

## Dermscopy Performs an Important Role to Diagnose Radiation-induced Angiosarcoma on the Breast

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### Introduction

Radiation-induced angiosarcoma (RIAS) is a rare subtype of angiosarcoma that originates from endothelial cells exposed to radiation. The breast is the most common location of this condition, and the incidence of RIAS on women treated with breast-conserving surgery and radiotherapy vary from 0.14% to 0.5%, depending upon the study. Prognosis is poor, recurrences are common, distant metastasis may occur, 5-year survival rates are between 28%-54% [1].

On early stages it usually presents itself as painless blue-red patches on a previously irradiated skin area, that progresses to red or violaceous plaques and eventually irregular borders with a nodular appearance. Differential diagnosis includes hematomas, hemangiomas, cellulitis, radiodermatitis or atypical vessel lesions. Biopsy is the most accurate method for the diagnosis.

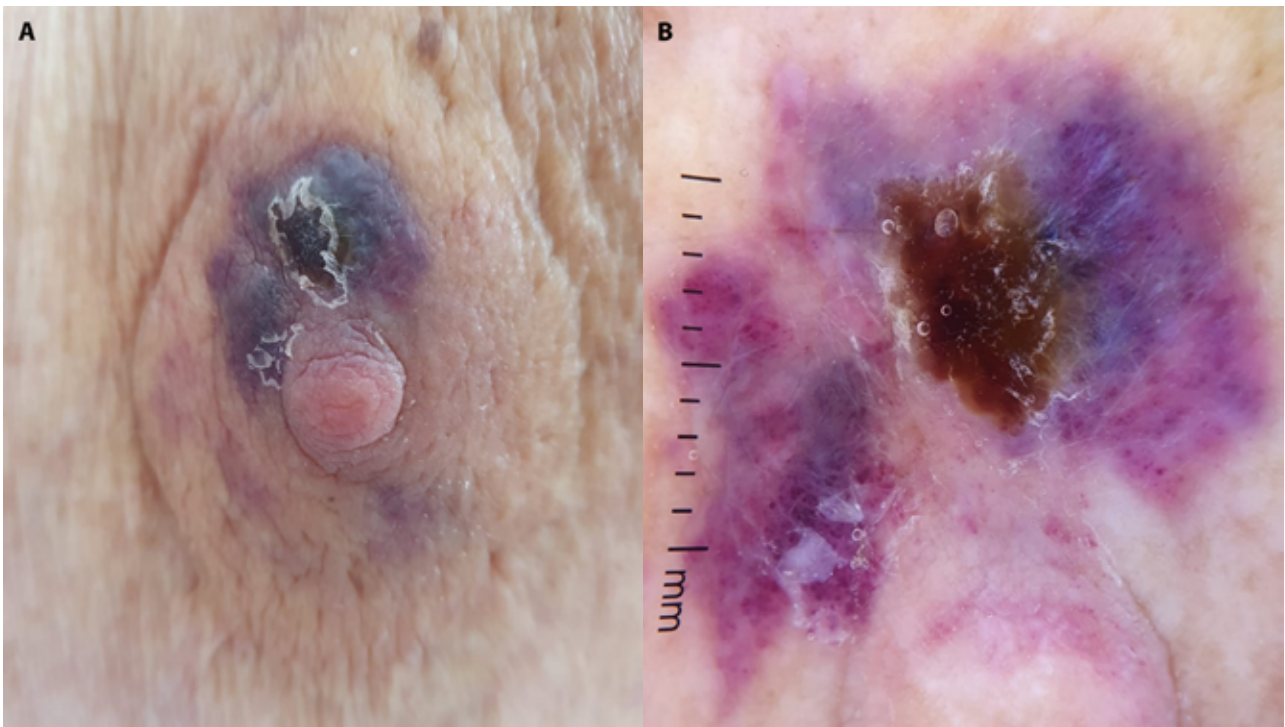
This is a case report of RIAS on the breast, with relevant clinical and dermscopic features.

