) vessels

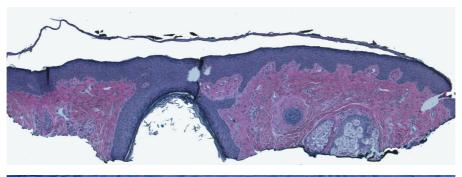
[•] Superficial vessels surrounded by plasma cells and red–blue "clouds" of organisms that stain with silver

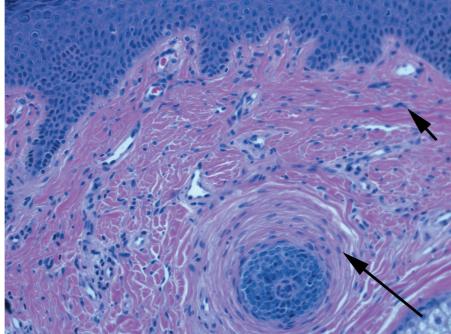




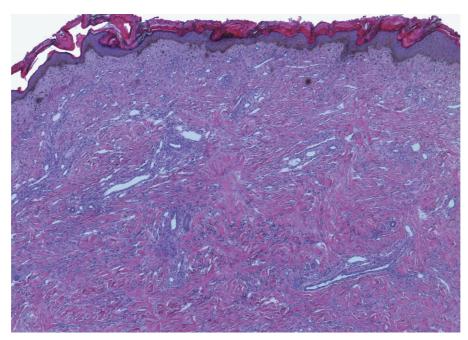
^{• (}Suggestion of) vessels

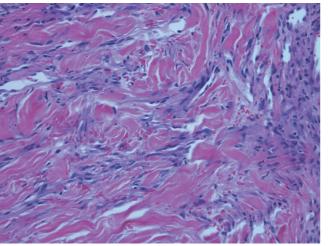
[•] Superficial vessels surrounded by plasma cells and red–blue "clouds" of organisms that stain with silver

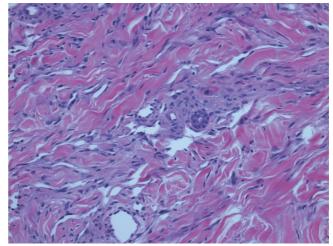




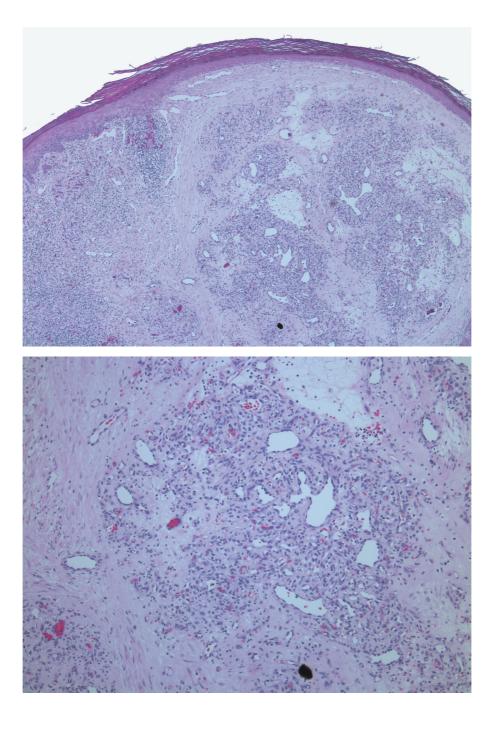
- (Suggestion of) vessels
- Fibrotic stroma
- Concentric fibrosis around vessels/adnexae (long arrow)
- Stellate fibroblasts (short arrow)



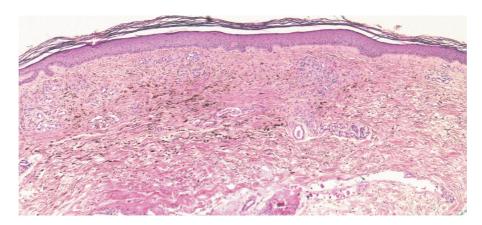


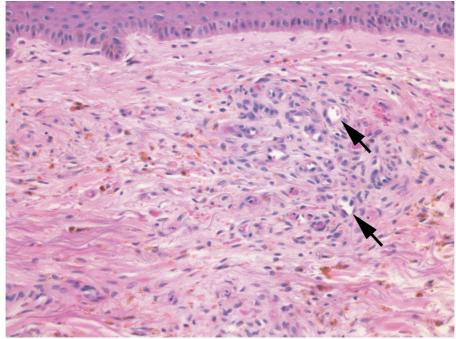


- (Suggestion of) vessels
- Vessels forming around other vessels (promontory sign)
- Vessels may be lined by inconspicuous endothelial cells



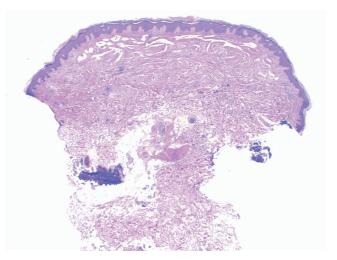
- (Suggestion of) vesselsLobules of dilated vessels embedded in loose stroma with inflammatory cells

