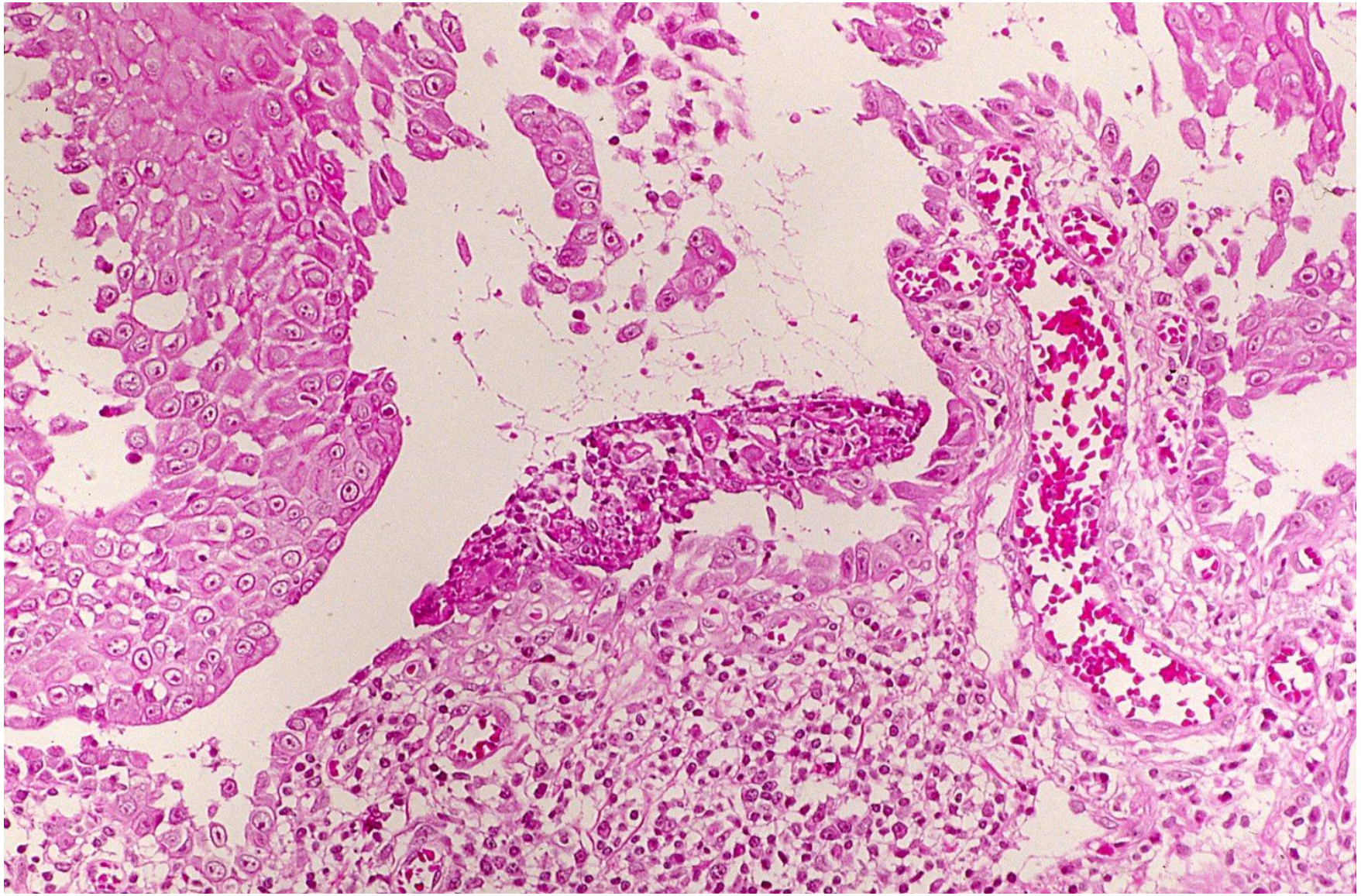
Pemphigus vulgaris: detection of IgG and C3 in formalin-fixed, paraffin-embedded sections

Pemphigus vulgaris is an autoimmune disease, causing painful blistering on cutaneous and mucosal surfaces. Autoantibodies against desmoglein 1 and desmoglein 3 can be identified. Deposition of IgG and C3 can reliably be detected in formalin-fixed paraffin-embedded sections of biopsy specimen of pemphigus vulgaris. Pretreatment with protease digestion is essentially important for the sequence. The technique is important especially when frozen sections for direct immunofluorescent study are not available.

