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Dermatopathology: An abridged compendium of words. A discussion of them and opinions about them. Part 9 (T-Z)

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The compendium (Part 9) – T–

TARGET LESIONS: papules or plaques consisting of concentric rings that display shades of red, among them dusky erythema; named for the marksman's target. The lesions are virtually pathognomonic of erythema multiforme.

TBSE: the abbreviation for the Total Body Skin Examination. This exam of patients, performed by dermatologists is requested by all the major skin (i.e., AAD, etc.) and skin cancer organizations (ACS, SCF, etc.) However, only 30% of dermatologists actually perform them routinely according to a recent article in the Melanoma Letter in 2007. In fact most dermatologists examine patients only for their chief complaint. Hopefully, someday this exam combined with the skin self exam of the total body and including the genitalia (i.e. vagina, penis, and anus) and the "folds" in the genital area, at intervals, will become routine. Some dermatologists include the genitalia and the folds of the genital area in the TBSE. Others stress that the patient do it as part of the self-exam or have other physicians do this part instead. (i.e., OB-GYN) Considering the objections to the genital exam in the female, self-exams or "other doctor's" exam may be "better," though not "ideal," it screens a much larger number of patients in a "regular" practice.

TELANGIECTASIA: a condition typified by abnormal, permanent dilation of venules mainly but also, at times, of capillaries and arterioles. Telangiectases may be a manifestation of an inflammatory process, such as rosacea, a noninflammatory process, such as a neoplasm, i.e., nodular trichoblastic (basal cell) carcinoma, and a degenerative process, such as skin injured severely by ultraviolet light. Telangiectasia may be a sign of specific diseases such as acrosclerosis, a form of mastocytosis (telangiectasia macularis eruptiva perstans), or Osler-Weber-Rendu syndrome (hereditary hemorrhagic telangiectasia). Telangiectasia is an essential component of poikiloderma, i.e., atrophy, hyperpigmentation and hypopigmentation, and telangiectasia. Histopathologically, telangiectasia is manifested usually as widely dilated venules in the upper part of the dermis of a variety of conditions that are representations of virtually every fundamental type of pathologic process in skin.

TELANGIECTASIS: a dilated end of a vessel, usually a dilated capillary and venule.

TELOGEN: A period of duration intermediate in which a follicle, having involuted completely, comes to a standstill and rests, leaving only an isthmus at the base of which are undifferentiated cells residual of the lower segment and that will serve as ones germinative at the outset once again of anagen.

TERMINAL FOLLICLE: designates a hair follicle with some features different from a vellus follicle, namely, it is wider, longer, and seated deeper, often in the subcutaneous fat, and associated with a hair that is wider, longer, and darker. Terminal follicles are distributed on the scalp, axillae, and genitalia. The components of terminal and vellus follicles are the same, however. This contrasts with "vellus" which denotes a puny hair follicle and situated superficially, i.e., the upper part of the reticular dermis.

TERMINAL HAIRS: are thick, long hairs, in contrast to thin, short vellus hairs. As a rule, vellus hairs are lighter in color than terminal ones. Terminal hairs are housed in large follicles seated deep in the reticular dermis or in the subcutaneous fat, and are situated on the scalp, beard, axillae, and pubis. Vellus hairs reside in small follicles located superficially in the reticular dermis. They are distributed throughout the remaining skin, except for palms, soles, clitoris, and glans penis.

TOUTON GIANT CELLS: are multinucleated histiocytic giant cells with a central dark-staining core surrounded by nuclei in a rim and a periphery of pale foamy appearance. The cells can be found in a variety of inflammatory diseases, the best known of which is juvenile xanthogranuloma.

TRABECULA: a fibrous septum, as in the normal subcutaneous fat.

TRABECULAR: means resembling small bars that tend to interconnect, that structure being exemplified by elements epithelial of neuroendocrine (Merkel cell) carcinoma (presented originally under the title "trabecular carcinoma") and occurring episodically in various benign proliferations epithelial with adnexal differentiation.

TRICHO-: is a prefix in Greek meaning hair and is a synonym for *pilo-* in Latin. The prefix is used correctly, as in trichotillomania, a condition that results from twisting and pulling hairs, but often it is used improperly when what really is intended is folliculo- (e.g., in trichoepithelioma, trichoblastoma), infundibulo-, (e.g., trichoadenoma) or sebaceo- (e.g., trichodiscoma).

