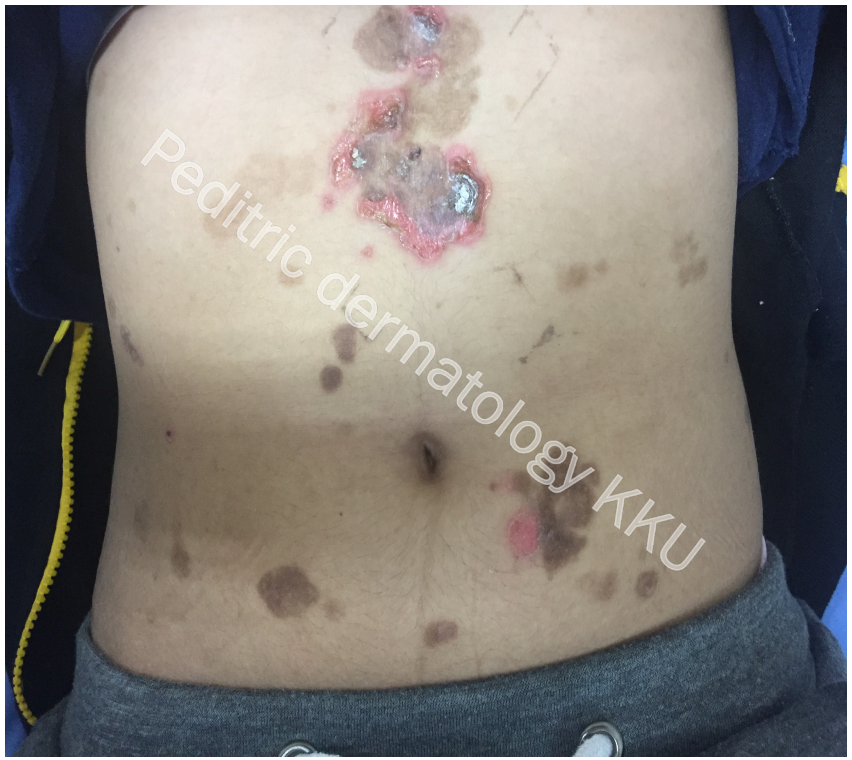

Pemphigus Vulgaris

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Pemphigus vulgaris

- **Autoimmune disorders**
- The blisters in pemphigus vulgaris are associated with the **binding of antibodies** to the skin cells
- Incidence varies from 0.5-3.2 cases per 100,000 population
- Less common in children
- Better prognosis in children
- Boys and girls are equally affected

Autoimmune bullous diseases

Table 74.1 Autoimmune bullous diseases and their target antigen(s)

Disease[a]	Target antigen(s)[b]
Pemphigus diseases	
Pemphigus vulgaris	**Desmoglein 3**, desmoglein 1
Pemphigus foliaceus	**Desmoglein 1**
Paraneoplastic pemphigus	**Desmoglein 3,** desmoglein 1 **Envoplakin, periplakin** Desmoplakin I/II, α2 macroglobulin-like-1 Plectin, epiplakin
Neonatal pemphigus	**Desmoglein 3,** desmoglein 1
Pemphigoid diseases	
Bullous pemphigoid	**BP180 NC16A** BP230
Linear IgA dermatosis	**Soluble ectodomain of BP180 (LAD-1)** BP230
Mucous membrane pemphigoid	**Soluble ectodomain of BP180 (LAD-1)** **Laminin 332** BP230, α6β4 Integrin, type VII collagen
Anti-p200/laminin γ1 pemphigoid	p200 protein, laminin γ1
Epidermolysis bullosa acquisita	**Type VII collagen**
Dermatitis herpetiformis	**Transglutaminase 3** Transglutaminase 2

[a] Diseases that are very rare in infants/children/adolescents not in bold.
[b] Main target antigen(s) in bold.

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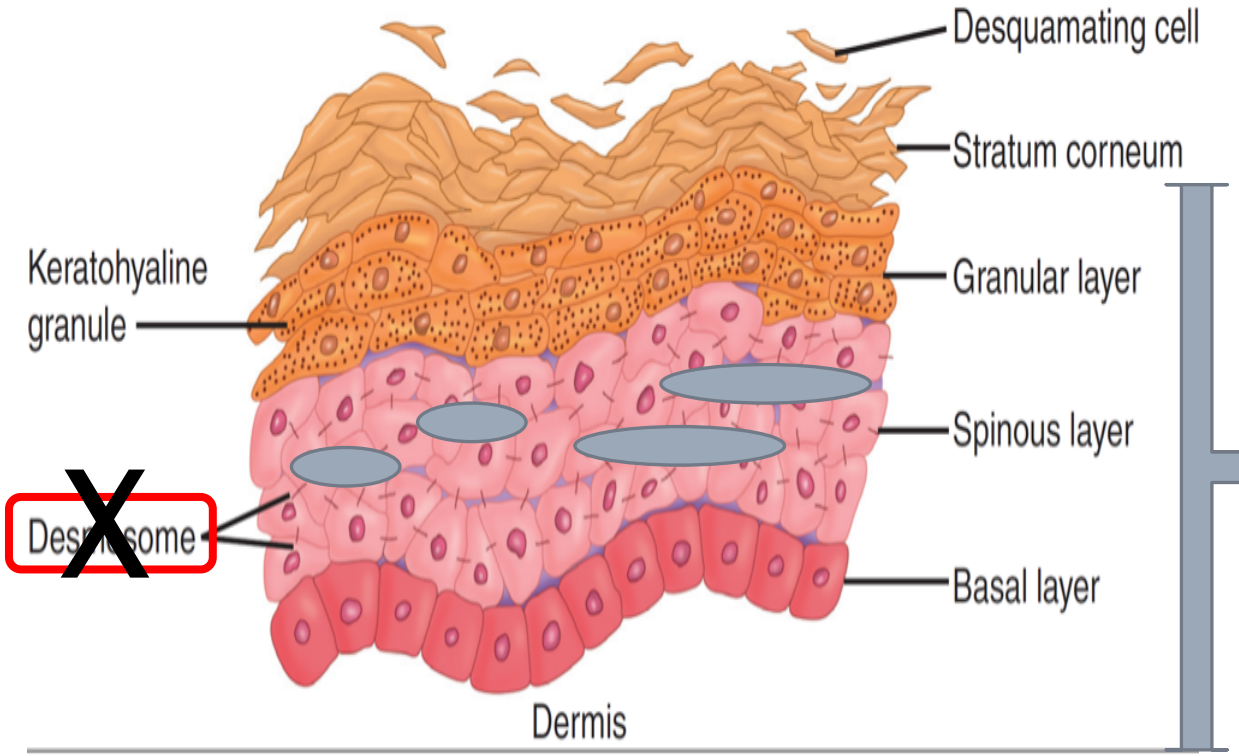
Pemphigus diseases

Pathophysiology



Target antigens: desmosomes (desmogleins and desmocollins)

Acantholysis and fragile blisters

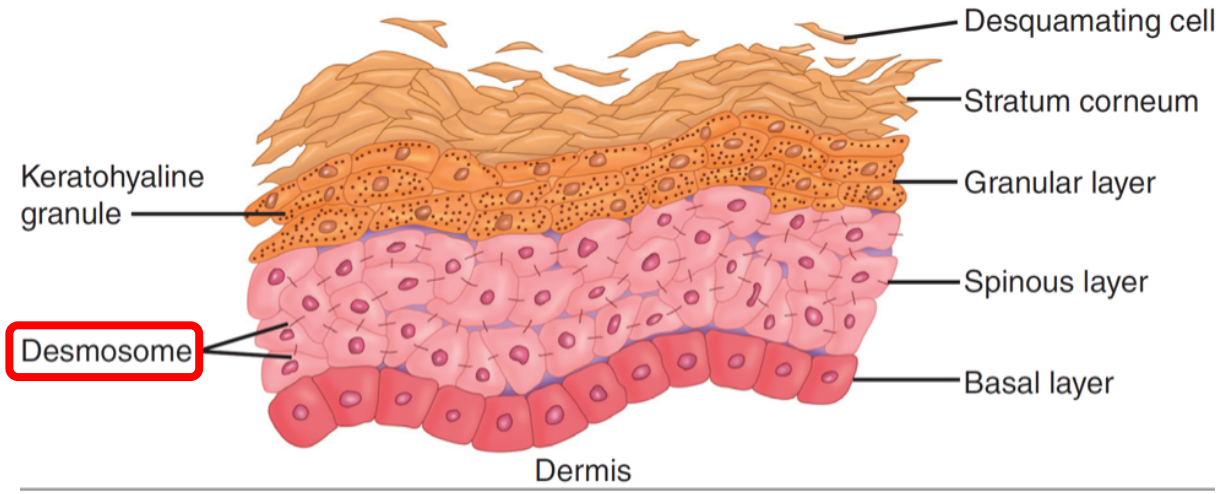
Mechanical stress

Blistering lesions
Erosions

Intercellular deposition of autoantibodies in the epidermis and surface-close epithelia

