


Case report

Inverted-U serration pattern: a novel clue for the diagnosis of anti-laminin- γ 1 pemphigoid**Stefano Senatore¹, MD,  Roberto Maglie¹, MD, Francesca Montefusco¹, MD, Lavina Quintarelli¹, MD, Adele Salemme², BS, Giovanni Di Zenzo², PhD and Emiliano Antiga¹, MD, PhD**

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Anti-p200 pemphigoid is a rare subset of the pemphigoid group, in which the target antigen corresponds to laminin- γ 1, a 200 kDa protein located within the lower lamina lucida of the basement membrane zone (BMZ).¹

An 89-year-old Caucasian man presented with a 2-month history of a widespread cutaneous eruption associated with a moderate itch. Physical examination showed blisters and erosions, some of them covered by scales and crusts, located at limbs and trunk (Fig. 1).

Histopathology revealed hyper orthokeratosis and a mild perivascular inflammatory infiltration composed of lymphocytes and eosinophils. Direct immunofluorescence (DIF) of perilesional skin showed linear deposition of immunoglobulin (Ig) G and C3 along the BMZ. Serration pattern analysis was consistent with a pattern that resembled more an inverted “u,” rather than an “n.” DIF on salt split skin (SSS) revealed dermal deposition of IgG and C3. Indirect immunofluorescence (IIF) on SSS showed linear IgG deposition at the dermal side of BMZ. BIOCHIP™ for laminin-332 gave negative results. An enzyme-linked immunosorbent assay (ELISA) for antibodies against BP180, BP230 (MBL, Woburn, MA, USA), and type VII collagen (Euroimmun, Lübeck, Germany) was negative. Immunoblotting (IB) using recombinant laminin-421 revealed a weak IgG positivity and confirmed the absence of antibodies against BP180,

BP230, and LAD antigens. A diagnosis of anti-p200 pemphigoid was eventually made.

The patient was treated with oral (deflazacort 0.5 mg/kg/die) and topical corticosteroids. Remission was achieved by 5 months of treatment, and no recurrences were observed after 2-year follow-up.

Diagnosis of anti-p200 pemphigoid is challenging. Clinical presentation resembles that of other pemphigoids, while standardized methods to detect circulating IgG targeting laminin- γ 1, for example ELISA, are not available.² Suspicion arises when linear antibody deposition along the dermal side of the BMZ is observed, and there is no evidence of anti-COL7 and anti-laminin-332 antibodies at serum tests. Recently, an IB method for diagnosing anti-p200 pemphigoid has been proposed by Solimani and was used in this case to confirm the diagnosis. The method consists of a two-step IB analysis, evaluating laminin-111 and laminin-421 reactivity first, followed by laminin- γ 1 monomer in case of no previous reactivity.³

Serration pattern analysis provides a useful tool for the differential diagnosis of pemphigoids. The u-serrated pattern is highly specific for the diagnosis of epidermolysis bullosa acquisita, while the n-serrated pattern is typically observed in bullous pemphigoid.⁴ In literature, 13 cases of p200-pemphigoids were analyzed by serration pattern analysis: 11



Figure 1 (a) Blisters and erosions associated with scales and crusts of the medial and back surface of the lower limbs; (b) Blisters and erosions of the left hand

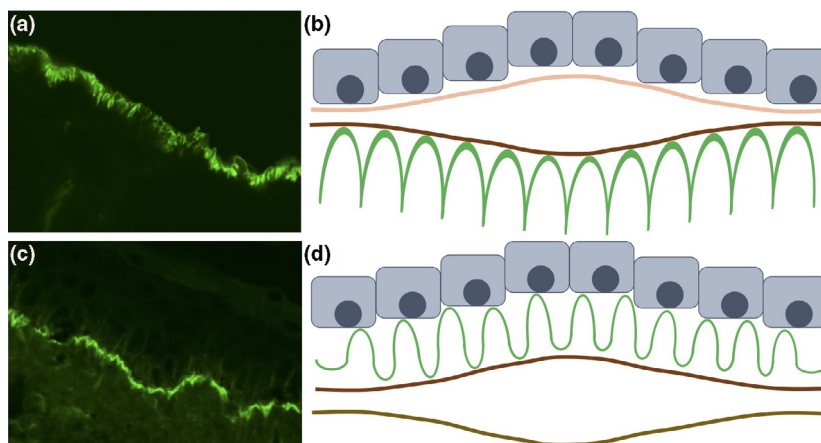


Figure 2 (a) Direct immunofluorescence on patient perilesional skin with a linear deposition of IgG at basement membrane zone showing an “inverted-U-serrated” pattern ($\times 400$); (b) Schematic representation of “inverted-U-serrated” pattern; (c) Direct immunofluorescence of a patient with bullous pemphigoid with a linear deposition of IgG at basement membrane zone showing an “n-serrated” pattern ($\times 400$); (d) Schematic representation of “n-serrated” pattern

patients (84.6%) were interpreted as n-serrated, while two (15.4%) showed an undetermined pattern.¹ Our case was consistent neither with an n- nor with a u-serrated pattern but rather with a ‘u-inverted’ pattern, which has not been reported in the literature so far. Interestingly, immune electron microscopy in anti-p200 pemphigoid suggests that immune deposits are localized to the indentation of the non-hemidesmosomal portion of the lower lamina lucida which seems to be

consistent with the morphology of the IgG deposition at the serration analysis in this case (Fig. 2).⁵

Anti-p200 pemphigoid is characterized by a more benign course than other pemphigoids, and thereby its treatment should rely on less invasive strategies.² Although further cases are required to confirm our hypothesis, the inverted-U pattern might provide a clue for making the diagnosis of anti-p200 pemphigoid by DIF.

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