TRICHOBLAST: is a cell analogous to that in a germ of an embryo (SEE GERM) that eventuates in the infundibular-apocrine-sebaceous-follicular unit and is a synonym for "follicular germinative cell." Trichoblasts abnormal make up trichoblastoma and trichoblastic (basal cell) carcinoma.

TRICHOHYALIN: refers to a granule that appears bright red when stained by hematoxylin and eosin, it being analogous to keratohyalin, a purple granule present in the upper part of epithelium epidermal and sebaceous ductal. Unlike keratohyalin, however, trichohyalin is specific for the inner sheath of follicles, appearing in that sheath at the bulb in both Henle's and Huxley's layers and in the cuticle. It is as essential to cornification normal of hair as keratohyalin is to cornification normal of stratum corneum. When trichohyalin granules are noted in a proliferation, they are evidences incontrovertible of follicular (inner sheath) differentiation. Trichohyalin also appears episodically in bullous congenital ichthyosiform erythroderma and in all other conditions cutaneous characterized histopathologically by epidermolytic hyperkeratosis.

TRICHOLEMMAL DIFFERENTIATION: denotes a circumstance in which cells resemble those of the outer (tricholemmal) sheath by virtue of having; (1) pale or clear cytoplasm), those at the periphery being columnar, arranged in a palisade, and resting on a prominent basement membrane like cells of the outer sheath at the bulb do normally, or (2) abundant pink cytoplasm, like the cells of the outer sheath at the stem or the isthmus. Tricholemmal differentiation at the isthmus also is typified by compact orthokeratosis, a finding constant in epithelium of a normal isthmus (and in the analogue of it, namely, the lower segment of a follicle well advanced in catagen. The pallor of cells authentic of the tricholemmal sheath and of cells with tricholemmal differentiation is attributed to abundant glycogen within their cytoplasm. Tricholemmal differentiation that stimulates the outer sheath at the bulb may be found in resolving verrucae vulgaris on the face (so-called tricholemmoma); in a benign proliferation that develops rarely, in nevus sebaceous; and, in instances uncommon of trichoblastic (basal cell) carcinoma. Tricholemmal differentiation that resembles the outer sheath at the isthmus is expressed in the tumor of follicular infundibulum and in pilar sheath acanthoma. All examples of so-called proliferating tricholemmal cyst and proliferating tricholemmal cystic squamous cell carcinoma are really examples of tricholemmal cystic carcinoma. This must be differentiated from proliferating tricholemmal cystic acanthoma and squamous cell carcinoma.

TRICHOLEMMAL SHEATH: describes the outer sheath of a follicle. The outer sheath courses from the base of a bulb through the stem and the isthmus to terminate at the bottom of an infundibulum. Cells in the lower part (bulb) of the outer sheath are clear and pale, those in the mid portion (stem) are pink, and those in the upper part of the isthmus are slightly redder. A basement membrane observable readily is present along the length of the outer sheath. It must be stressed that the outer sheath that forms at the end of telogen, i.e., the beginning of anagen, is a product of matrical differentiation. Those matrical cells come into being rapidly following the revivification of germinative cells at the base of an isthmus, they being the sole residuum of the follicle that involuted, and being the ones responsible for generating an anagen follicle anew.

TRICHOMALACIA: literally means "softening of hair." Histopathologically, it means pleated hair shafts that contain clumps of melanin as a result of twisting hairs in trichotillomania.

TUBERCLE: is a term in gross pathology for potato-like structures that, on histopathologic examination are seen to consist mostly of epithelioid histiocytes.

TUBERCULOID: in general pathology refers to histopathologic findings that resemble those of tuberculosis and, in cutaneous pathology, of lupus vulgaris in particular. Tuberculoid granulomas also occur, for example, in tuberculoid leprosy, the recidivans expression of leishmaniasis, infections by "atypical" mycobacteria, and, uncommonly, in sarcoidosis.