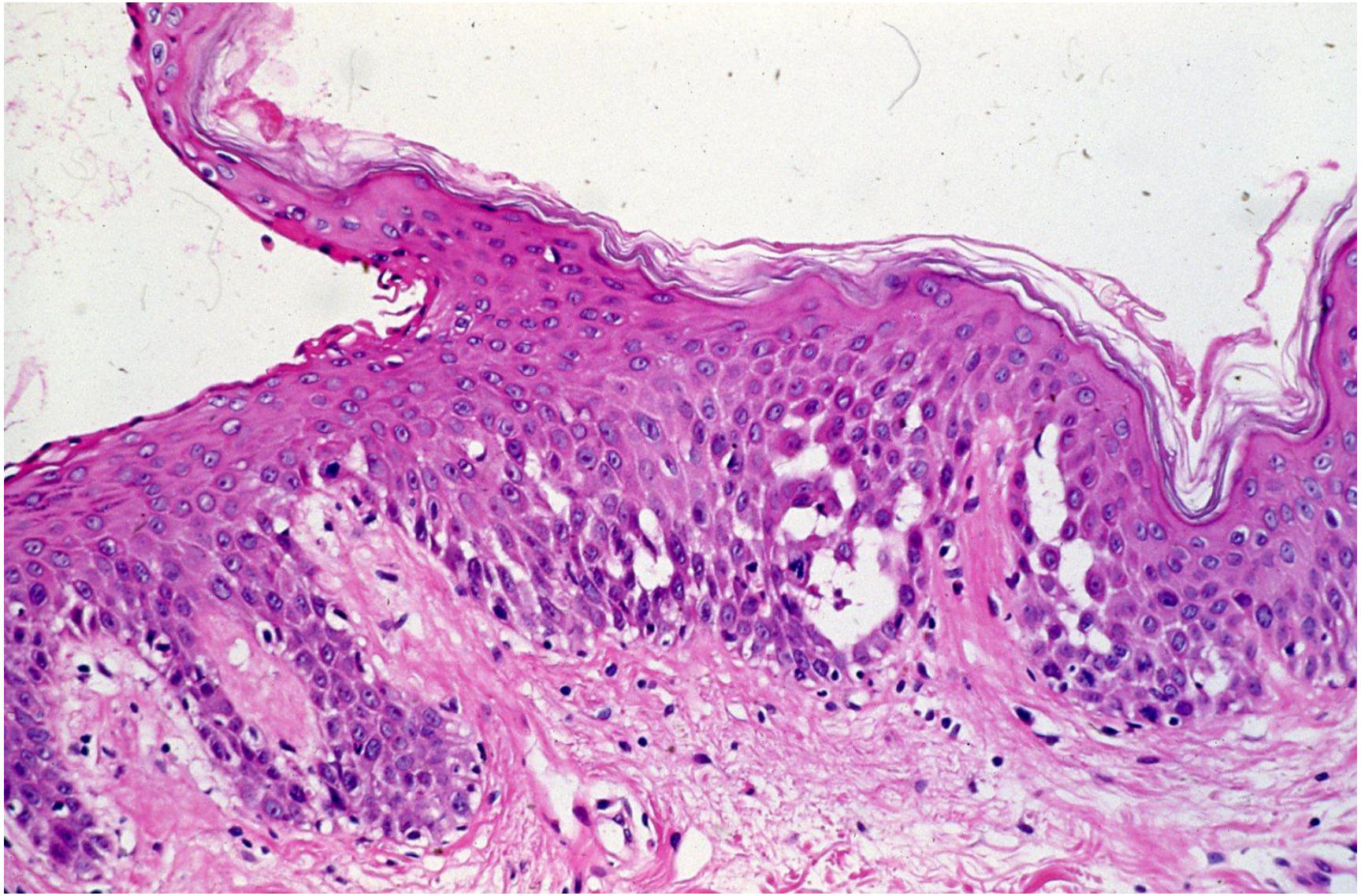
Ref.: Kuhn A, et al. Immunhistologische Untersuchungen von Immundermatosen am rekonstituierten Paraffinschnitt. Wertigkeit und Vergleich verschiedener Methoden. Hautarzt 1988; 39(6): 351-354 (in German). PMID: 3403272

Pemphigus vulgaris. Painful oral lesions seen in a 43 y-o female patient. Erosive changes are observed on the palate mucosa. The oral lesions often precede the bullous skin lesions.