Harper's textbook of pediatric dermatology, E4, 2020

Harper's textbook of pediatric dermatology, E4, 2020



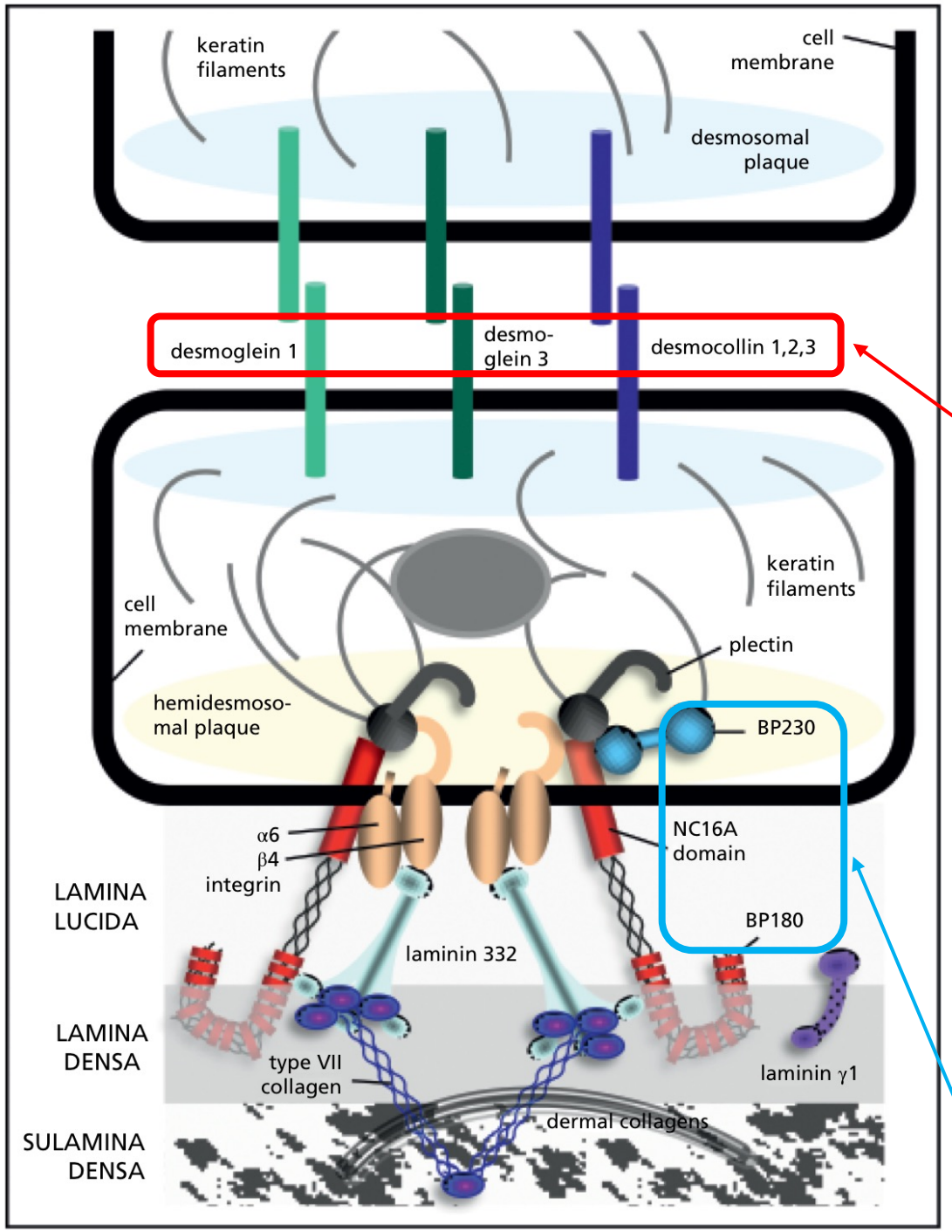
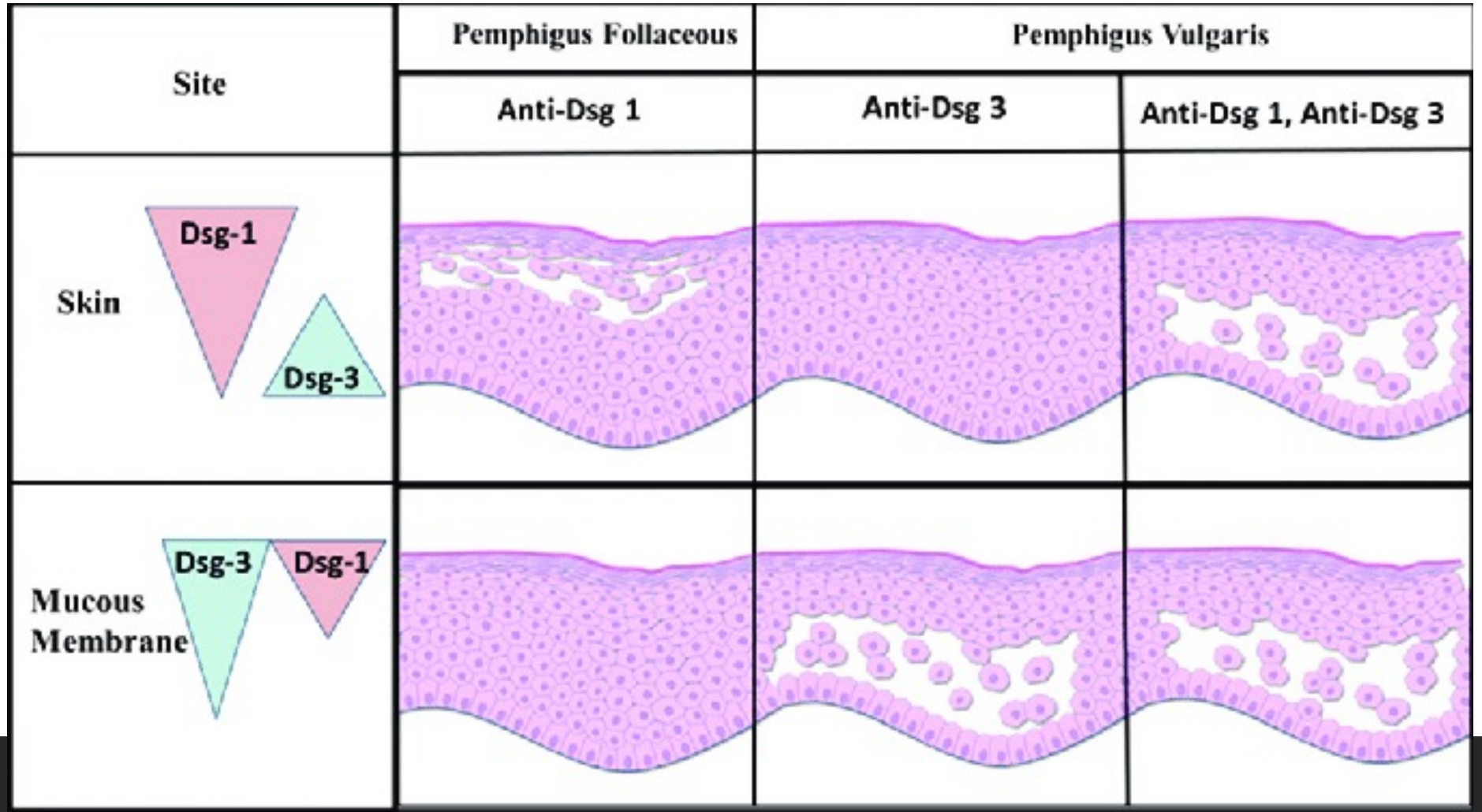


Fig. 74.1 Schematic diagram of the epidermal desmosome and the dermal–epidermal junction. Two neighbouring keratinocytes are shown that are linked by a desmosome. The desmosome consists of proteins of the desmosomal plaque (*bright blue*; no details shown) and the transmembraneous cadherins desmoglein 1 and 3 as well as desmocollins 1, 2 and 3. Desmosomal proteins are targeted in *pemphigus diseases*. The lower keratinocyte is situated in the basal layer of the epidermis. Its keratin filaments are linked via various structural proteins with dermal collagens. Proteins of the dermal–epidermal junction are targeted in *pemphigoid diseases*. Only proteins that are recognized in autoimmune blistering diseases are shown.