TUBULAR: means "like a tube" and refers to elongated epithelial lumen containing structures present in a variety of benign and malignant proliferations. Nearly always, very elongated tubules in those conditions in the skin indicate apocrine differentiation, but tubules of other lengths and characters are found in proliferations that exhibit eccrine or sebaceous differentiation. Prominent papillations within tubules also signify apocrine differentiation.

TUBULE: in general denotes tiny hollow cylinders that convey a fluid or that functions as a passage. In histopathology, it indicates ductal and/or glandular differentiation in an organ or a proliferation. When a lumen is formed by cells and a histopathologist is unable to identify that structure as either ductal or glandular, the generic term "tubule" may be applied. Epithelial neoplasms that form tubules are named adenomas when they are benign and adenocarcinomas when they are malignant. In skin, tubular differentiation of primary neoplasms may be sebaceous ductal, apocrine glandular or ductal, and eccrine glandular or ductal. In skin a tubule cornifying lined by stratified squamous epithelium is sebaceous ductal and one lined by cells that exhibit "decapitation secretion" is apocrine glandular.

TUMID: means swollen and is used for example to describe a form of discoid lupus erythematosus in which clinically there are indurate reddish plaques with no scales, follicular plugs, or signs of atrophy. Histopathologically, there are no changes in the epidermis or at the dermo-epidermal interface in the tumid form of discoid lupus erythematosus only a perivascular lymphocytic infiltrate accompanied by abundant mucin within the reticular dermis.

TUMOR: means a swelling and in dermatology has both implications clinical and histopathologic. In clinical dermatology, tumor denotes a solid protuberance more than 2.0 cm in greatest diameter, a nodule being a smaller version that measures no more than 2.0 cm in diameter and a papule being an even smaller analogue that is less than 1.0cm in diameter. A tumor may be comprised mostly of cells, such as in a carcinoma, of bundles of collagen, such as in a neurofibroma, or of deposits specific, such as of urates in a tophus of gout. In histopathology, the term tumor is used as a synonym for neoplasm, but that leads to the silly designation "tumor cells." In short, there is a place proper for the word "tumor" clinically, but not for it histopathologically. TZANCK SMEAR: refers to search for acantholytic keratocytes in smears from bullae of diseases such as pemphigus vulgaris and for multinucleated keratocytes from vesicles caused by herpes viruses.

– U –

ULCER: Loss of the entire epidermis and at least some of the dermis, sometimes even extending into the subcutis. Erosion, by contrast, results from partial or total loss of the epidermis, but none of the dermis. Ulcers can result from diseases such as venous insufficiency (i.e., stasis ulcer), vasculitis (i.e., erythema gangrenosum in pseudomonas septicemia), chronic infection (i.e., leishmaniasis), and neoplasms (i.e., basal-cell carcinoma). Ulcers can be factitious, i.e., self-induced by caustics, sharp instruments, or a person's own fingernails. Excoriation can produce erosion or ulceration, depending on how forcefully fingernails are wielded. Ecthyma is an ulcer caused usually by beta-hemolytic streptococci. Ulcers, if they destroy the normal pattern of collagen bundles in the papillary dermis, heal inevitably with a scar.

ULTRASTRUCTURE: refers to morphologic observations that cannot be achieved by conventional microscopy but necessitate the resolving power of an electron microscope. There are many examples of structures in normal or diseased skin that cannot be discerned through a conventional microscope but that can be visualized readily through an electron microscope, among them specific causative organisms of viral diseases, Langerhans granules, and Weibel-Palade bodies.

UNDIFFERENTIATED: means lacking differentiation entirely and refers to absence of any evidence of specialization of a proliferation as it is visualized through a microscope conventional. New methods and techniques have enabled the anonymity of some proliferations to become identifiable with specificity. For instance, what may appear by microscopy conventional to be a primary proliferation malignant and seemingly undifferentiated may turn out to be an adenocarcinoma when glandular or ductal structures are identified by electron microscopy or to be a melanoma when immunoperoxidase positivity to S-100 protein is demonstrated.

UNEVENLY PSORIASIFORM: having elongated rete ridges of uneven length; associated with preservation of the normal undulating pattern between rete ridges and dermal papillae.