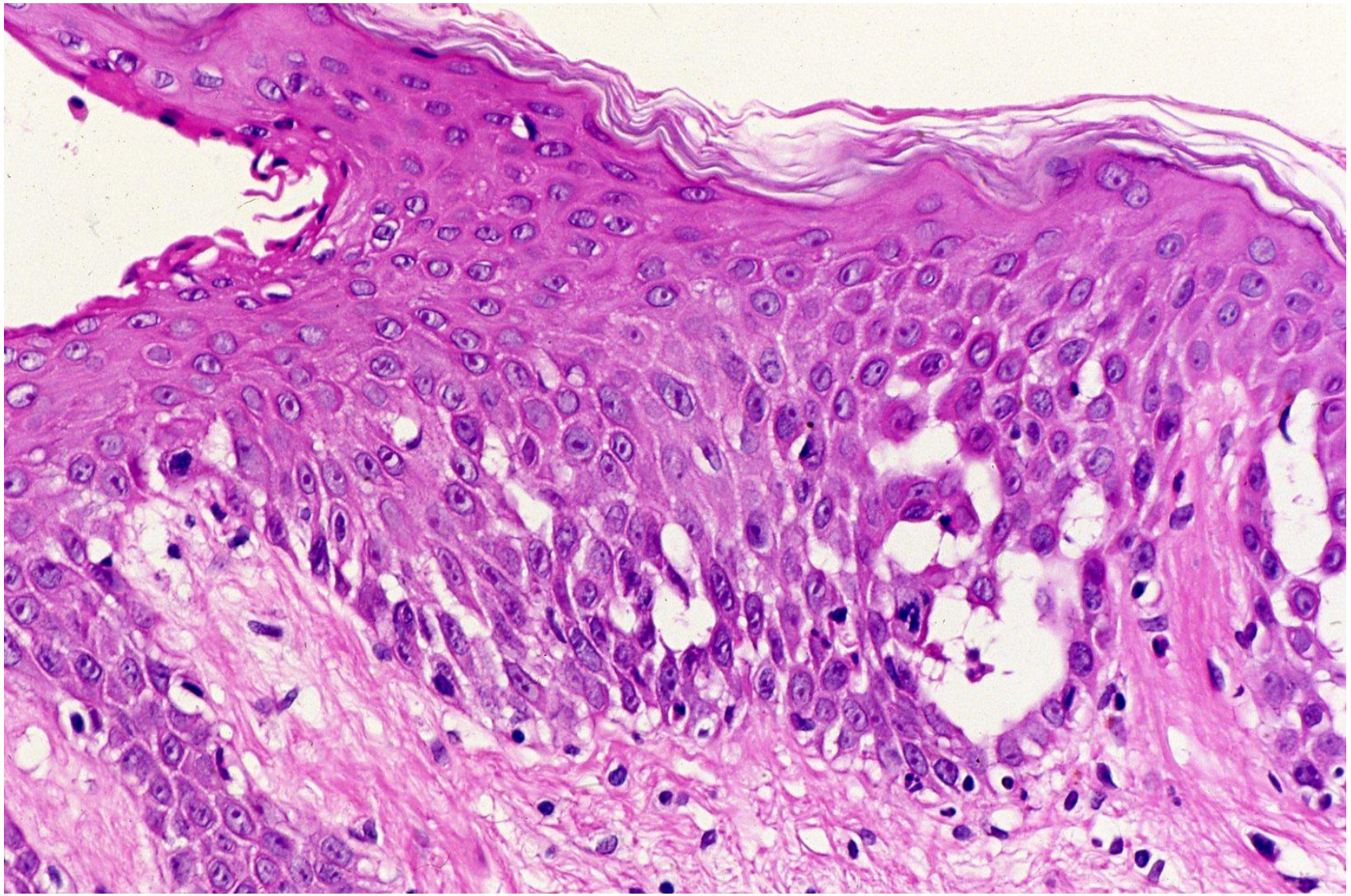


Pemphigus vulgaris. Biopsy taken from the eroded oral mucosa of a 43 y-o female patient shows suprabasal blister formation. Acantholytic cells are seen within the bullous space. Eosinophilic infiltration is associated (H&E).