Pemphigus Vulgaris
Flaccid Bullae

Bullous pemphigoid
Tense Bullae

Pemphigus diseases



Skin

Desmoglein 3 is predominantly expressed in the basal and middle layers

Desmoglein 1 is expressed in all layers

Mucosa

Desmoglein 3 is expressed in all layers

Desmoglein 1 is predominantly expressed in the upper layers

Pemphigus vulgaris (PV)

- Characterized by autoantibodies against desmogleins 3 and desmoglein 1
- PV always involves the mucosa, skin lesions are present in 50% of PV patients at the time of diagnosis

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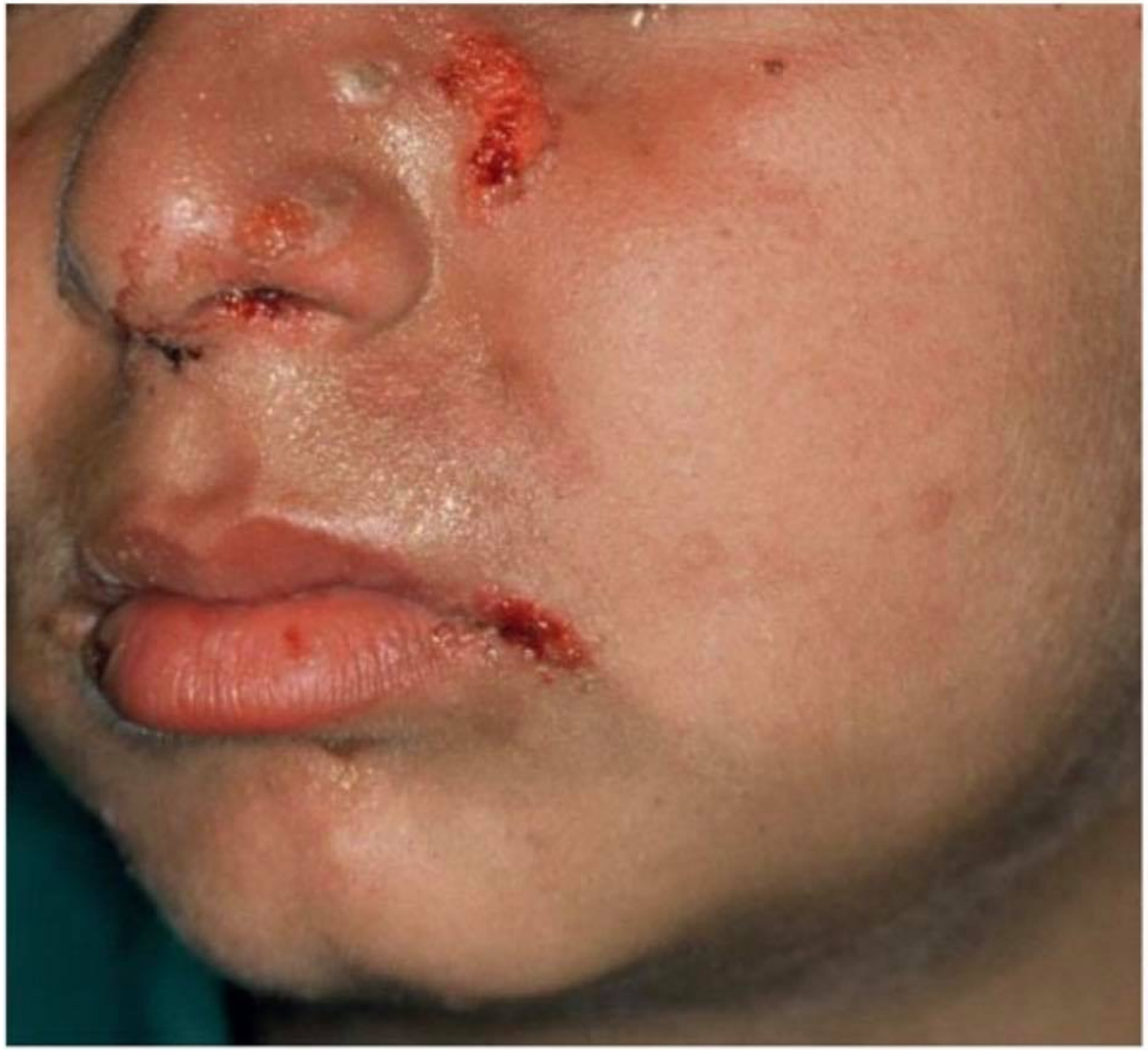
Pemphigus vulgaris (PV)

HN: KI1054

Clinical features

- Lesions initially often occur in the oral mucosa before other sites are affected
  - Flaccid blisters, but often present as erosions or ulcers
  - Location: oropharynx, nasopharynx, larynx, esophagus, and genital mucosa
  - Oral lesions maybe painful -> diminished food intake and weight loss
- Skin lesions
  - Flaccid blisters and vesicles, erosions and crusts on nonerythematous skin
  - Location: scalp, face, upper trunk, pressure points
  - Can be provoked by mechanical stress (Nikolsky sign)
- When healing occurs, it is without scarring but hyperpigmentation is common
- The course of the disease is relapsing

Nelson, textbook of pediatrics, E21, 2020
Harper's textbook of pediatric dermatology, E4, 2020



