

## Oral Histopathology

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### Histologic Terminology

There are innumerable histologic terms used by pathologists. The list which follows, while by no means all inclusive, represents many of the more common terms used in text books and (more importantly) in microscopic descriptions and biopsy reports. Each term includes a description and where applicable generalizations or clues to diagnosis based on histologic findings

Histologic Term	Explanation
Acantholysis	Loss of intercellular connection and cohesion, usually between keratinocytes (epithelial cells) Seen in disorders such as <i>pemphigus vulgaris</i>
Acanthosis	Diffuse epidermal hyperplasia, usually of the stratum basale and stratum spinosum
Actinic change	Sun damage, often manifested by epithelial cellular and nuclear atypia and/or solar elastosis (loss of normal collagen morphology, usually presenting as a more basophilic amorphous appearance to the connective tissue)
Acute inflammation	Characterized by presence of polymorphonuclear lymphocytes (neutrophils) and/or plasma cells
Amphophilic	Staining with both acid and basic dyes
Antoni A tissue	Histologic presentation, most often in neural lesions such as <i>schwannoma</i> , characterized by a 'palisading' or alignment of opposing neural cells with an intervening eosinophilic (neural) stroma (see "Verocay body")
Antoni B tissue	Histologic presentation, most often in neural lesions such as <i>schwannoma</i> , characterized by a more haphazard arrangement of neural cells and stroma
Apical	At/near the apex (or often secretory) pole of a cell
Basal	At/near the basement membrane; that area of the cell usually where the nucleus is located (in epithelial cells)
Basaloid	Descriptor usually used to note similarity in appearance to basal cells (often described as 'blue' or 'basaloid') Seen, for example, in some forms of <i>nonkeratinizing carcinoma</i> (of the oropharynx)
Basophilic	Staining 'blue' due to uptake of "basophilic" dyes (such as hematoxylin) Often, nuclei will be the most basophilic components of cells (and cytoplasm and connective tissue will be "eosinophilic")
Birefringent	Optical property where materials/tissues have a refractive index that depends on polarization (manifesting as 'illumination' or 'glow' of tissues under polarized light in microscopy) Birefringent materials include crystalline structures such as some cosmetic augmentation materials, dental cements and sealers and foreign bodies
Carcinoma in situ	Epithelial abnormality characterized by 'full thickness' dysplasia (from basal layer to cornified/keratin layer (nuclear and cellular atypia, pleomorphism, normal/abnormal mitotic morphology and rate, etc.))
Caseating granuloma	Granuloma (collection of histiocytes) with 'caseation' or necrosis Often seen in infectious diseases such as fungal infections, <i>Mycobacterium</i> , etc.
Charcot-Leyden crystal	Microscopic eosinophilic crystals found in allergic disorders such as

	<i>allergic rhinosinusitis</i> ; represent degenerating eosinophils
Chondromyxoid	Bearing resemblance to chondroid (cartilaginous) and myxoid (loose non-cellular) connective tissue Often seen in <i>mixed tumor/pleomorphic adenoma</i> but may also be seen in some salivary malignancies such as <i>polymorphous low grade adenocarcinoma</i>
Chronic inflammation	Characterized by presence of mononuclear lymphocytes
Civatte/colloid/cytoid/hyaline body	Eosinophilic bodies seen usually at/near the basal layer in inflammatory epithelial pathologies such as <i>lichen planus</i> ; represent degenerating keratinocytes
Clear cell	Cell characterize by an optically 'clear' cytoplasm (appears white under microscopy); often a manifestation of artifact generated by loss of material during histologic processing (examples of optically clear tissue, lost in processing, include adipose/fat, myelin, and cellular glycogen)
Columnar	Tall cellular morphology (often described as 'at least twice as tall as wide')
Compact/lamellar (bone)	Bone characterized by dense stroma (pink/eosinophilic) with interspersed osteocytes within lacunae but little or no trabeculae or intervening marrow of intertrabecular spaces)
Connective tissue hyaline body	Usually eosinophilic amorphous material, often with surrounding multinucleate giant cells, forming small to intermediate sized bodies usually in inflammatory lesions such as the walls of (dental) cysts or where foreign bodies have been injected into tissues (such as food/vegetable matter impaction)
Cribiform ("Swiss cheese")	Morphologic presentation often seen in salivary tumors such as <i>adenoid cystic carcinoma</i> and <i>polymorphous low grade carcinoma</i> where tumor cells produce an intervening basal lamina like material that creates pseudocystic or pseudolumenal spaces that resemble 'Swiss cheese'
Cuboidal	Cellular morphology where cells are approximately as tall as wide
Dysplasia	Variable uses; in epithelial pathology refers to epithelial cell abnormalities including cellular and nuclear pleomorphism, abnormal or excessive mitotic figures/rates, loss of epithelial architecture and maturation, etc.
Dysplasia, mild	Dysplasia limited to basal (lower) third of epithelium
Dysplasia, moderate	Dysplasia extending to approximate mid-point of epithelium
Dysplasia, severe	Dysplasia extending to upper third of epithelium (but not complete to keratin layer)
Dystrophic calcification	Calcifications which are abnormal in shape or content (as opposed to bone calcification); these dystrophic calcifications are often more basophilic (blue) when compared to bone
Ectasia	Dilatation (often used to refer to ductal dilatation)
Emperipolesis	Presence of an intact cell within the cytoplasm of another Often a characteristic finding of <i>Rosai Dorfman Disease (sinus histiocytosis with massive lymphadenopathy)</i>
Eosinophilia	Red or pink staining; resultant from absorption of eosinophilic dyes (such as eosin) by tissues Often, cell cytoplasm and connective tissues are more eosinophilic whereas nuclei are more basophilic (blue)
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Fibromyxomatous	Connective tissue pattern characterized by both fibrous/collagenous/cellular background admixed with less cellular loose stroma
Fibrous	Connective tissue pattern characterized by a collagenous/cellular background
Ghost cell(s)	Cells characterized by loss of nuclei (so-called 'empty nuclei') and