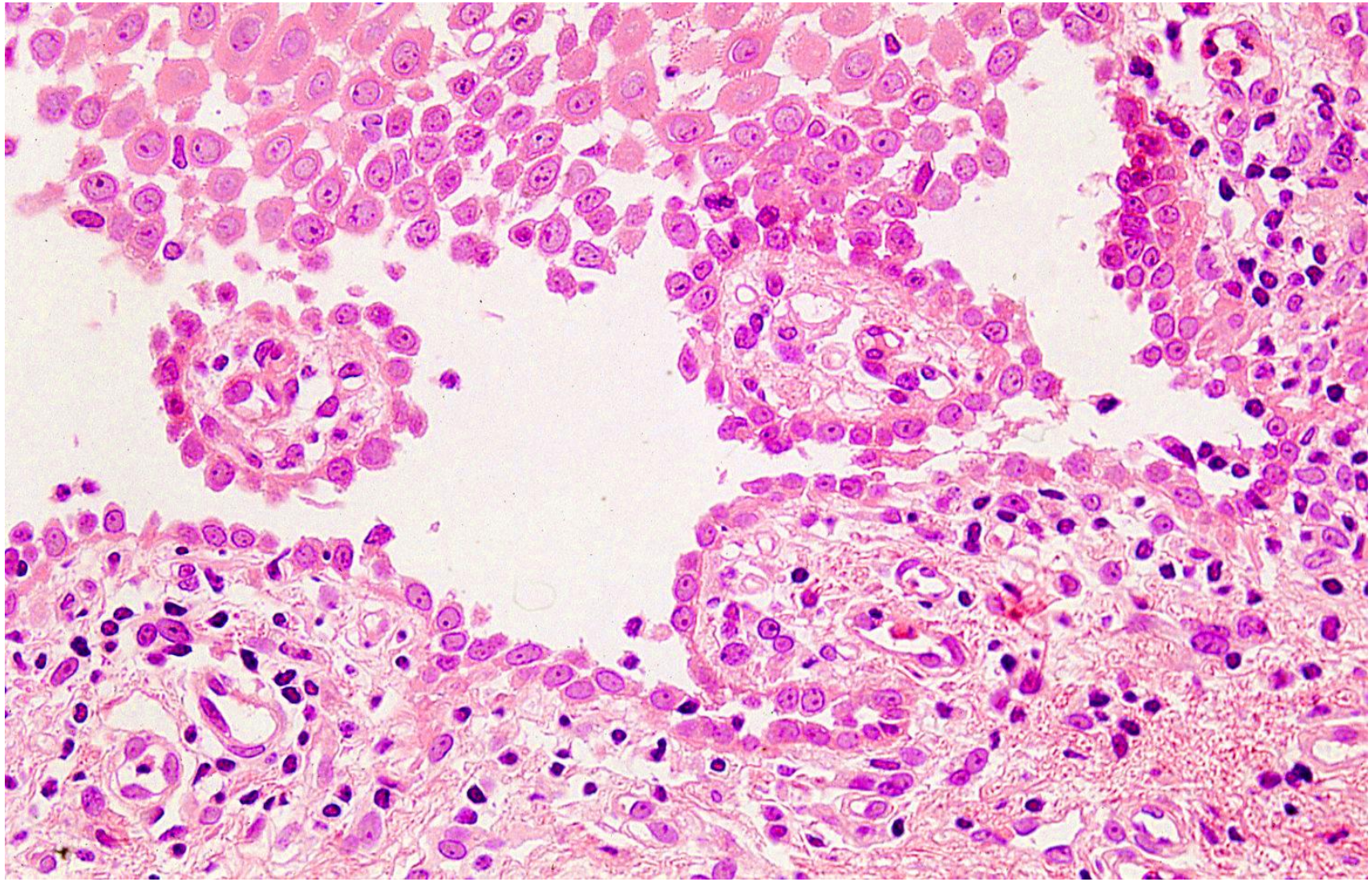
Pemphigus vulgaris. Painful oral lesions seen in a 66 y-o male patient.
Erythematous skin lesions are associated with small and large bullous changes.



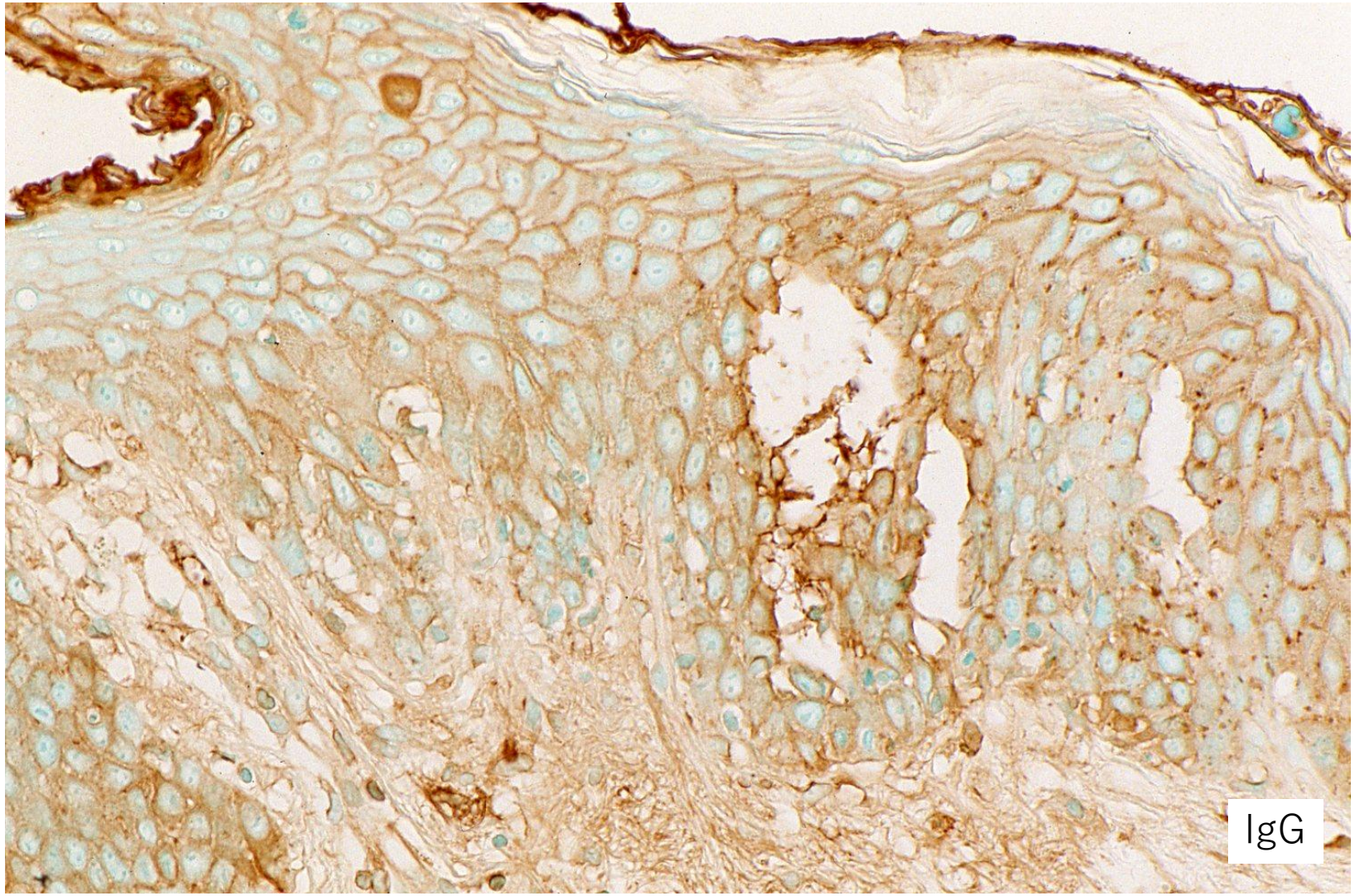
Pemphigus vulgaris seen in a 66 y-o male patient. Biopsy taken from the