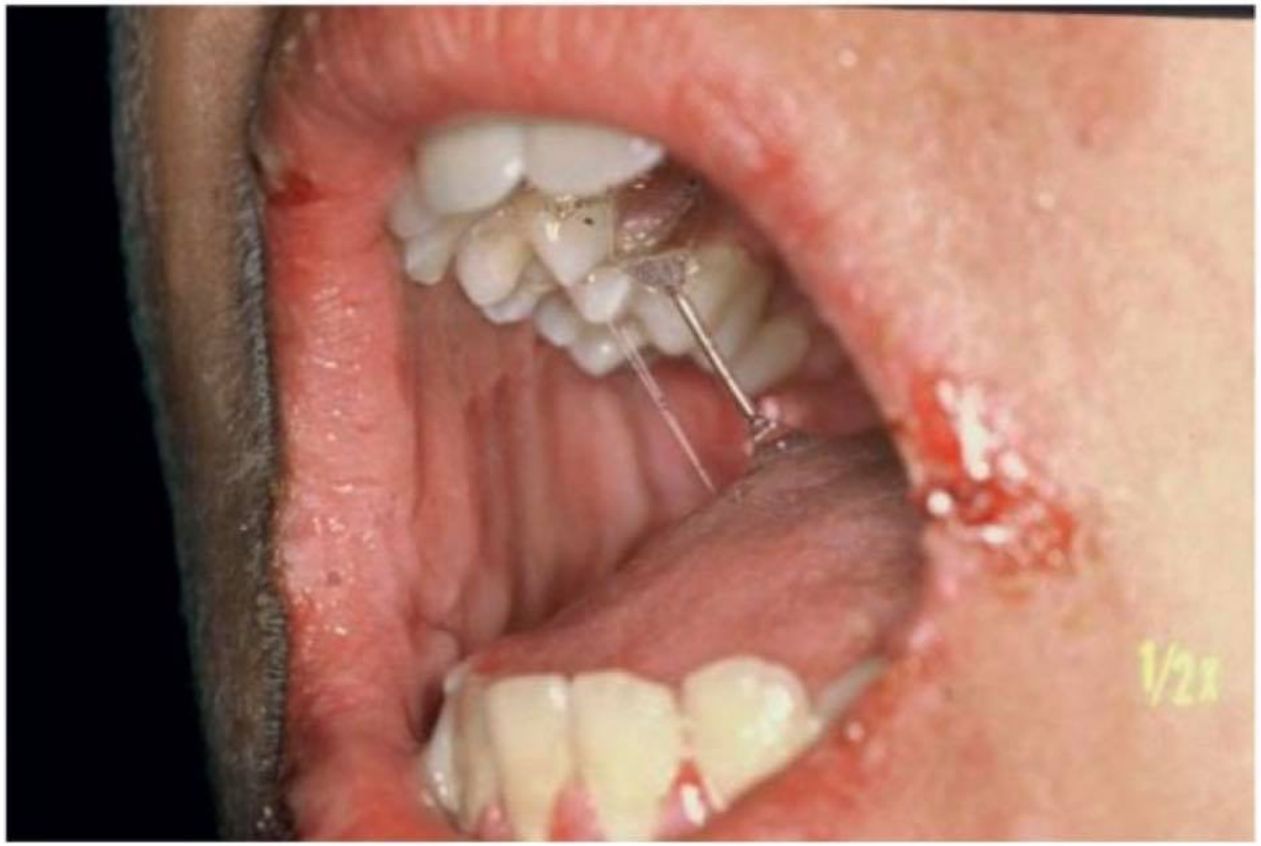
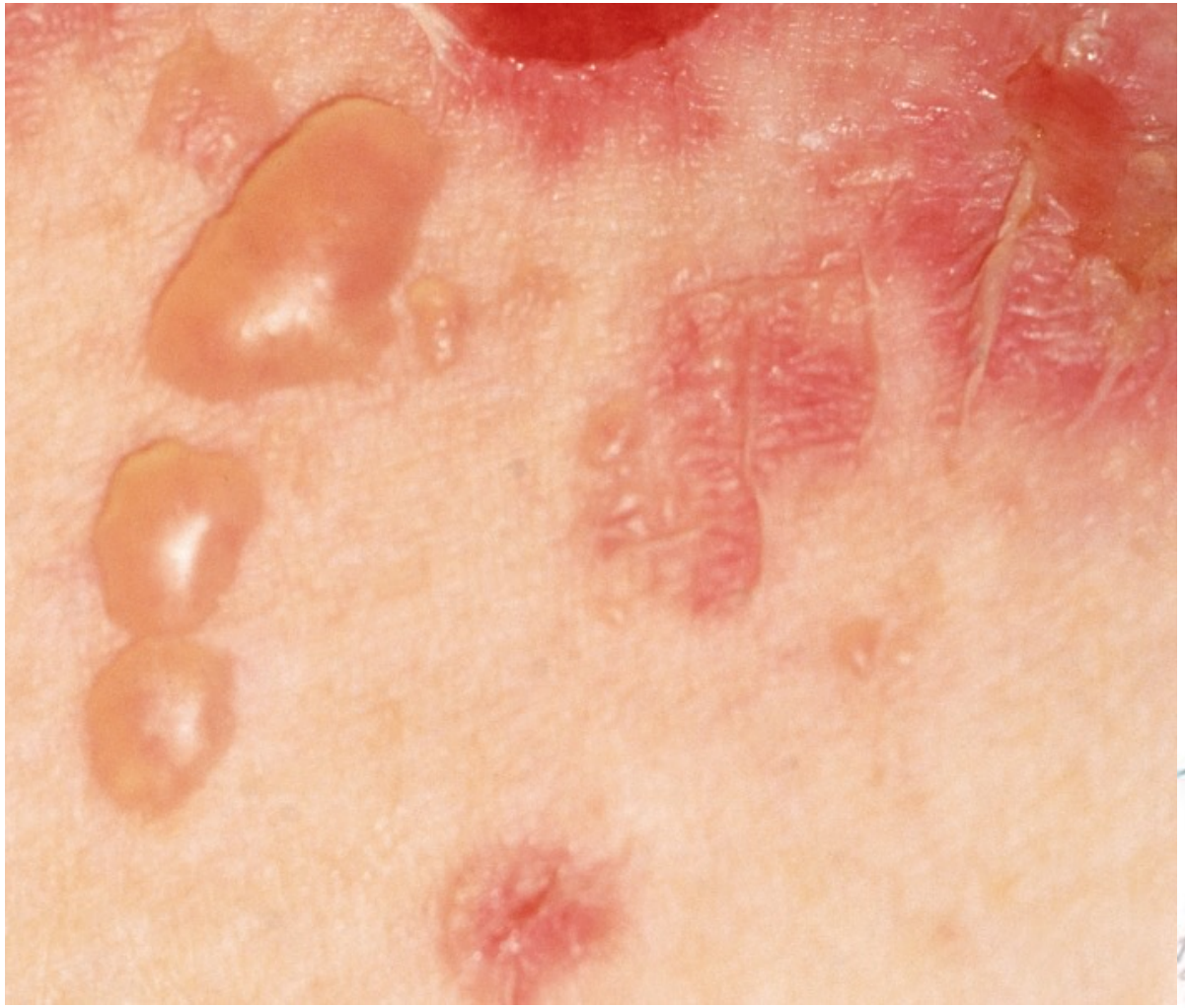
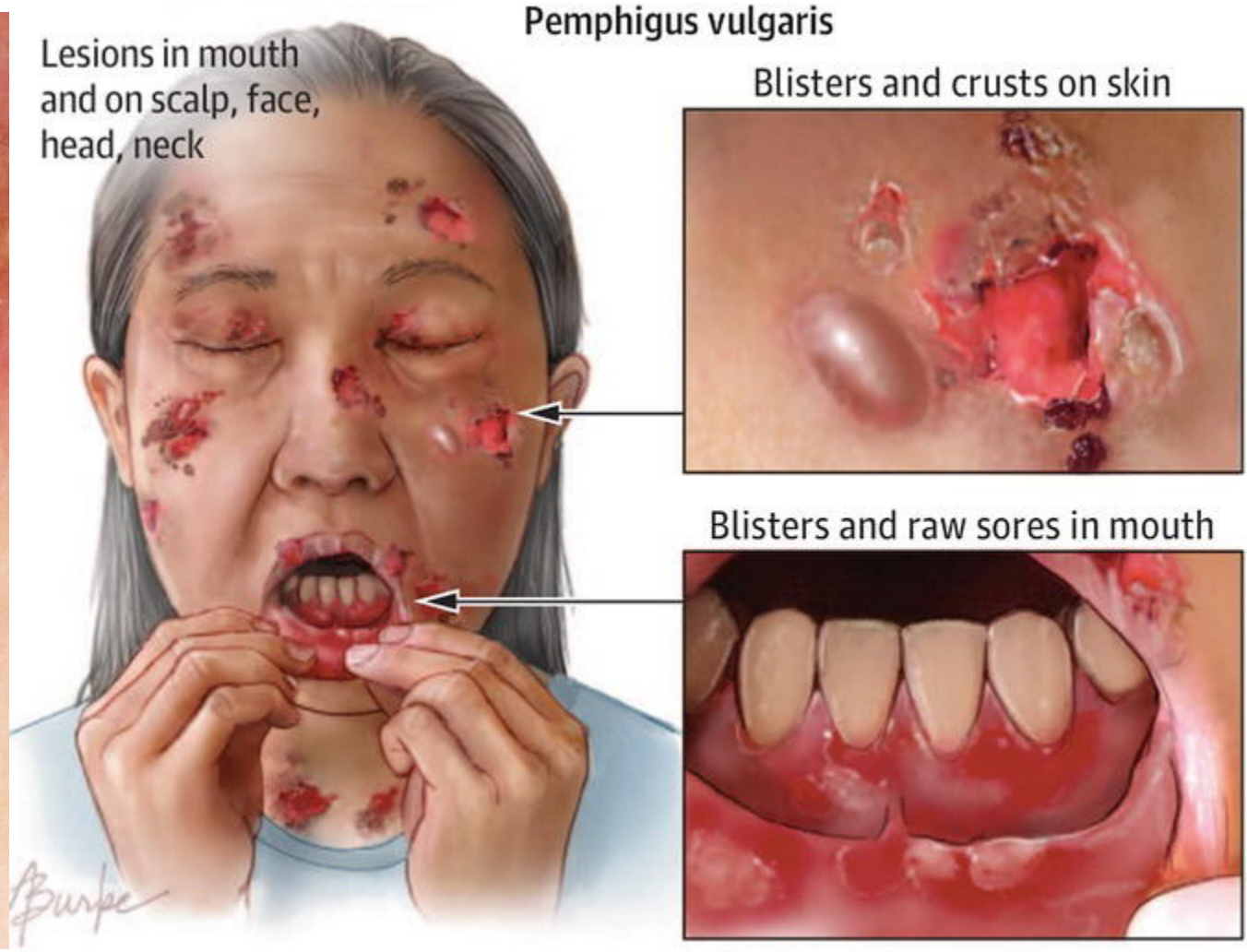
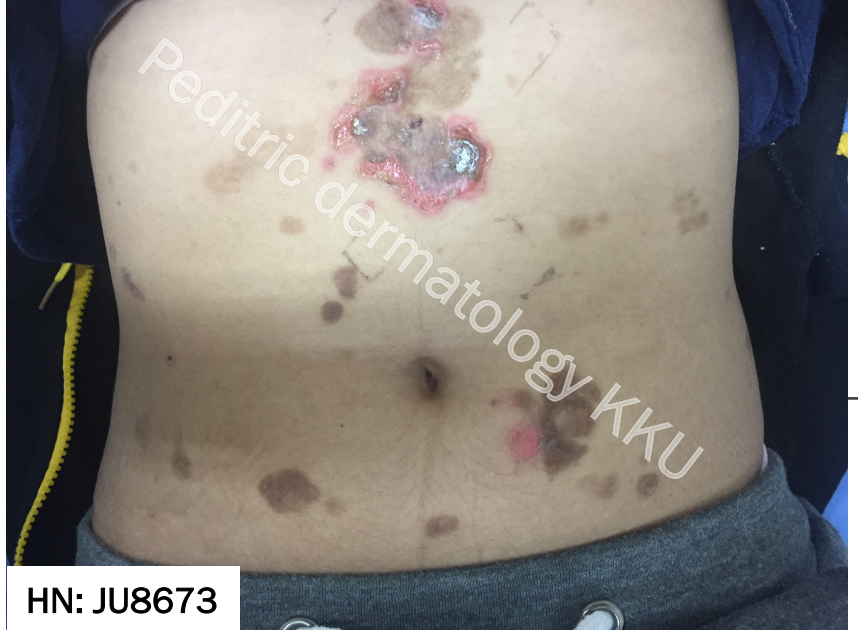