	<p>often presenting as enlarged conglomerates of these (degenerating) cells; often eosinophilic</p> <p>Seen in some odontogenic cysts/tumors such as <i>calcifying odontogenic cyst (Gorlin cyst)</i> and <i>calcifying epithelial odontogenic tumor (Pindborg tumor)</i></p>
Giant cell hyaline angiopathy	<p>Usually eosinophilic amorphous material, often with surrounding multinucleate giant cells, forming small to intermediate sized bodies usually in inflammatory lesions such as the walls of (dental) cysts or where foreign bodies have been injected into tissues (such as food/vegetable matter impaction); the multinucleate giant cells are often the predominant component</p>
Granulation tissue	<p>Vascular often inflamed tissue, usually seen in association with ulcers, tissue healing, or vascular lesions such as <i>pyogenic granuloma</i> or other traumatic/reactive/inflammatory disorders such as <i>mucocele</i> or <i>fibroma</i></p>
Granuloma	<p>Collection of (usually) epithelioid histiocytes</p>
Granulomatous inflammation	<p>Inflammation characterized by collections of granulomas</p> <p>Often seen in infectious diseases (fungal, bacterial such as <i>Mycobacterium</i>), <i>sarcoidosis</i>, foreign body reactions, etc.</p>
Histiocyte	<p>A broad histologic term (which often confounds) used to describe, usually, cells which are components of the mononuclear phagocyte system; usually they are seen microscopically as large cells with abundant more eosinophilic cytoplasm and indistinct cell borders ('blend with one another') and often large ovoid to irregularly shaped nuclei</p>
Hyalinized/hyalinization	<p>Characterization of connective tissue, usually as dense, acellular, markedly eosinophilic</p> <p>Often seen in lesions which produce basal lamina (such as <i>adenoid cystic carcinoma</i>, <i>ameloblastoma</i> and <i>respiratory epithelial adenomatoid hamartoma</i> to name a few); may also describe amorphous material seen in <i>amyloid</i> deposition</p>
Keloidal	<p>Dense often acellular collagen, usually seen in <i>keloids</i></p>
Keratinizing	<p>Producing keratin</p> <p>Often used to describe keratin producing or 'well differentiated' carcinomas</p>
Koilocyte/koilocytic	<p>Epithelial cells characterized by viral (HPV, herpesvirus, etc.) cytopathic changes which include nuclear enlargement, irregularity of nuclear membrane contour, nuclear hypochromasia and perinuclear halo/clearing</p>
Large cell	<p>Term used to describe approximate cell size, usually comparison made to the size of a lymphocyte or histiocyte nucleus or red blood cell (a cell larger than the compared nucleus or RBC may be considered a 'large cell' and a cell equal or smaller a 'small cell')</p> <p>Has utility in many malignancies (ex. large cell vs. small cell lymphoma, small cell versus large cell tumors of lung, neuroendocrine tumors, etc.)</p>
Lichenoid	<p>Histologic pattern characterized by a band-like infiltrate of lymphocytes below the epithelial basement membrane (with or without a hyalinized band between the lymphocytes and basal membrane), <i>exocytosis</i> (percolation of lymphocytes into the epithelial layer, presence of <i>Civatte</i> bodies (see above) and/or liquefactive degeneration of the basal epithelial cell layer [the presence of so-called 'saw tooth rete ridges' may or may not occur]</p> <p>Seen in <i>lichenoid mucositis</i> (which includes lichen planus, lichenoid reaction to materials/topical agents/foods, graft versus host disease, etc.)</p>
Liesegang ring(s)	<p>Ovoid or ring-like or lamellar calcifications (often overlap with so-called 'ghost cells')</p> <p>Often seen in odontogenic tumors such as <i>calcifying epithelial odontogenic tumor (Pindborg tumor)</i></p>