thigh skin reveals suprabasal blister formation. Small and large-sized bullae are noted (H&E-a).



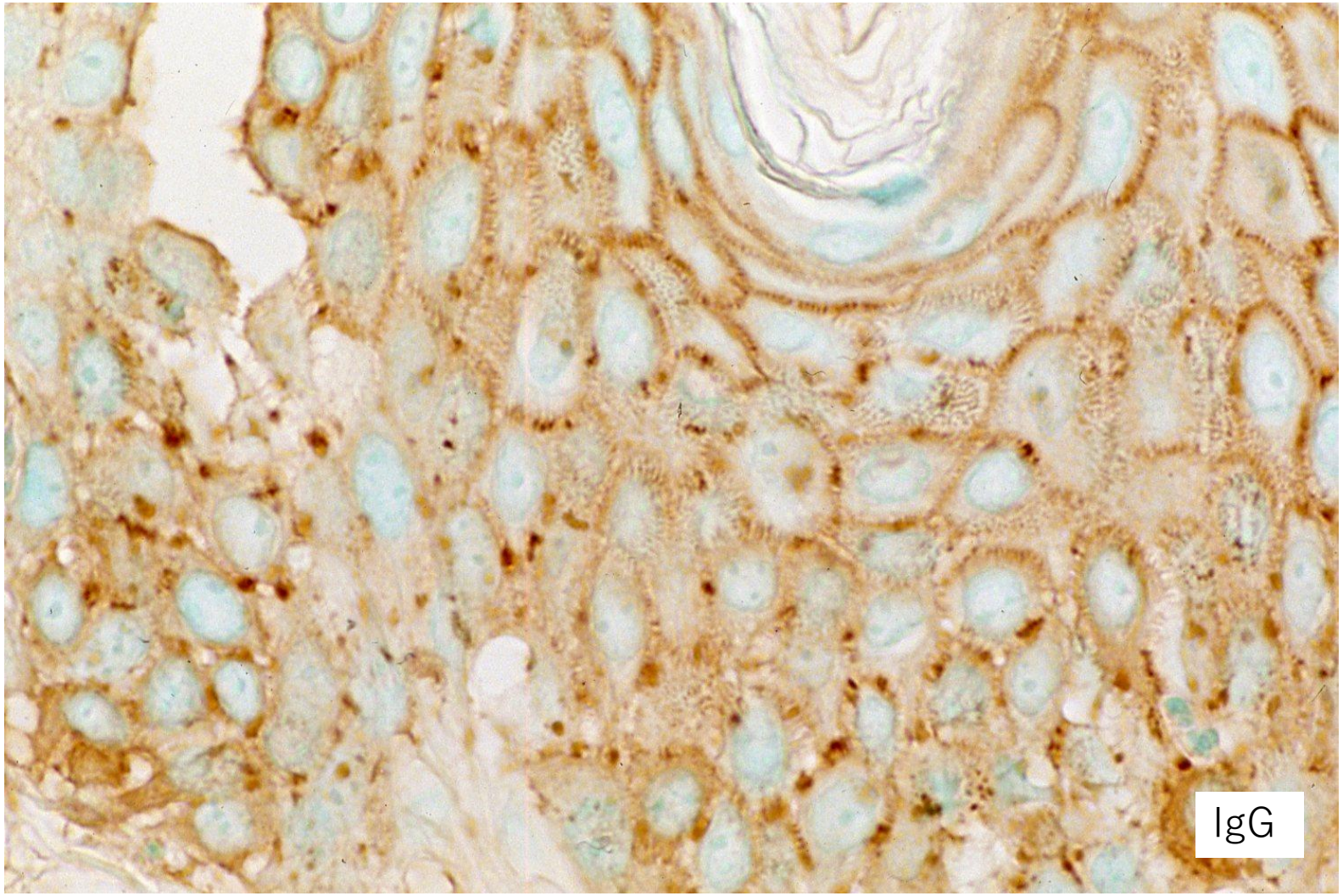
Pemphigus vulgaris seen in a 66 y-o male patient. Biopsy taken from the thigh skin reveals suprabasal blister formation. Small and large-sized bullae are noted (H&E-b).



