Reply to: "Skin diseases of the breast and nipple"

To the Editor: We read with great interest Waldman et al's recent 2-part series, "Skin Diseases of the Breast and Nipple."[1] Under the broad categories of proliferative, inflammatory, and infectious diseases, these 2 reviews expertly describe the myriad dermatologic conditions that are known to afflict the breast and nipple.

The section on radiation-related breast changes sheds light on the various common dermatitides associated with radiation[1]; however, the startling clinical resemblance to inflammatory breast cancer and the radiation-induced spike in prevalence from 2.7 cases per 100,000 in its idiopathic form to roughly 3 cases per 1000[2] makes radiation-induced morphea (RIM) worthy of mention.

Although discussed in the review as a form of chronic radiation dermatitis, postradiation fibrosis essentially differs from RIM. Postradiation fibrosis manifests within months of radiation therapy completion, with histologic findings of little to absent inflammatory fibrotic involvement of the subcutis and fascia and clinical findings limited to the radiation field and lacking an inflammatory phase.

RIM, on the other hand, appears over a variable time course, ranging from 3 months to 7 years after radiotherapy.[2-5] Although RIM can arise in a patient with previous morphea or other autoimmune sequelae,[3] most cases arise de novo.[2-5] The lesions can extend beyond the field of radiation and present in 2 phases. The first is an inflammatory phase that manifests as erythema, edema, and pain, mimicking cellulitis/erysipelas in some cases[2-4] or even adopting the form of indurated ivory plaques with central sclerosis and well-defined erythematous borders.[5] Histologically, the inflammatory phase is characterized by a superficial and deep perivascular and interstitial lymphoplasmacytic infiltrate, which can involve the subcutaneous and underlying breast tissue.[4] After several months, lesions can transition into the burnout phase, which is morphologically characterized by pigmentary changes, thickening, and fibrosis.[3] This presents with thickening and tight packing of collagen bundles in the reticular dermis and obliteration of the adnexal structures, typically with minimal chronic infiltrate.[2,4]

In terms of treatment, RIM can be tackled with a variety of modalities. One case series of 3 patients with RIM described complete resolution with pulse steroids (intravenous methylprednisolone 500 mg for 3 days) in 1 patient; with methotrexate, pulse steroids, and ultraviolet A1 treatment in a second patient; and with ultraviolet A1 treatment plus topical calcineurin inhibitors in the third.[2] In addition, antibiotics, topical steroids,[4] vitamin E, pentoxifylline, colchicine, D-penicillamine, cytotoxic agents, and photopheresis (psoralen plus ultraviolet A)[3] have also been attempted. Despite an impressive treatment armamentarium, results are often mixed.[2,5]

As dermatologists, we are well positioned to appreciate the often subtle clinical manifestations of RIM. Sadly, the diagnosis remains speculative, even to the most rigorous of dermatologists; the resemblance of RIM to more worrisome entities including, but not limited to, inflammatory breast carcinoma and other radiation-related secondary malignancies precludes the sole reliance on clinical examination. Ultimately, histology is the definitive diagnostic tool.

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Funding sources: None.

Conflicts of interest: None disclosed.

IRB approval status: Not applicable.

Reprints not available from the authors.

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REFERENCES

1. Waldman RA, Finch J, Grant-Kels JM, Stevenson C, Whitaker-Worth D. Skin diseases of the breast and nipple. *J Am Acad Dermatol*. 2019;80(6):1483-1494.
2. Friedman O, Barnea Y, Hafner A. Underdiagnosed and disfiguring: radiation-induced morphea following breast cancer treatment. *Breast*. 2018;39:97-100.
3. Dyer BA, Hodges MG, Mayadev JS. Radiation-induced morphea: an underrecognized complication of breast irradiation. *Clin Breast Cancer*. 2016;16(4):141-143.
4. Laetsch B, Hofer T, Lombriser N, Lautenschlager S. Irradiation-induced morphea: x-rays as triggers of autoimmunity. *Dermatology*. 2011;223(1):9-12.
5. Davis DA, Cohen PR, Mcneese MD, Duvic M. Localized scleroderma in breast cancer patients treated with supervoltage external beam radiation: radiation port scleroderma. *J Am Acad Dermatol*. 1996;35(6):923-927.

https://doi.org/10.1016/j.jaad.2019.11.070