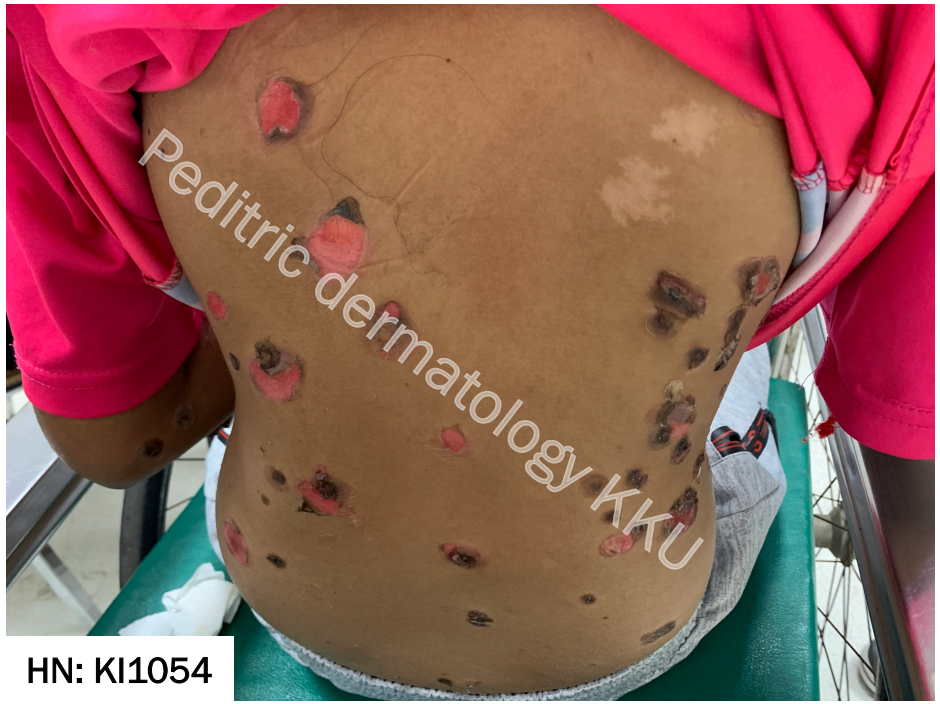
Fig. 74.2 Pemphigus vulgaris. Blisters and erosions on the face of a 14-year-old boy. Erosions are also seen on the lips and the buccal mucosa.



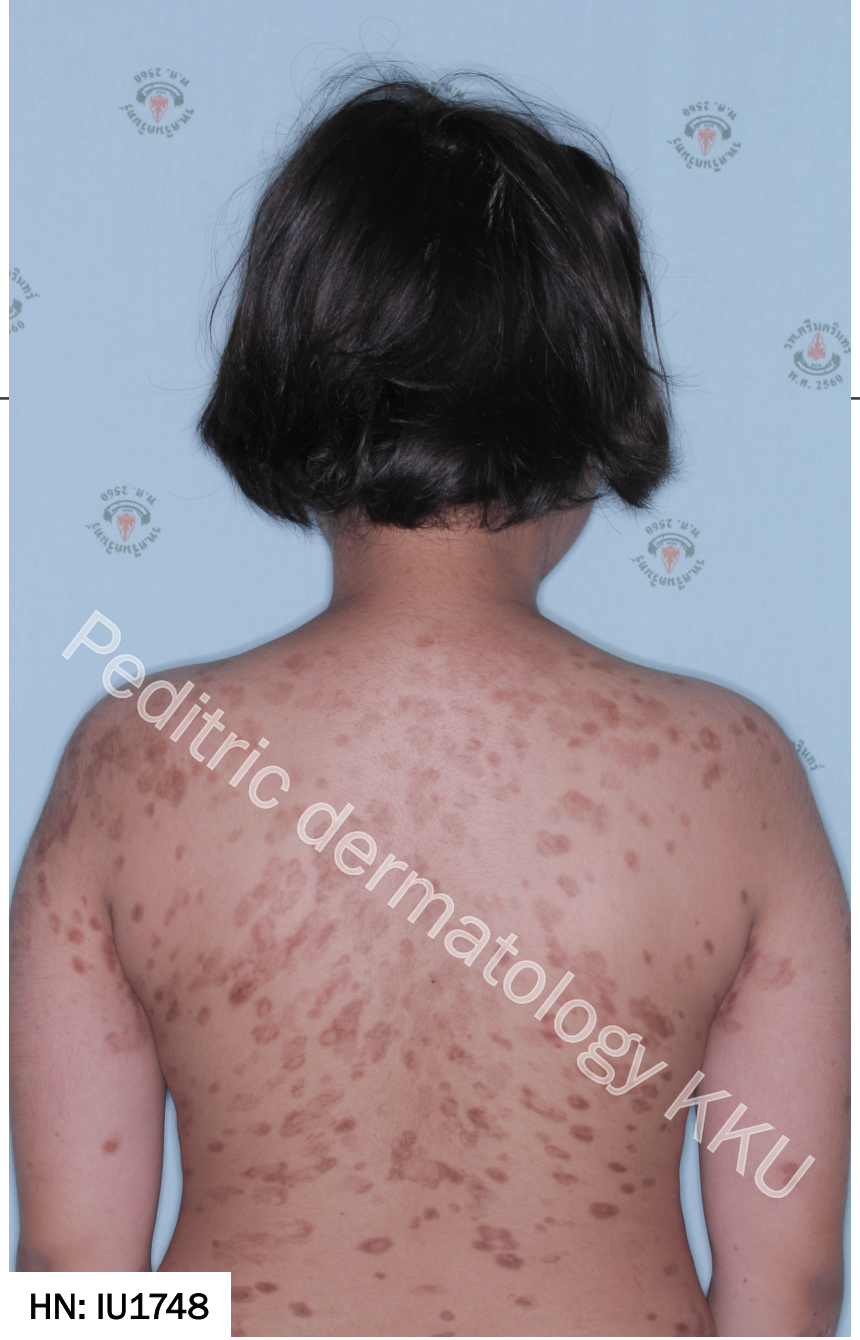

Pemphigus vulgaris
Lesions in mouth and on scalp, face, head, neck
Blisters and crusts on skin
Blisters and raw sores in mouth