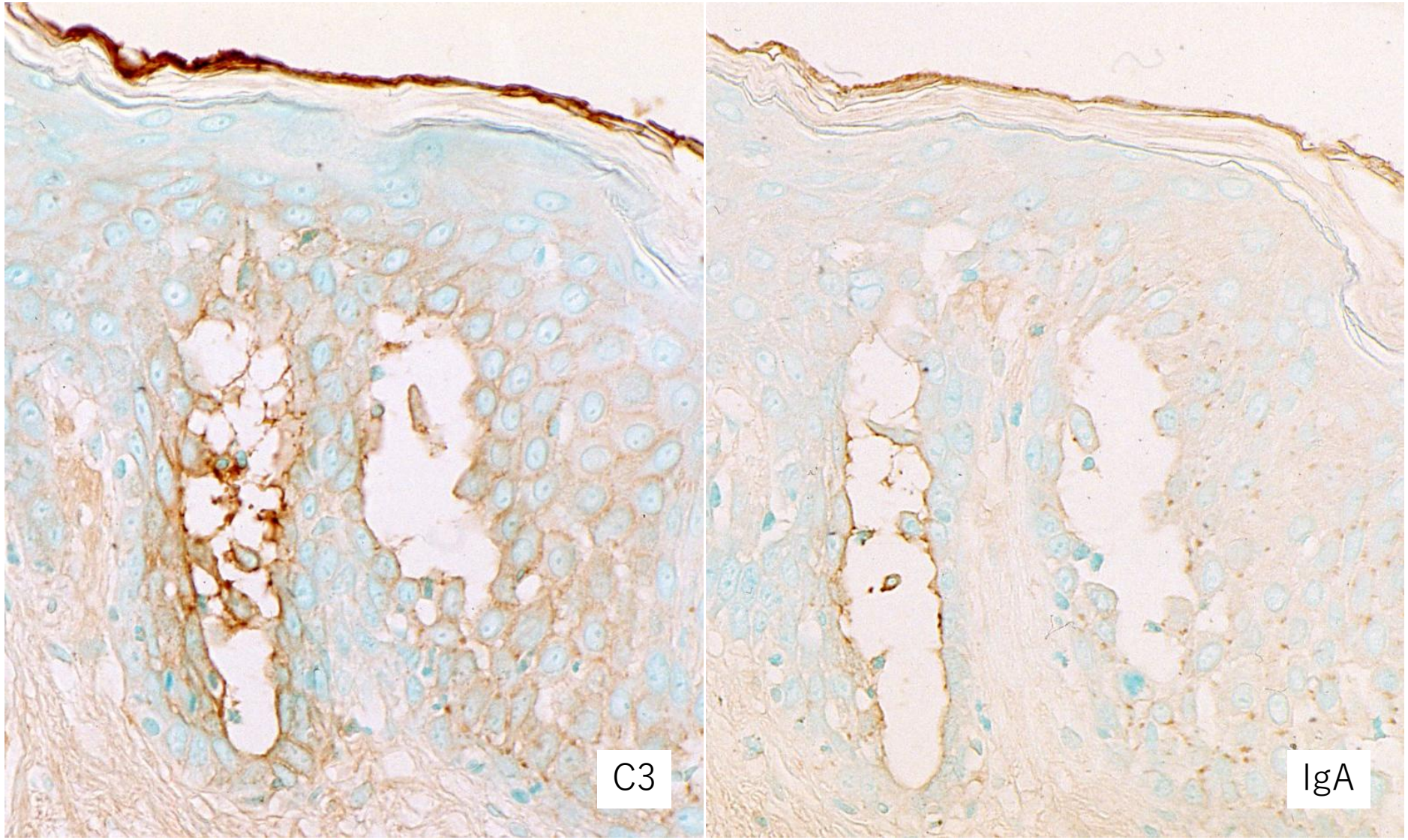
Pemphigus vulgaris seen in a 66 y-o male patient. Biopsy taken from the thigh skin reveals suprabasal blister formation. Acantholytic cells are seen in the bulla. Eosinophilic infiltration is mildly associated (H&E-c).