URTICARIA: evanescent pink papule or plaque that often has pseudopods at its periphery and blanches on diascopy, i.e., viewing of the skin through a firm transparent instrument, such as a glass slide, pressed against a lesion. A true hive cannot always be differentiated clinically from a hive-like lesion, as occurs in "urticarial vasculitis" (an early, nonpurpuric, edematous papule of leukocytoclastic vasculitis), but the

course of the two lesions is very different; a hive is transitory, usually waning in hours, whereas a hive-like lesion tends to last for days at least. By contrast, true urtica, (denotes a single lesion) when fully developed histopathologically, shows changes that are specific for it, namely, a sparse perivascular and interstitial mixed-cell infiltrate in which lymphocytes, neutrophils, and eosinophils ring venules and neutrophils and eosinophils are scattered in the interstitium. Contrariwise, so-called urticarial vasculitis exhibits stereotypical changes of leukocytoclastic vasculitis, the essential element for that diagnosis being neutrophilic nuclear "dust" in conjunction with intact neutrophils, in time, those being joined by fibrin in the wall of venules. Urticarial lesions, that is, ones not those of authentic urtica, display findings histopathologic typical of the disease they are in actuality, i.e., dermatitis herpetiformis, bullous pemphigoid, and insect bites. As stated above, urtica pertains to an individual lesion of the condition known as urticaria.

URTICARIAL: describes a hive-like appearance of lesions, that is, pink, edematous papules and plaques. Urticarial lesions are differentiated clinically from true hives by the tendency of them to persist for longer periods of time (days rather than hours). Urticarial lesions are seen in many conditions, i.e., responses to insect bites, dermatitis herpetiformis, bullous pemphigoid, leukocytoclastic vasculitis, and early lesions of allergic contact dermatitis. Biopsy of these five conditions reveals histologic changes that are diagnostic of each of them. Biopsy of a lesion of true urticaria reveals a sparse perivascular and interstitial mixed-cell infiltrate containing neutrophils and eosinophils.

– V –

VACUOLAR: means characterized by, pertaining to, or being like tiny cavities. Vacuoles may be seen through a conventional microscope in both normal and diseased skin. In normal skin, vacuoles are found in sebaceous cells. In pathologic states, vacuoles are present in neoplasms that show sebaceous differentiation, macrophages that have ingested lipid (foam cells), and on either side of the epidermal (surface and infundibular) basement membrane in interface dermatitides (vacuolar alteration). When along that junction the infiltrate of inflammatory cells is sparse, the interface dermatitis is designated "vacuolar type." When, in a thickened papillary dermis, the infiltrate of inflammatory cells is dense in bandlike array, the interface dermatitis is termed "lichenoid type."

VACUOLAR ALTERATION: tiny spaces on either side of a basement membrane situated at the dermoepidermal junction and at the junction of dermis and epithelial structures of adnexa. "Liquefaction degeneration" is a fanciful, but inaccurate, synonym. Vacuolar alteration occurs in nearly all interface dermatitides, both vacuolar and lichenoid types. In the vacuolar type of interface dermatitis, i.e., erythema multiform, vacuolar alteration is conspicuous because only a sprinkling of lymphocytes is noticeable along the dermoepidermal interface. In the lichenoid type of interface dermatitis, i.e., lichen planus, vacuolar alteration also is present, but it is overshadowed in lesions that are developed fully by a prominent band of lymphocytes that fills the upper part of the dermis and extends just beyond it, thereby obscuring the dermoepidermal junction. Confluence of vacuoles in interface dermatitides may result in formation of a cleft at the dermoepidermal junction. All diseases marked by extensive vacuolar alteration may become vesicular or bullous, among those being lichen sclerosus at atrophicus, lichen planus, and erythema multiform. What constitutes the vacuoles has yet to be determined.

VACUOLE: in the parlance of microscopy conventional refers to a small space that may be intra- or extracellular. Vacuoles intracellular are tiny units discrete bounded by a membrane, they serve as storage for fat, glycogen, precursors of secretions, as well as a dump for debris. That description is apt for lipid vacuoles in skin, such as in normal sebaceous cells and in lipophages, i.e., macrophages that have ingested particles of fat. Vacuoles in proliferations eccrine or apocrine correspond ultrastructurally to intracellular structures glandular or ductal. They are found often in cuticular cells of poromas and, episodically in immature sebocytes of sebaceoma and sebaceous carcinomas. Vacuoles extracellular are seen in inflammatory diseases of the interface type in which lymphocytes especially, obscure the dermo-epidermal junction either in the form of infiltrates sparse (vacuolar type) or of one dense and band-like (lichenoid type). Vacuoles in interface dermatitis seem to form on either side of the epidermal (surface and infundibular) basement membrane, i.e., in the basal layer and in the uppermost part of the papillary dermis. Changes similar may occur along the interface between the upper part of the eccrine dermal duct and the dermis.