Maceration/macerated	Histologic feature characterized by irregular or peeling or torn keratin layer in the <i>stratum corneum</i> ; often seen in frictional irritation
Melanin/pigment incontinence	Presence of melanin pigment at/below the level of the basement membrane and/or in the connective tissue, with or without the presence of <i>melanophages</i> engulfing the pigment Often seen in <i>melanotic macule</i>
Melanosis	Presence of melanin pigment at/below the level of the basement membrane; Often seen in melanocytic disorders such as <i>melanotic macule</i> , <i>ephelis (freckle)</i> , <i>solar lentigo</i> and in other pigment deposition disorders (including medication induced pigmentation)
Metaplasia	Replacement of one type of differentiated cell type with another
Monocytoid	Resembling a mononuclear cell (such as a lymphocyte)
Mononuclear	Cell with single nucleus
Multinuclear	Cell with two or more nuclei
Myxomatous	Descriptor characterizing loose, often acellular, usually more basophilic or optically clear material Seen in cyst linings, <i>myxomas</i> and some mucin-producing or edema-producing lesions (such as <i>mucocele</i> or <i>sinonasal polyp</i> or <i>antral pseudocyst</i> )
Nested	May be used somewhat interchangeably with <i>zellballen</i> (see below); a pattern of cellular aggregation into nests or groups, often round to ovoid Seen in some neuroendocrine tumors such as <i>paraganglioma</i> , melanocytic lesions such as <i>nevus</i> and <i>melanoma</i> , and renal tumors
Non-caseating granuloma	Granuloma (collection of histiocytes) without 'caseation' or necrosis Seen in some infectious diseases, sarcoidosis and foreign body reactions
Non-keratinizing	Usually epithelial pathologic term used to describe lesions which do not produce keratin, such as <i>non-keratinizing/poorly differentiated carcinomas</i>
Non-polarizable	Materials which do not show a refractile pattern under polarized light
Oncocyte/oncocytic	Epithelial cell type characterized by abundant/numerous mitochondria; usually stain intensely eosinophilic (pick up eosin) or stain blue with <i>PTAH (phosphotungstic acid hematoxylin) stain</i> Tumors/lesions which show this pattern include <i>oncocytosis/oncocytoma</i> (often seen in salivary glands with advancing age), <i>Warthin tumor</i> and some thyroid neoplasms (referred to as <i>Hurthle cells</i> in this context) or reactive changes (ex. fine needle aspiration changes noted secondary to diagnostic procedures)
Orthokeratosis	Characterized by production of keratin devoid of nuclei with prominent granular layer Suggests slow epithelial turnover
Palisading (basal palisading)	Alignment of basal epithelial cell nuclei  Seen in some odontogenic cysts/tumors (ex. <i>odontogenic keratocyst</i> )
Papillary	
Parakeratosis	Characterized by production of keratin with nuclei present and absence of distinct granular layer Suggests rapid epithelial turnover
Plasmacytoid	Resembling a plasma cell (eccentric nuclei with or without a perinuclear cytoplasmic clearing or <i>hof</i> ) Often seen in hematologic malignancies (plasma cell tumors or lymphomas) and also often seen in <i>pleomorphic adenoma/mixed tumor</i> (the myoepithelial cells often have a plasmacytoid appearance)