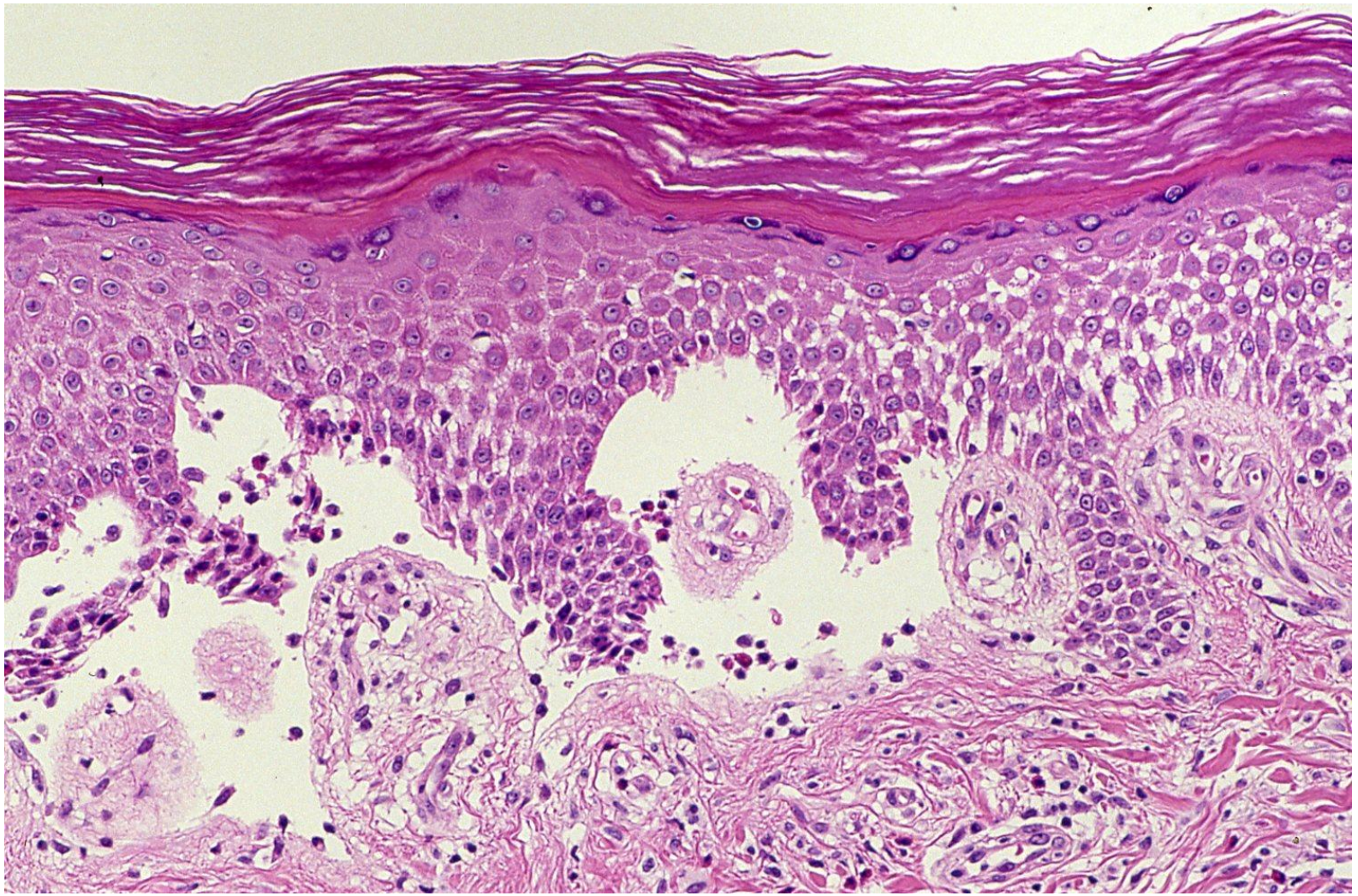
Pemphigus vulgaris seen in a 66 y-o male patient. Immunostaining for IgG using formalin-fixed, paraffin-embedded section (1). Proteinase pretreatment is effective in visualizing IgG deposition on the plasma membrane of the affected keratinocytes accompanying suprabasal blister formation.



