Hemidesmosome Deficiency of Gastro-intestinal Mucosa, Demonstrated in a Child with Herlitz Syndrome and Pyloric Atresia

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In an 11-day-old premature girl with Epidermolysis bullosa atrophicans generalisata gravis Herlitz and pyloric atresia, hypoplasia of hemidesmosomes in the skin, the gastrointestinal mucosa and the atretic pyloric segment was found by electron microscopy. Pyloric atresia is explained by hemidesmosomal defects causing junctional blistering of the mucosa, subsequent peptic digestion and inflammatory scarring reaction. *Key words: Genetic skin disorder; Dermatopathology; Epidermolysis bullosa; Mucosal blistering.* (Received December 9, 1986.)

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Epidermolysis bullosa atrophicans generalisata gravis Herlitz' (R-EBA-GH), also called Herlitz syndrome, represents a lethal, autosomal recessive type within the group of non-scarring epidermolyses (1–3). It is characterized by junctional blistering of the skin with separation between the basal lamina and plasma membrane of the epidermal basal cells (3–5). Scarring does not occur as long as the basal lamina remains intact. Pyloric atresia, so far reported in 22 cases with R-EBA-GH was thought to result from involvement of the gastrointestinal mucosa (6). While electron microscopic investigations of the skin have shown reduction and hypoplasia of hemidesmosomes to be responsible for an abnormal dermo-epidermal junctional connection, a similar defect of the affected gastro-intestinal mucosa has not yet been demonstrated.

PATIENT AND METHODS

An 11-day-old premature girl, the third but first affected propositus of non-consanguineous healthy parents, was suffering from severe mechano-bullous skin disease suggestive of Herlitz syndrome. Biopsies of the skin and gastrointestinal mucosa and an atretic pyloric segment were examined by light and electron-microscopy.

RESULTS

In paraffin histology junctional blistering with dehiscence between the basal lamina and the plasma membrane of the epidermal basal cells or of the mucosal epithelium was evident and in the atretic pyloric segment obliteration by granulation and scarring tissue could be shown.

Electron microscopic investigation clearly demonstrated hypoplasia and numerical reduction of hemidesmosomes to be present not only in the skin but also in the gastric and duodenal mucosa and in the residual glands of the atretic pyloric segment. The hemidesmosomes in all examined tissues showed a defect of the subbasal dense plates, i.e. the anchoring structure between the plasma membrane of the basal cell and the basal lamina. Junctional blistering was found in the lamina lucida between basal lamina and cell membrane of the epidermal basal cells or the mucosal epithelial cells respectively (Figs. 1 and 2).

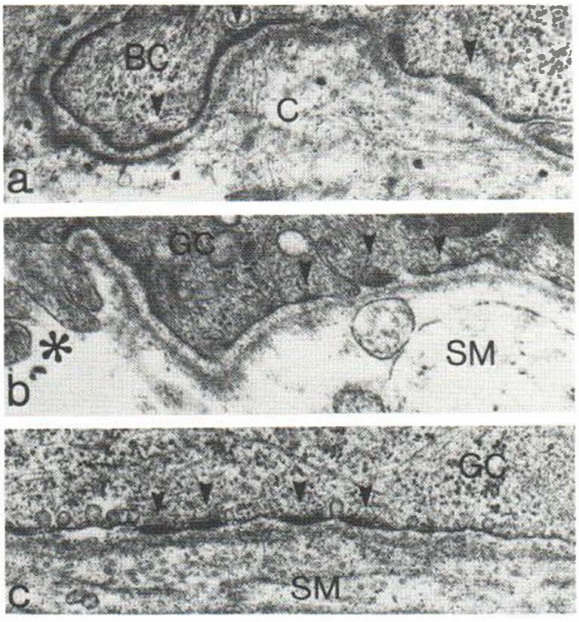

Fig. 1. Hypoplasia of the hemidesmosomes with defective basal dense plates in R-EBA-GH: (*a*) cutis, (*b*) gastric mucosa, (*c*) duodenal mucosa. Arrows = hypoplasia of the hemidesmosomes, asterisk = blistering of the basal lamina with non affected plasma membrane, C = corium, BC = basal cell, SM = submucosa, GC = glandula cell. ×24 700.

DISCUSSION

Based on these observations the pathogenesis of the pyloric atresia in Herlitz syndrome can be explained in the following manner: (*a*) The defect of the hemidesmosomes of the gastric mucosa causes dehiscence between the epithelial layer and the basal lamina, identical to alterations in the epidermis. (*b*) Since the pylorus is exposed to mechanical, acidic and enzymatic stress the previously intact basal lamina may easily be injured. (*c*) Peptic digestion of the

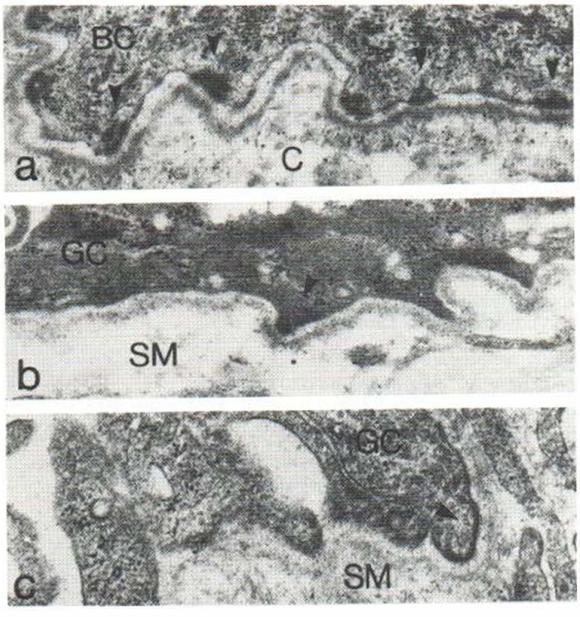

Fig. 2. Normal structure of the hemidesmosomes with intact basal dense plates in control tissues: (*a*) cutis, (*b*) gastric mucosa, (*c*) duodenal mucosa. Arrows = normal hemidesmosomes, C = corium, BC = basal cell, SM = submucosa, GC = glandula cell. ×24 700.

pyloric basal lamina and submucosa causes inflammatory reaction and consecutive obliteration by granulation- and scarring tissue.

Thus, pyloric atresia can be considered a sequal to epitheliolysis of the mucosa within the Herlitz syndrome and not—as previously discussed—a random association of two different disorders or a pleiotropic effect of a single mutant gene (7, 8).

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Granulomatous Vasculitis as a Complication of Potassium Iodide Treatment for Sweet's Syndrome

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A case of Sweet's syndrome treated with potassium iodide is hereby described. The patient responded well a few days after the initiation of therapy, but the evolution was complicated with a severe clinical deterioration two weeks later. Systemic vasculitis was diagnosed on the basis of significant impairment of renal function, involvement of the eyes (papillitis) and the skin biopsy which showed a leukocytoclastic vasculitis. This systemic vasculitis was attributed to the potassium iodide therapy. *Key words: Drug therapy; Angiitis; Erythema.* (Received October 23, 1986.)

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