### Case Presentation

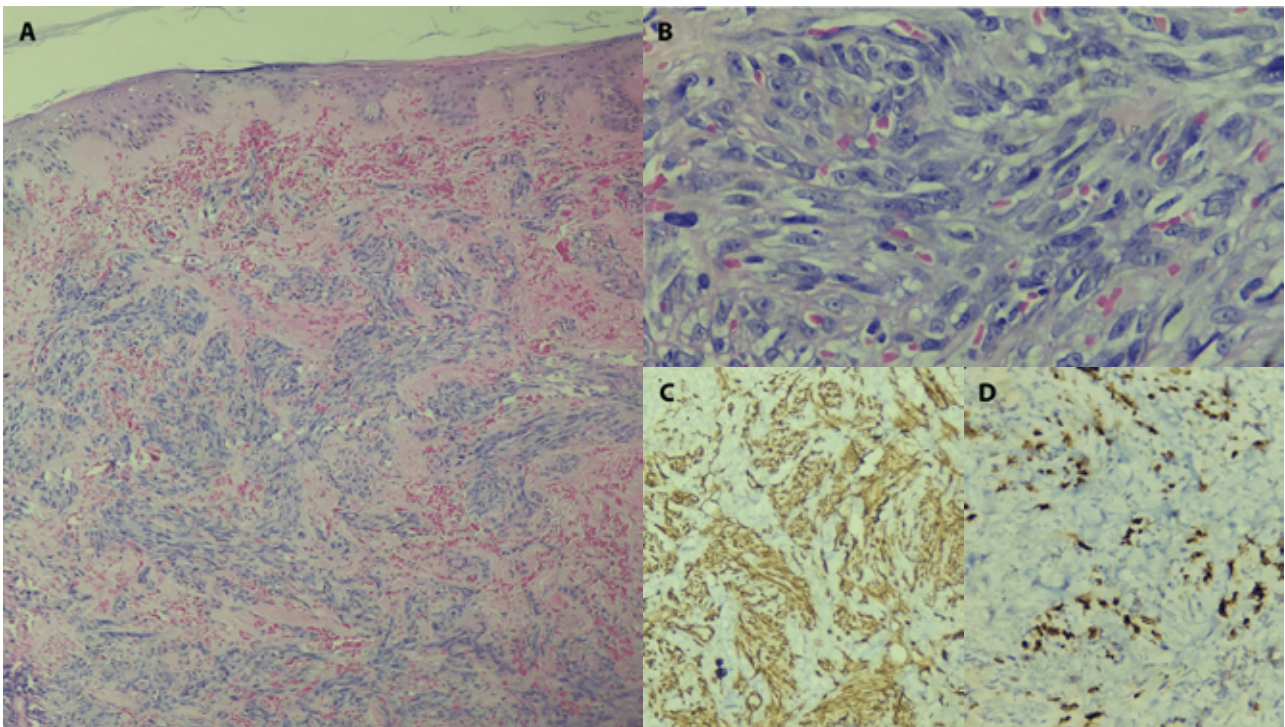
A 68-year-old Caucasian woman presented with a 3 cm, asymptomatic violaceous plaque on the areola of her right breast (Figure 1A), 8 years after radiotherapy for the treatment of an invasive ductal carcinoma on the same location. Dermscopy showed a central hemorrhagic crust, surrounded by a purple background, with blue-red globules and shiny-white structures (Figure 1B). Histopathological examination with the presence of spindle cells proliferation, forming bundles and compact nodules in the dermis, alongside positive immunohistochemistry for Ki-67 and CD34 markers, confirmed well-differentiated angiosarcoma (Figure 2).

### Conclusions

Diagnostic of incipient radiation-induced angiosarcoma is difficult due to the ample differential diagnosis and non-specific characteristics of this neoplasm. Although none



**Figure 1.** (A) Clinical photo showing a violaceous plaque, with irregular borders on the areola. (B) Dermoscopy (DermLite DL4, x10) with purple background, red globules, hemorrhagic crust and shiny white structures.



**Figure 2.** (A) Histopathological features showing proliferation of spindle cells, arranged in a lobular pattern on the dermis and extravasated red blood cells (H&E, x10). (B) Spindle cells pleomorphism and cellular atypia (H&E, x40). Immunohistochemical staining with positive CD34 marker (C) and Ki-67 marker (D) on the tumor cells, confirming its endothelial origin and high proliferation activity, respectively.

are pathognomonic of RIAS, dermoscopic patterns are important to establish the vascular origin of the lesion, and can help in the differential diagnosis with other vascular tumors that already have dermoscopic features known as angiokeratoma and Kaposi sarcoma [2].

In the present case, dermoscopic findings corroborate those of past reviews, such as variable red, blue or purple structureless areas, white lines and globules most visible on the periphery, reaffirming these as important characteristics in the diagnostic of RIAS [3].

In conclusion, the clinical history of previous radiation therapy associated with dermoscopic findings provides a high suspicion of RIAS, which means that incisional biopsy should be performed early for the correct diagnosis and rapid treatment.

## References

1. Bonito FJ, de Almeida Cerejeira D, Dahlstedt-Ferreira C, Oliveira Coelho H, Rosas R. Radiation-induced angiosarcoma of the breast: A review. *Breast J.* 2020;26(3):458–63. DOI: 10.1111/tbj.13504. PMID: 31448482.
2. Jaimes N, Chen L, Dusza SW, et al. Clinical and dermoscopic characteristics of desmoplastic melanomas. *JAMA Dermatol.* 2013;149(8):973–974. DOI: 10.1001/jamadermatol.2013.2248 PMID: 23325288
3. Figueroa-Silva O, Argenziano G, Lallas A, Longo C, Piana S, Moscarella E. Dermoscopic pattern of radiation-induced angiosarcoma (RIA). *J Am Acad Dermatol.* 2015;73(2):e51-e55. DOI: 10.1016/j.jaad.2015.04.054. PMID: 26183996.