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Radiation Induced Bullous Pemphigoid: When Radiation Dermatitis Is Not The Answer

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HISTORY

- 78 year old black female with history of invasive ductal carcinoma in left breast status post lumpectomy and cytotoxic chemotherapy
- Patient developed acute onset bullae on left breast during 24th cycle of radiation therapy (RT) and which was diagnosed as radiation dermatitis by her radiation oncologist
- Patient continued to develop new tense bullae on the left breast after cessation of RT
- Within 4 weeks, patient was hospitalized with dysphagia, odynophagia and oropharyngeal ulcerations
- At 8 weeks, patient developed new tense bullae on extremities and presented to dermatology

EXAMINATION

- Entirety of left breast exhibited multiple tense serosanguinous filled bullae and erosions **(Figure 1)**
- Bullae were interspersed by well-demarcated depigmented patches with perifollicular macules of repigmentation
- Three tense serosanguinous bullae were present on the right lower extremity and left ankle
- Two linear erythematous erosions with mild fibrinous debris extended from the hard palate down the oropharynx **(Figure 2)**
- Nikolsky sign was negative

PATHOLOGY

- **H&E of punch biopsy from right medial thigh**
  - Separation at the dermal epidermal junction, resulting in subepidermal blister with sparse infiltrate of lymphocytes and eosinophils in the underlying dermis
- **Direct immunofluorescence**
  - IgG and C3 with 3+ linear staining at the basement membrane zone
- **Salt split skin analysis**
  - Localization of IgG and C3 in a linear pattern to the epidermal side of dermal-epidermal junction

CLINICAL PHOTOS

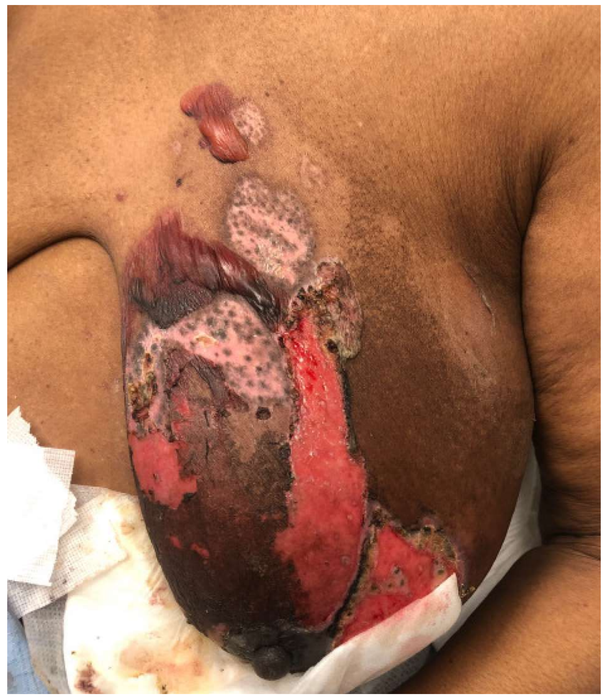

Figure 1. Multiple tense serosanguinous filled bullae and erosions involving the left breast.

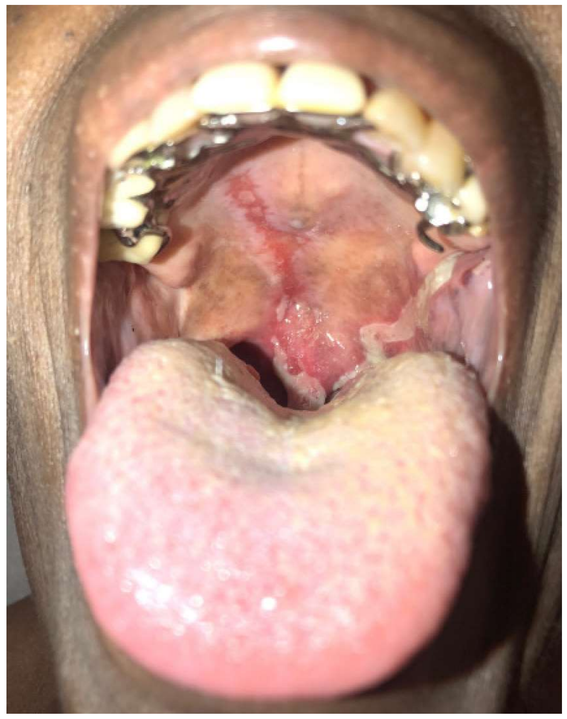

Figure 2. Linear erythematous erosions with mild fibrinous debris extending from the hard palate down the oropharynx.

TREATMENT

- High potency topical corticosteroids
- Oral prednisone taper with improvement
- Doxycycline 100 mg BID with niacinamide 500 mg BID
- Patient continued to improve with new vesicles and bullae responsive to topical corticosteroids
- Proposed next step is dapsone to avoid immunosuppression

DISCUSSION

- **Radiation dermatitis is not always the answer**
  - Persistent development of bullae after cessation of RT and spread of bullae to areas outside the area of RT indicate need for further work up
- **Radiation induced bullous pemphigoid**
  - Rare complication of RT
  - Most commonly seen in patients with breast cancer but has been associated with lung, vulvar and esophageal carcinomas
  - Cases commonly occur at the time of RT or up to 6 months after cessation of RT
  - Majority of cases remain localized to RT-treated areas, and rarely is there involvement of oral mucosa
  - Appears more indolent than non-RT BP and may respond to topical and oral corticosteroids
- **Proposed etiologies**
  - Breast cancer cells express a mixture of hemidesmosomes, similar to those found in the basement membrane
  - Release of cell contents following RT could serve as an antigen for immune cells and lead to production of BP autoantibodies

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