VACUOLES IN A RING: is descriptive of the small clear spaces that separate the inner margin of a tubule from homogenous pink material secretory housed in the lumen of it, the material having an outline scalloped by virtue of the indentation of it by tiny spaces, they representing sites of "decapitation" secretion and the pattern itself being indicative of apocrine differentiation.

VASCULITIS: small-vessel vasculitis, fully developed, is typified by fibrin in the wall of venules (and rarely arterioles) and/ or thrombi in the lumen of them in the context of an infiltrate of inflammatory cells. Large-vessel vasculitis is characterized by inflammatory cells in the wall of a vein or artery. Vasculitis must be distinguished from the inordinately more common perivasculitides and peri-infundibulitides / perifolliculitides. In the latter circumstances, there is neither fibrin in the wall nor thrombi within the lumen of vessels. The most common vasculitis of small vessels is leukocytoclastic vasculitis, and much less common are septic vasculitis and livedo vasculitis. Vasculitis of large vessels occurs in septa of the panniculus adiposa, not the skin, and is much less common than vasculitis of small vessels, it taking the form of phlebitis and arteritis.

VASCULOPATHY: a disorder of blood vessels. The term is generic, and yet it is employed often by dermatologists and pathologists for particular kinds of disorders of blood vessels, such as vasculitis or a disease characterized by vaso-occlusion (i.e., consumptive coagulopathy) or vaso-intrusion (i.e., systemic amyloidosis). In theory, the vasculopathy is applicable equally to increase in number of vessels in a proliferation of them that involutes (i.e., pyogenic granuloma), in a benign neoplasm that does not involute (i.e., cherry hemangioma), and in a malignant neoplasm (i.e., angiosarcoma) as well as to aberrations in structure of blood vessels, such as a malformation (i.e., arteriovenous shunt), and an ectasia (i.e., Osler-Weber-Rendu syndrome). For these reasons, there is no need ever to employ the term vasculopathy; the particular pathologic process that involves blood vessels should be identified for what it is precisely.

VEGETATION: a heaped-up collection of scale crusts-sometimes hemorrhagic, often purulent, as occurs in pemphigus vegetans.

VELLUS FOLLICLE: is applied to a hair follicle whence spring delicate hair that covers much of the body, i.e., the face, arms, and trunk. In contrast, a terminal follicle houses hair that is broader and longer, and found mostly on the scalp, in the axillae, and in the public region.

VELLUS HAIR: is applied to fine, delicate hair found on much of the body, i.e., the face, arms, and trunk, in contrast to terminal hair, which is broader and longer, and found mostly on the scalp, in the axillae, and in the pubic region. At scanning magnification a microscopist should endeavor to determine the age of the patient by noting signs distinctive such as puny vellus hair follicles, this along with diminutive sebaceous glands situated high in the dermis is a clue that the patient is an infant.

VERRUCOUS: means like a fully developed verruca, a rough, finger-shaped lesion clinically, and a digitate proliferation of epidermal (and on a face infundibular) keratocytes histopathologically. Besides verrucae vulgaris, verrucous patterns may be seen in verrucous seborrheic keratoses, verrucous epidermal nevi, verrucous solar keratoses, and the surface of keratoacanthoma, verrucous carcinoma, and even verrucous lesions of psoriasis. As is true of all diseases in skin, the appearance of a verrucous lesion changes markedly in time. Long-standing verrucae vulgaris on the face are not verrucous at all, but are domed papules commonly misinterpreted clinically as trichoblastic carcinomas and histopathologically as tricholemmomas (because of largely endophytic character and tricholemmal differentiation of infundibular epithelium) and as inverted follicular keratosis (because of largely endophytic character and presence of "squamous eddies" within hyperplastic infundibula).