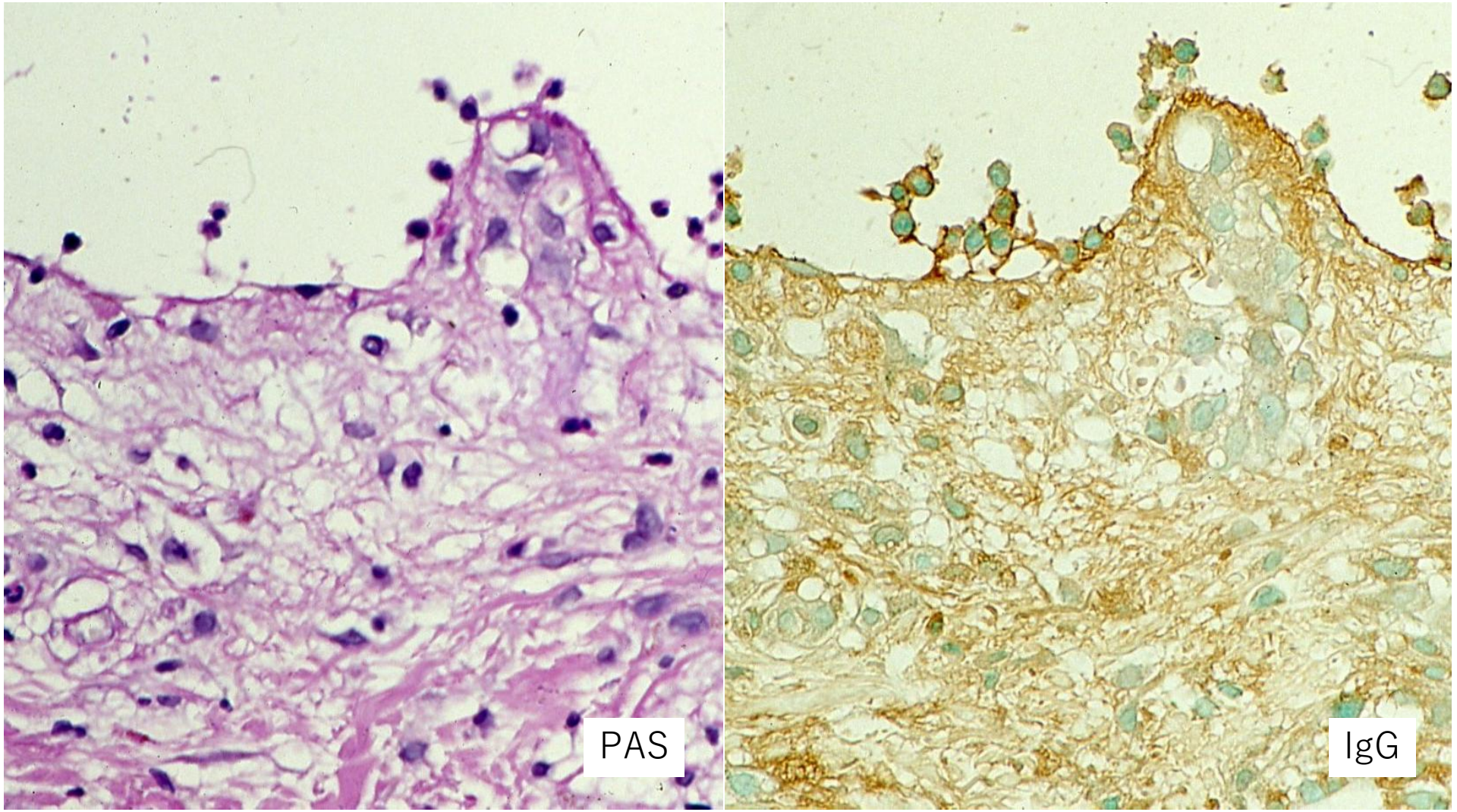
Pemphigus vulgaris seen in a 66 y-o male patient. Immunostaining for IgG using formalin-fixed, paraffin-embedded section (2). Proteinase pretreatment is effective in visualizing IgG deposition on the plasma membrane of the affected keratinocytes accompanying suprabasal blister formation.



Pemphigus vulgaris seen in a 66 y-o male patient. Immunostaining for C3 (left) and IgA (right) using formalin-fixed, paraffin-embedded section. Proteinase pretreatment is effective in visualizing C3 deposition on the plasma membrane of the affected keratinocytes accompanying suprabasal blister formation. IgA deposition is scarcely demonstrated.



Bullous pemphigoid biopsied from a 70 y-o male patient. Autoantibodies against BP180 and BP230, hemidesmosomal proteins, are positive. Microscopically subepidermal blister formation is characteristic.



Bullous pemphigoid biopsied from a 70 y-o male patient. Deposition of IgG on the PAS-reactive basement membrane is demonstrated. Pretreatment with proteinase is essential for reliable demonstration of immunoglobulins and complements in formalin-fixed paraffin-embedded sections.