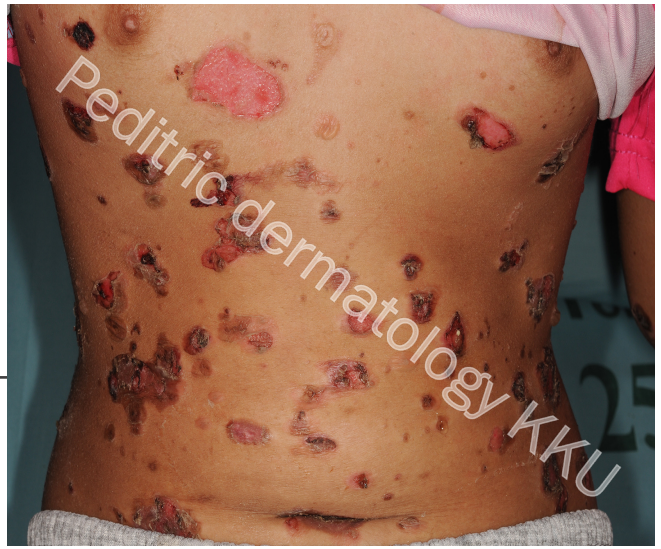
HN: JU8673

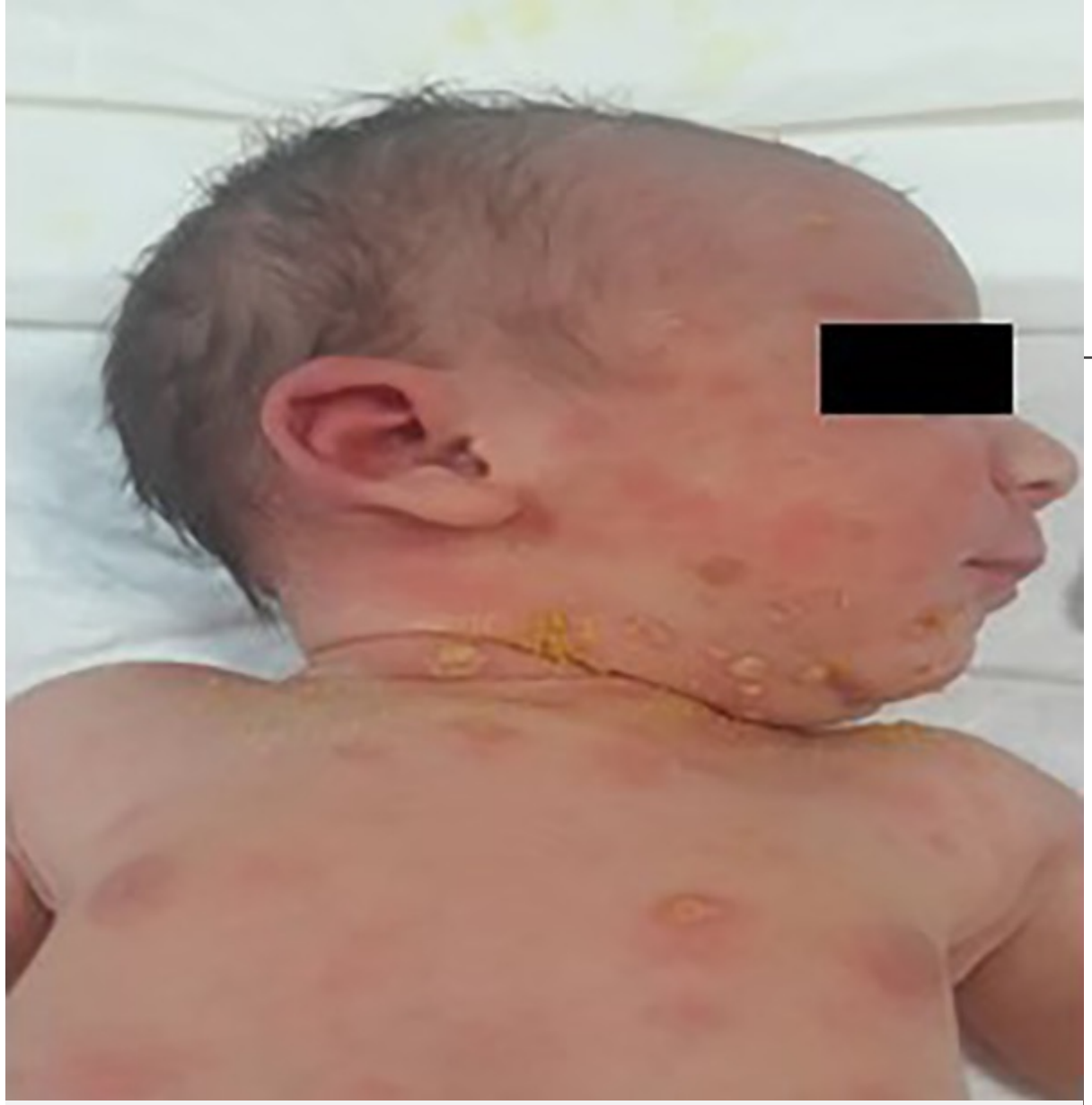


HN: KI1054

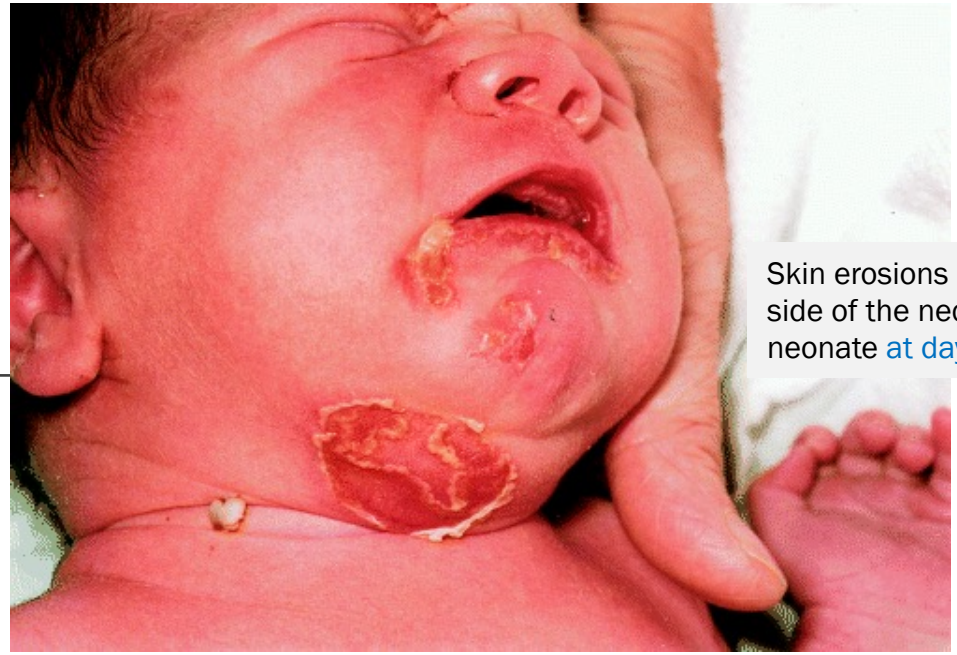


HN: IU1748

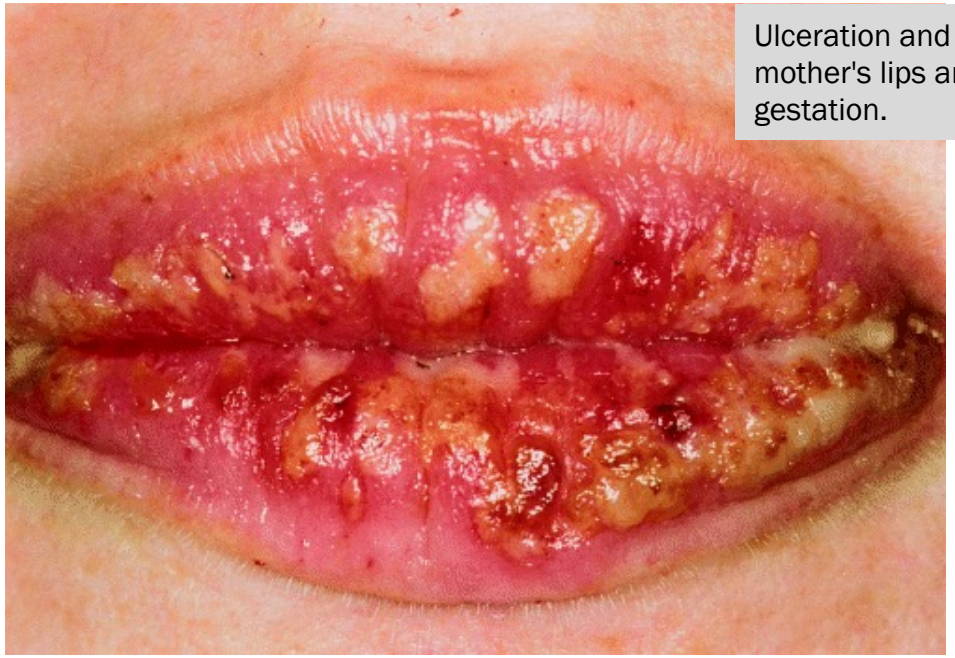




Multiple erosive, pastular and bullous skin lesions on the head and neck and upper chest of the patient



Skin erosions on the chin and right side of the neck are evident on the neonate at day 1



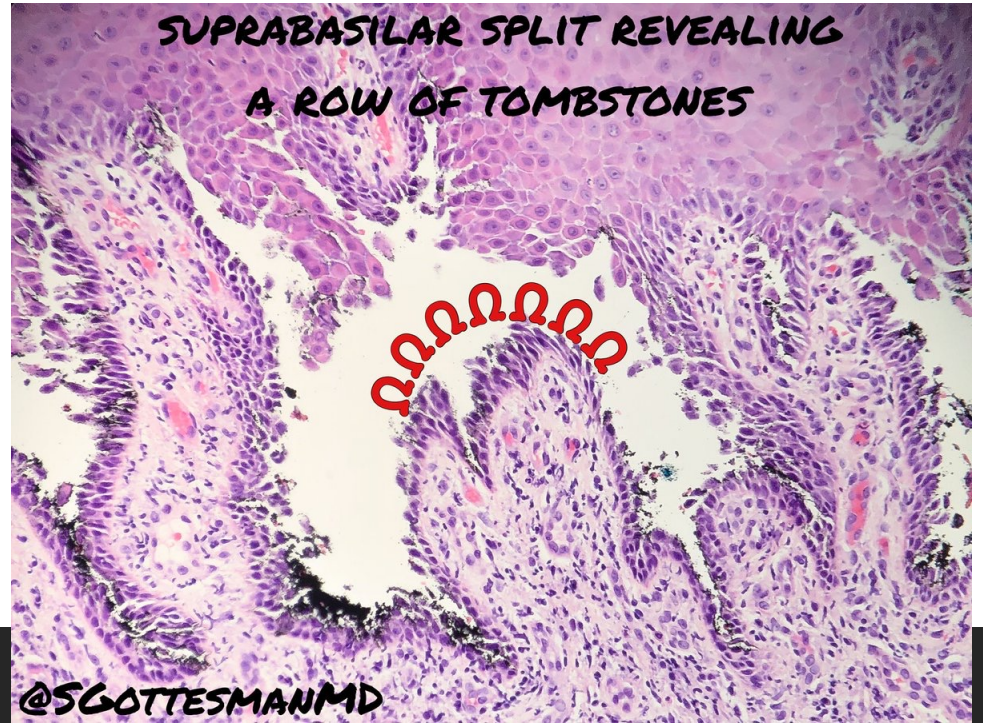
Ulceration and crusting of the mother's lips are seen at 18 weeks gestation.