Polarizable	See 'birefringent'
Prosoplasia	Term which may be used to describe replacement of one type of differentiated cell type with a more differentiated cell type ex. mucus cell prosoplasia seen in the lining of otherwise unremarkable epithelial cyst lining
Psoriasiform	Term used to describe an inflammatory histologic pattern characterized by acute inflammation within the epithelium (often forming micro-abscesses or <i>Munro microabscesses</i> ), elongation or 'test tube shaped' rete and other histologic features seen in skin disorders such as <i>psoriasis</i> Often seen in biopsies of <i>erythema migrans</i> (geographic tongue)
Pulse granuloma	Usually eosinophilic amorphous material, often with surrounding multinucleate giant cells, forming small to intermediate sized bodies usually in inflammatory lesions such as the walls of (dental) cysts or where foreign bodies have been injected into tissues (such as food/vegetable matter impaction); the foreign material or 'pulse' (usually vegetable matter) is the prominent component and may often be discovered by a birefringent/polarizable pattern under polarized light
Reed-Sternberg cell	Enlarged malignant (usually B) cell characterized by enlarged often lobated nucleus with prominent nucleolus/nucleoli (so called 'owl eye' cell); often seen in Hodgkin type lymphomas
Reverse polarity/polarization	Polarization of nuclei away from the usual location at/near the basement membrane One of the defined histologic characteristics (along with basal palisading) of <i>ameloblastoma</i>
Rosette	A ring-like structure of cells around a center (either a false or true lumen) Often seen in primitive neural and neuroendocrine tumors
Rushton body	A usually eosinophilic amorphous ovoid or ring-like structure, often seen in the lining or walls of cysts May represent a form of dystrophic calcification, degenerated red blood cells, or hyalinized tissue produce (and may morphologically overlap to some degree with so called 'ghost cells')
Russell body	Usually eosinophilic body noted in plasma cell lesions Represent an immunoglobulin-containing inclusion May be seen as intracellular/intranuclear inclusions in <i>multiple myeloma</i>
Sialoadenitis	Inflammation within or surrounding salivary gland units
Sialodochitis	Inflammation within or surrounding salivary gland ducts
Small cell	Term used to describe approximate cell size, usually comparison made to the size of a lymphocyte or histiocyte nucleus or red blood cell (a cell larger than the compared nucleus or RBC may be considered a 'large cell' and a cell equal or smaller a 'small cell') Has utility in many malignancies (ex. large cell vs. small cell lymphoma, small cell versus large cell tumors of lung, neuroendocrine tumors, etc.)
Solar elastosis	Abnormality of collagen noted in actinic (sun induced) damage, usually seen in skin biopsies as a blue/gray amorphous material replacing collagen Represents damage/degeneration of collagen
Splendore-Hoeppli phenomenon	Deposition of amorphous eosinophilic to basophilic hyaline material around pathogenic organisms, often forming floral or rosette structures Often seen in specific infections including <i>Actinomyces</i> , <i>Streptococcus</i> and some parasitic infections Seen frequently in non-healing oral infections, surgical sites, and tonsil specimens
Squamous	Literally 'plate-like' but in histologic terms used to describe flattened cells or epithelial cell layers (either monolayers or multiple

	cell layers seen in most epithelial specimens including skin, cyst lining, etc.)
Sub-basilar/subepithelial	(Area) below the epithelial (basement) layer Often used to describe separation (in the context of <i>sub-basilar acantholytic/vesiculoulcerative disorders</i> such as <i>pemphigoid</i> where the immune reaction is directed against the hemidesmosomal attachments or basement membrane attachment to the underlying connective tissue)
Subbasilar/intra-epithelial	(Area) above the epithelial (basement) layer or within the epithelium Often used to describe separation (in the context of <i>suprabasilar acantholytic/vesiculoulcerative disorders</i> such as <i>pemphigus</i> where the immune reaction is directed toward the epithelial desmosomal attachments)
Theque	Another term for 'nest' Often used to describe the nests of 'nevus cells' (melanocytic type cells) seen in <i>nevi</i> (moles)
Tide line(s)	Alternating eosinophilic bands Represent eosinophils and degenerating eosinophilic material seen in allergic disorders such as <i>mycetomas</i> (sinonasal fungal aggregations)
Tingible body (macrophage)	A macrophage which has often engulfed other (degenerating) cells such as lymphocytes; often seen in lymph nodes and lymphoid tissues and may direct toward a diagnosis of reactive changes over neoplasia (the presence of tangible body macrophages may favor a reactive process)
Trabecular (bone)	Bone pattern characterized by 'trabeculae' (tubular or elongated bone shapes) with intervening marrow or stroma; usually these are the areas of bone associated with the internal or marrow aspect, versus the compact bone usually associated with cortex
Verocay body	See 'Antoni A' tissue Verocay bodies are the palisaded cellular bodies with intervening neural stroma often seen in neural tumors such as <i>schwannoma</i> and <i>palisaded encapsulated neuroma</i>
Viral cytopathic effect	See 'koilocyte'
Xanthoma(tous) cell	Term used to describe large histiocyte-like cells with a foamy or vacuolated cytoplasm Often seen in histiocytic neoplasms (including <i>xanthomas</i> and <i>xanthelasma</i> ) and some other lesions such as <i>verruciform xanthoma</i>
Zellballen	Term used to describe the well-defined nest of cells (see previous description of 'nested'); this term is most often used in the context of <i>paraganglioma</i> and neuroendocrine tumors