A guide to bullous lesions of the skin

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SYNOPSIS A simple sequential chart for identifying bullous skin lesions is presented based on the site and size of the bulla and helpful changes in the bulla, epidermis, and dermis.

Bullous skin lesions are frequently a source of dismay to the beginner in histopathology since descriptions of the different lesions are scattered in textbooks among the various chapters on congenital, inflammatory, and toxic conditions. Sleuthing through these chapters does help to familiarize the beginner with these texts but the exercise is time-consuming and often discourages him from an intriguing subject. This chart seeks not to replace the perusal of textbooks but to simplify and even encourage this.

The chart (pp. 236-237) should be worked through from left to right, the initial basis of identification being the situation of the lesion in the skin.

The Situation of the Lesion

Only four situations are used: suprabasal, intra-epidermal, subcorneal, and subepidermal. The main snare lies with the subepidermal group since the floor of the bulla may re-epithelialize rapidly and cause the apparent 'migration' of the bulla to a higher position. The pathologist must rely on the clinician to biopsy an early lesion in all bullous conditions.

Four descriptive terms are used for the size of a lesion. A lacuna (L) is a small gap between normally adjacent structures. This may expand laterally to form a cleft (c) or circumferentially to form a roughly rounded bleb or vesicle (v). The difference between a vesicle and its larger relative, the bulla (B), is one of size and is interpreted subjectively by different pathologists. The author regards bullae as unsightly but vesicles of a socially polite size.

Lymphangioma circumscriptum is appended to the subepidermal group since it is occasionally mistaken as a bullous lesion.

Changes within the Lesion

Acantholytic cells and inflammatory cells in the fluid of a bulla help to narrow the diagnostic

spectrum. Acantholysis is graded from + to +++ depending on its prominence.

Adjacent Epidermal Changes

Those listed are the presence of villi (hyperplastic accentuations of the normal dermal papillae), hyperkeratosis plus the occasional mention of parakeratosis ('para'), spongiosis, and acanthosis.

Other Useful Features

Only the more important features which help to clarify the diagnosis have been included. It is often impossible to distinguish incontinentia pigmenti and subcorneal pustular dermatosis from infections, and a warning of this is inserted here within brackets.

Changes in the Dermis

These may be extremely useful but in many conditions the only abnormality is a chronic inflammatory cell infiltrate (CICI).

Affected Sites of the Body

The distribution of lesions may differentiate conditions with similar histological appearances. The clinician often bases his diagnosis on this distribution but omits to mention it on the request form.

Age

Only those conditions with a definite predilection for certain periods of life are indicated.

References

- Lever, W. F. (1967). *Histopathology of the Skin*, 4th ed. Lippincott, Philadelphia, Pitman, London.
Rook, A., Wilkinson, D. S., and Ebling, F. J. G. (1968). *Textbook of Dermatology*. Blackwell, Oxford.

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Condition	Situation of Lesion				Changes within the Lesion			Adjacent Epidermal Changes			
	Sub-epidermal	Supra-basal	Intra-epidermal	Sub-corneal	Acanth-olysis	Inflammatory Cells	Ballooning	Villi (Papillae)	Hyper-keratosis	Spongiosis	Acanthosis
Darrier's disease		L-C			+			+	++		
Pemphigus:											
Familial, benign		L-B			++						
Vulgaris		C-B			++	Eosinophils					
Vegetans		B			++						+++ Late
Pyodermite de Hallopeau		L			+	Numerous eosinophils					++ Late
Keratosis senilis (atrophic type)		L-V			(+)						
Warty dyskeratoma		L-C			+						
Bullous ichthyosis congenita			V-B				+++				
Contact dermatitis Acute/subacute			V-B			Variable lymphocytes & polymorphs			Para	++	
Herpes, variola, varicella			V-B				+++				
Miliaria rubra			V							+	
Pompholyx			V							+	
Incontinentia pigmenti (early)			V-B			Numerous eosinophils				+	
Pemphigus foliaceus/erythematosis				B	+				+		
Subcorneal pustular dermatosis				B	+	Many neutrophils				+	
Miliaria crystallina				V							
Pemphigoid											
Bullous	V-B					Fibrin network, some polymorphs, ± eosinophils					
Benign mucosal	B										
Juvenile	B					Scanty eosinophils and neutrophils					
Bullous erythema multiforme	V-B					Variable eosinophils				+	
Toxic epidermal necrolysis	B				(+)						
Dermatitis herpetiformis	V-B					Many eosinophils					
Epidermolysis bullosa	B										
Lupus erythematosus (subacute)	L-V				+						
Bullous lichen planus	V-B										+
Porphyria (lymphangioma circumscription)	B (B)										

Chart Aid to identifying bullous lesions of the skin

<i>Other Useful Features</i>	<i>Changes in the Dermis</i>	<i>Affected Sites of the Body</i>	<i>Age</i>
Corps ronds and grains, papillomatosis	CICI	Seborrhoeic areas, mucosae occasionally	
Scanty corps and grains Acantholytic cells degenerate Late intraepithelial abscesses of eosinophils	CICI Mild inflammation	Neck, axillae, groins Skin and mouth Flexures mainly	
Resemble pustules Basal layer atypia	Eosinophils CICI (may be prominent)	Exposed areas	
Central keratin plug Pyknotic nuclei to cells	Perivascular CICI	Face, scalp, neck Flexural surfaces	Infancy
Reticular degeneration	Oedema and perivascular CICI		
Inclusion bodies, reticular degeneration	Varying CICI vasculitis	Dependent on virus	
Inflammation in epidermis around vesicles Vesicles multiple and close together (Confused with erythema toxicum neonatorum)	CICI Mild CICI Eosinophils	Flexures, sweaty areas Palms and soles Limbs and flanks	Baby girls
Bullae rupture early, occasional grains (Confused with impetigo)	CICI and eosinophils Scanty polymorphs around vessels	Scalp, face, upper body Abdomen, axillae, groins	
PAS-positive material in mouths of sweat glands		Trunk	
Initially multiple small vesicles	Mild oedema to severe vasculitis	Limbs, groins, axillae	Elderly
	Nil to marked inflammation, late fibrosis	Mucosae, conjunctivae, genitalia, skin Lower trunk, buttocks, face	Under 5 yr
Variable epidermal necrosis	CICI vasculitis	Extensor surfaces and mucosae	
Degeneration of epidermis	Nil to mild inflammation	May involve whole body	20-50 yr
Microabscesses in papillae	CICI with eosinophils	Extensor surfaces and buttocks	Occasionally children
Basal cell vacuolation Basal cell liquefaction	Nil CICI round appendages, collagen degeneration and oedema	Skin or mucosae Face, chest, limbs	Infants Max 30-40
Saw-tooth epithelial downgrowths, basal cell degeneration	Band-Like CICI, hugging epidermis PAS-positive material and oedema of capillary walls (dilated superficial lymphatics)	Skin and mucosae Exposed areas	

Chart *Aid to identifying bullous lesions of the skin*—continued¹Dyskaryotic or necrotic degeneration of acantholytic cells noted