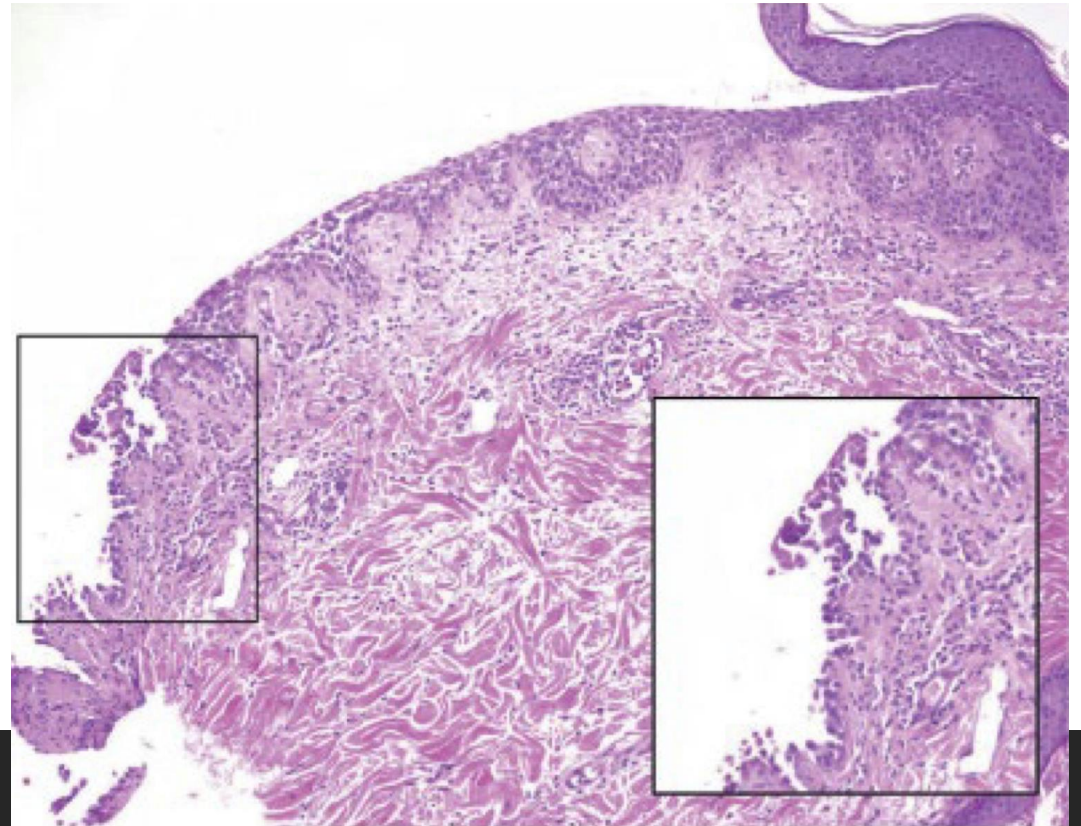
Neonatal pemphigus is a rare disease, which presents soon after birth as cutaneous or mucocutaneous erosions

British Journal of Dermatology, vol 139, 2008
Neonatal Pemphigus Vulgaris: A Case Report, 2020

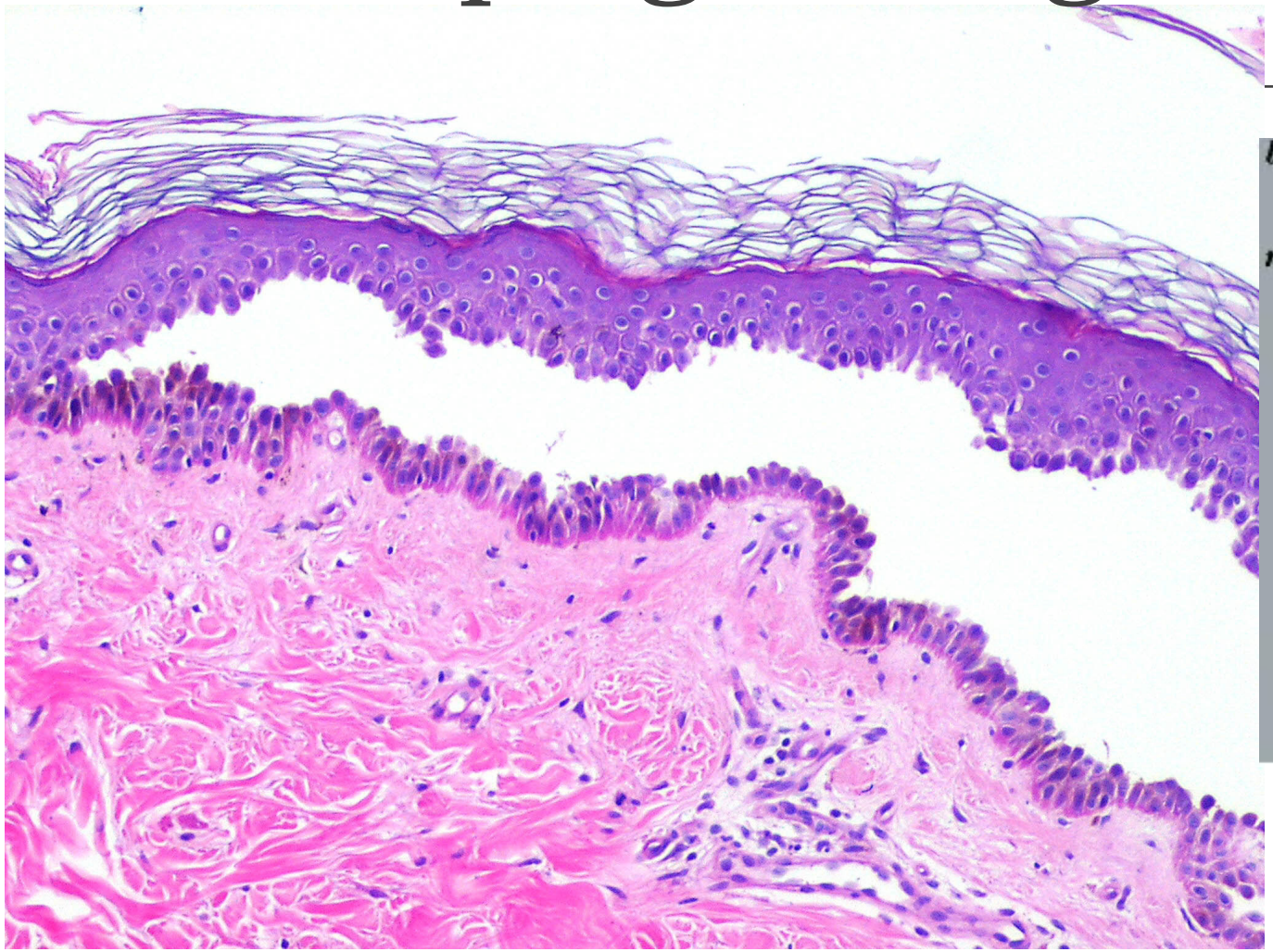
Pemphigus vulgaris (PV)
Diagnosis

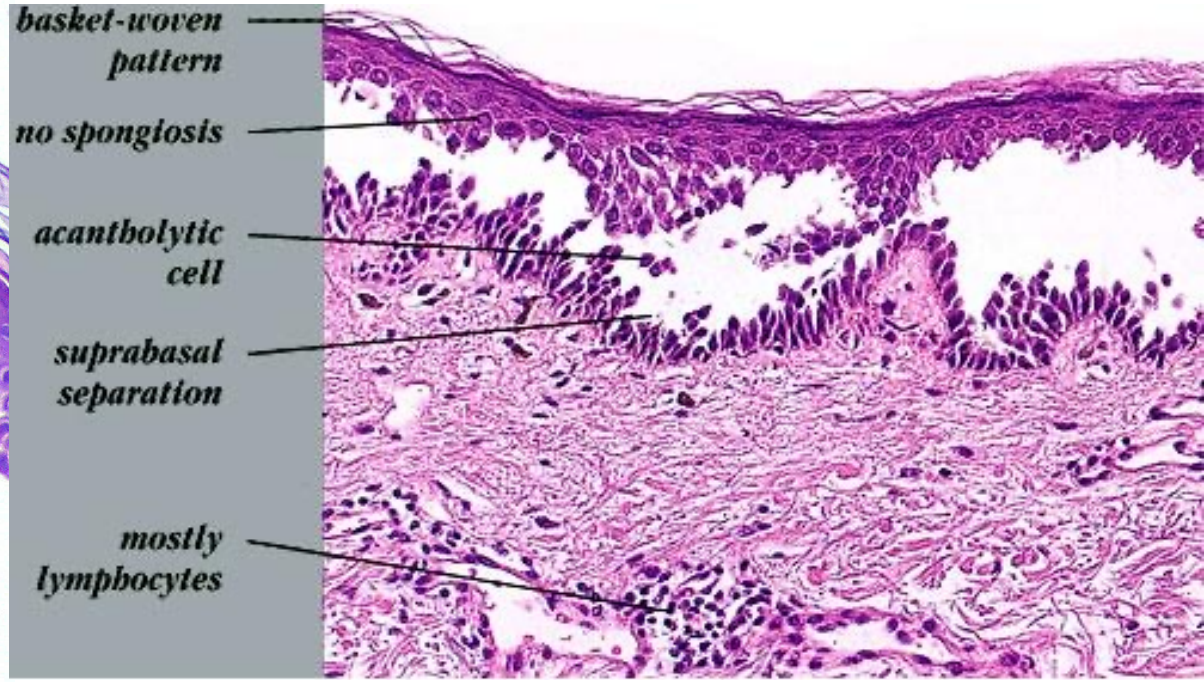
- <u>Clinical + Histopathology</u>
- Skin biopsy: histopathology reveals acantholysis and suprabasal split formation (tombstone pattern of basal keratinocytes)





Pemphigus vulgaris (PV)





Pemphigus vulgaris (PV)

- **Diagnosis**
  - **Direct immunofluorescence (IF)** microscopy reveals intercellular staining of IgG (chicken wire) in the epidermis/epithelium (**Gold standard**)