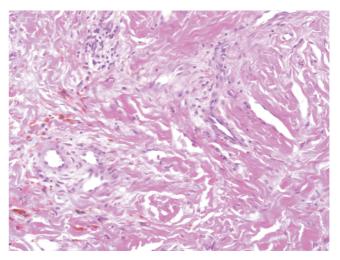


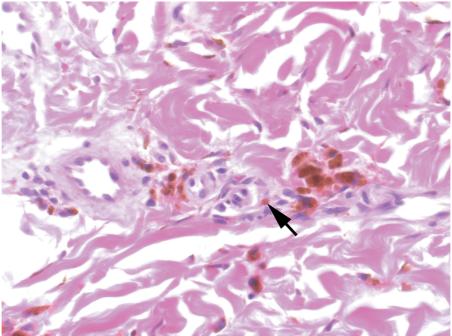


- (Suggestion of) vessels
- Hyperkeratosis
- Variable spongiosis
- Small-caliber thick-walled capillaries in clusters in the upper dermis (arrows)
- Hemosiderin

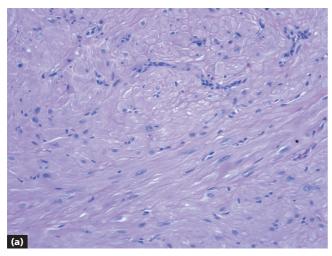
Stasis dermatitis

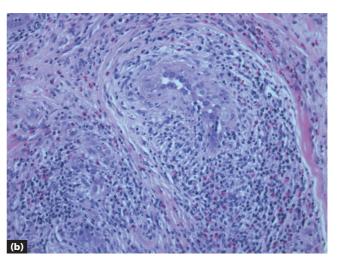


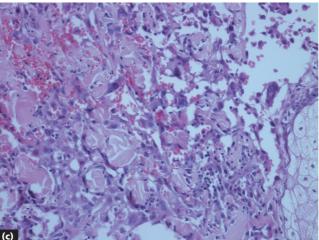




- (Suggestion of) vessels
- Somewhat wedge-shaped arrangement of vessels
- Hemosiderin (arrow) around the peripheral vessels



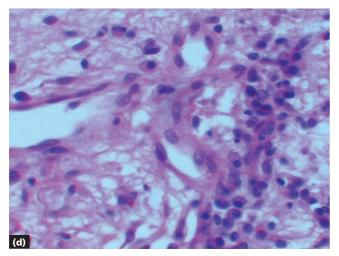


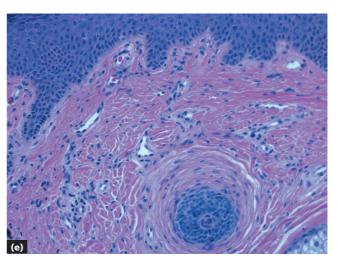


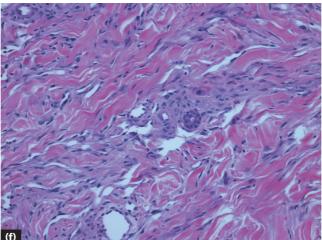
(Suggestion of) vessels

- a Angioleiomyoma: well-circumscribed pink circle composed of cigar-shaped spindle cells and compressed to dilated vessels
- **b** Angiolymphoid hyperplasia with eosinophilia: dilated vessels with prominent hobnail endothelial cells surrounded by inflammation, +/– numerous eosinophils
- **c** Angiosarcoma: maze-like connection of vessels lined by atypical cells

Key differences

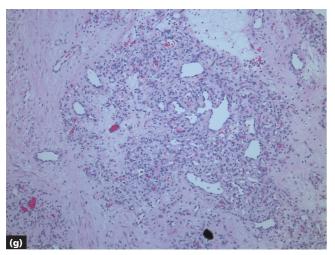


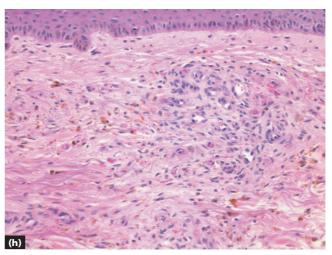


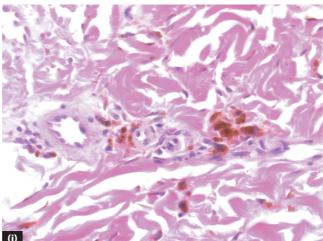


(Suggestion of) vessels (cont.)

- **d** Bacillary angiomatosis: dilated vessels surrounded by inflammation that includes plasma cells and ill-defined "clouds"
- **e** Fibrous papule: fibrotic stroma with stellate fibroblasts and dilated vessels
- **f** Kaposi's sarcoma: slit-like or angulated spaces dissecting through collagen; vessels around vessels







(Suggestion of) vessels (cont.)

- **g** Pyogenic granuloma: clusters of dilated vessels surrounded by mixed inflammation
- **h** Stasis dermatitis: small clusters of capillaries in upper dermis with hemosiderin
- i Targetoid hemangioma: wedge-shaped area of increased vessels with hemosiderin at periphery

Key differences