VERTICAL GROWTH PHASE: the notions of "vertical growth phase" and "radial growth phase" of melanoma are bereft conceptually and useless practically. First, "vertical" and "radial" are not contrasting. Vertical is a component of radial. Second, what is called the "radial growth phase" involves the epidermis and the papillary dermis, an indication that that phase, too, has a dimension vertical. Third, criteria that have been offered for the purpose of distinguishing a "radial" from a "vertical" growth phase of melanoma are abstruse, highly subjective, and not workable with repeatability. In short, it is mere conjecture on the part of a histopathologist where the "radial growth phase" ends and the "vertical growth phase" begins. One criterion alleged to allow recognition of the so-called vertical growth phase is detection of an "expansile nodule" in the upper part of the dermis. Both words, namely, "expansile" and "nodule," are flawed in that setting particular. Nodules, clinically and histopathologically, are large structures, yet the "nodule" of the supposed "vertical growth phase" is said to be a small collection of neoplastic melanocytes situated in the upper part of the dermis. To prove that the "nodule" is "expansile," it would have to be measured at different points in time; nothing can be appreciated as being expansile when viewed through a microscope conventional where everything in tissue is static. Last, the concept of "radial" and "vertical" growth phases is not relevant either to diagnosis of melanoma or to management of it. Diagnosis of melanoma, clinical and histopathologic, is based on criteria morphologic and does not turn at all on "growth phases," and neither does treatment proper of melanoma, which is complete excision surgical with a margin sufficient to ensure that this has been accomplished.

VESICLE: a small blister, i.e., one that is up to 1.0 cm in diameter. A vesicle may be intraepidermal, as in an infection by herpes virus, subepidermal, as in dermatitis herpetiformis, or both intraepidermal and subepidermal in the same section, as in erythema multiforme, fixed drug eruption, and Mucha-Habermann disease. Clinically, it often is impossible to distinguish an intraepidermal from a subepidermal vesicle. The "rule" that a subepidermal vesicle is more firmly distended than an intraepidermal vesicle is violated often, as evidenced by tense vesicles that are standard in varicella, miliaria crystallina, and an "id" reaction. Moreover, a subepidermal blister may be flaccid, as in that severe expression of erythema multiforme, termed badly "the adult type of toxic epidermal necrolysis." Blisters, whether intraepidermal or subepidermal, house serum, which, when it ascends to the surface of the skin, takes the form of a crust.

VESICULOBULLOUS: having small and large blisters, i.e., vesicles and bullae.

VESICULOPUSTULE: a lesion that has features of a small blister (containing serum) and a pustule (containing innumerable neutrophils).

VILLOUS: having papillated projections that resemble intestinal villi, as do the dermal papillae in pemphigus vulgaris.

VITREOUS MEMBRANE: (SEE GLASSY MEMBRANE)

– W –

WICKHAM'S STRIAE: refer to the whitish cross-hatchings seen on the surface of some lesions of lichen planus that result from zones of more prominent hyperkeratosis above foci of wedge-shaped hypergranulosis in the epidermis.

WIRY BUNDLES OF COLLAGEN IN HAPHAZARD ARRAY: collagen bundles that resemble wires arranged randomly in the upper part of the dermis, often in conjunction with patchy lichenoid infiltrates of lymphocytes there. Just as coarse bundles of collagen in vertical streaks indicate lichen simplex chronicus, so, too, wiry bundles of collagen in haphazard array signify, for practical purposes, mycosis fungoides at a patch/subtle plaque stage of the disease (small plaque parapsoriasis and large-plaque parapsoriasis). As always, there are exceptions; wiry bundles of collagen in haphazard array may be encountered, episodically, in other circumstances, in which band-like infiltrates of lymphocytes are longstanding, among those being the lichenoid purpura of Gougerot and Blum and some instances of lichen planus.

ZONE: refers to each of three morphologic and functional units in a follicular bulb, namely, matrix at the bottom, supramatrical in the middle, and keratogenous at the top.

ZOSTERIFORM: means the belt-like distribution of lesions along a dermatome, such as those of herpes zoster.

This concludes the 9-part series from Bruce J. Hookerman, MD, "An abridged compendium of words. A discussion of them and opinions about them", published in this journal.