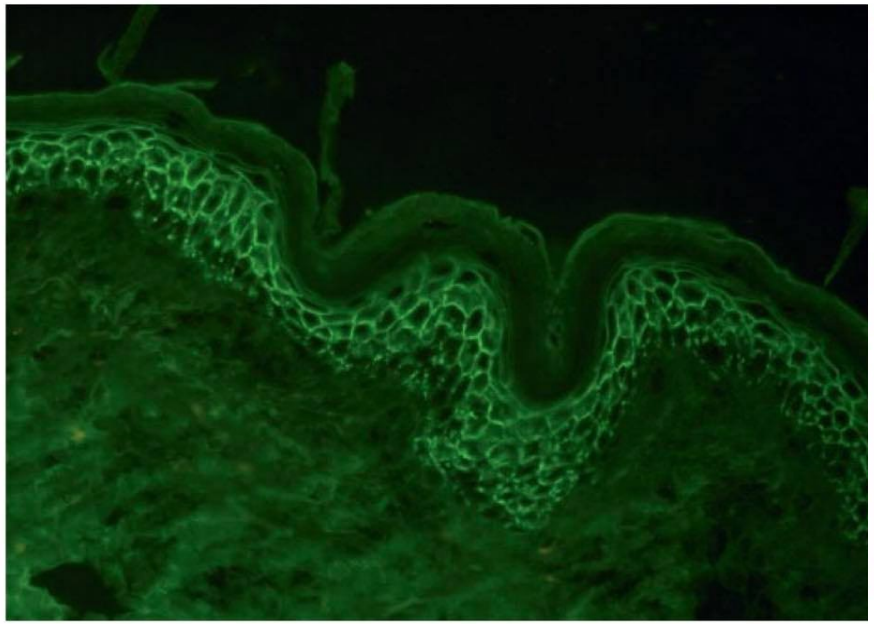


Fig. 74.4 Pemphigus vulgaris. Direct immunofluorescence microscopy of a perilesional biopsy with intercellular staining of IgG in the epidermis.

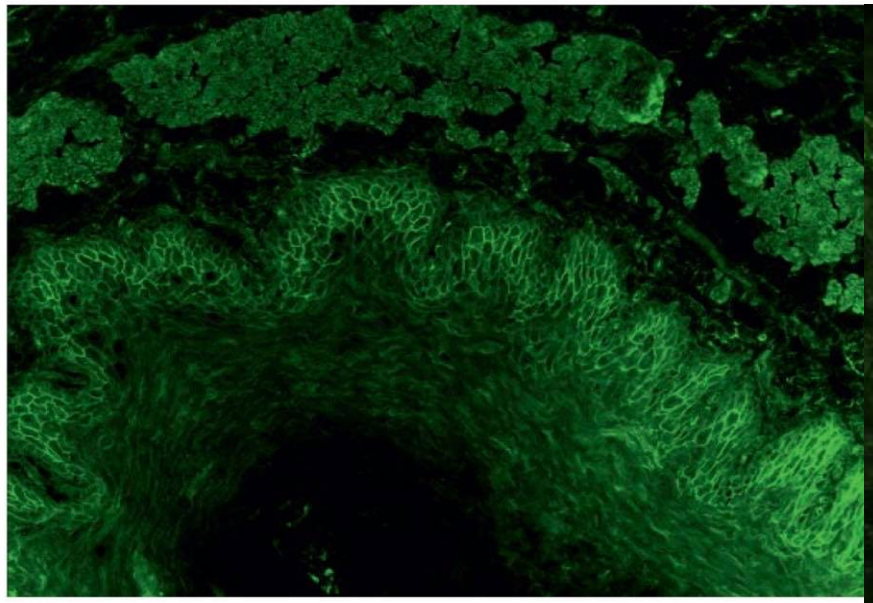
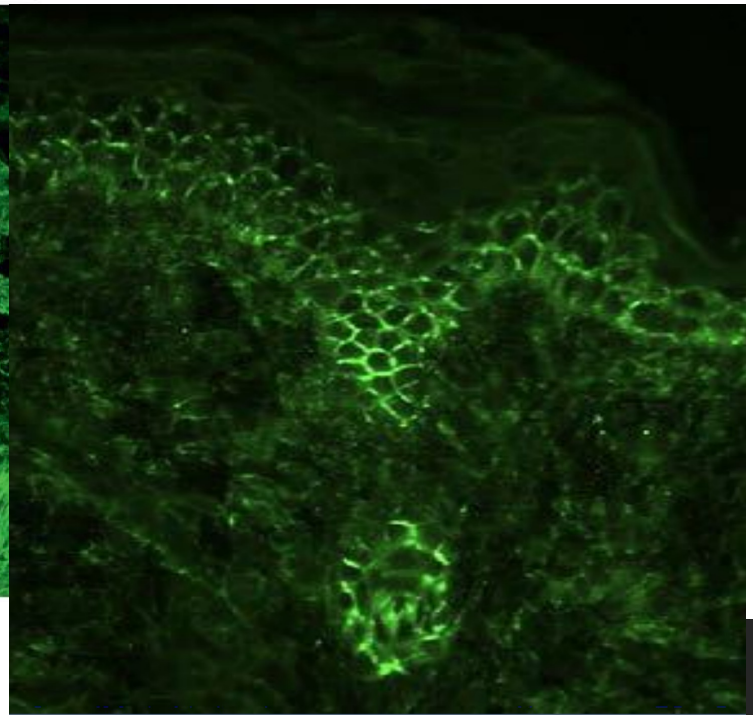


Fig. 74.5 Pemphigus vulgaris. Intercellular staining of serum IgG within the epithelium by indirect immunofluorescence microscopy on monkey esophagus.



Pemphigus vulgaris (PV)

- **Treatment:** *aimed at reducing symptoms and preventing complications*
  - Long-term application of oral corticosteroids (mean duration = 4.5 years)
    - Oral prednisolone 1-2 MKD then tapered according to clinical improvement
    S/E: growth retardation (50%), cushingoid features, infections
  - Immunosuppressants
    - Azathioprine, mycophenolate, cyclophosphamide, cyclosporin, methotrexate
  - Combined corticosteroids and immunosuppressants
  - Intravenous immunoglobulin (IVIG) (refractory/severe cases)
  - Rituximab (refractory/severe cases)

Nelson, textbook of pediatrics, E21, 2020
Harper's textbook of pediatric dermatology, E4, 2020

Pemphigus vulgaris (PV)

Complication

- The rupture of blisters - **painful** and limit the person's daily activities.
- Complications
  - Infections (esp. skin infection)
  - Loss of body fluids, electrolytes, and protein
  - Contact bleeding - anemia

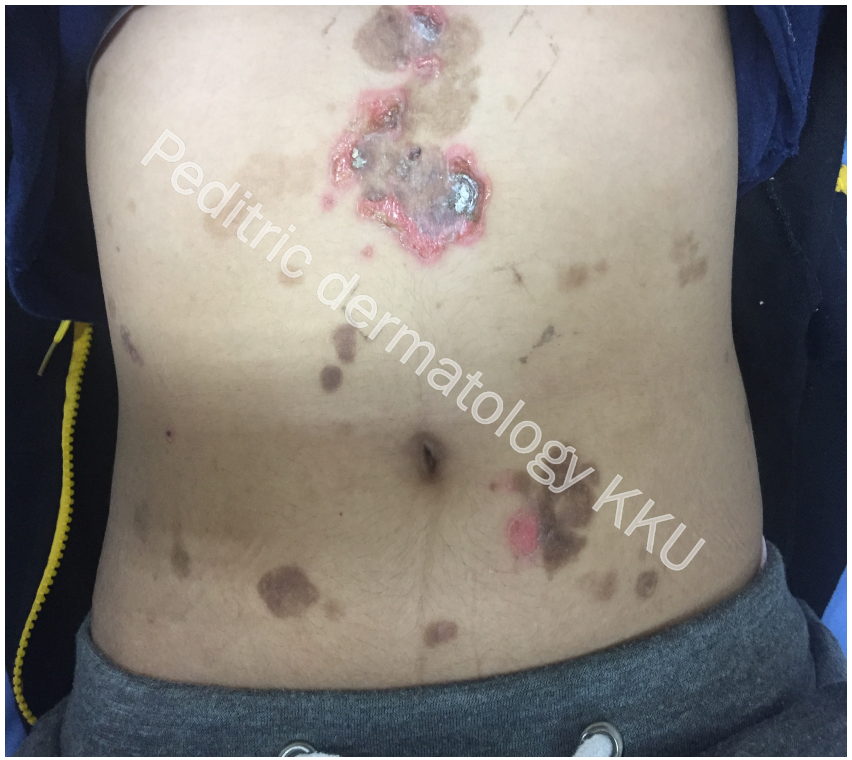
Harper's textbook of pediatric dermatology, E4, 2020

Pemphigus vulgaris (PV)

Prognosis

- Complete recovery is rare (relapsing course like in adults)
- Better prognosis in children (in mild severity) compared to adults *(except for paraneoplastic pemphigus)*
- Morbidity is related with the treatments and complications

Clinical pediatric dermatology, 2015



Pemphigus Vulgaris

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