Background: Morphea is an uncommon inflammatory disorder involving the dermis and subcutaneous fat with progressive fibrosis. The incidence of radiation-induced morphea (RIM) is 2 per 2000; it normally occurs 1-12 months post-radiation and is difficult to treat.

Observation: A 40-year-old woman was diagnosed with a stage 1A, grade 2 left-sided breast cancer in 2011. This was positive for oestrogen receptor (8+), progesterone receptor (8+) and HER2 (human epidermal growth factor receptor 2) (3+). She underwent treatment with neoadjuvant chemotherapy; breast-conserving wide local excision; radiotherapy; trastuzumab and tamoxifen.

She presented with erythematous, painful skin over the left breast seven months post radiotherapy. Examination revealed a rectangular, well-demarcated, indurated waxy plaque, correlating with her previous radiotherapy field. Histology demonstrated accumulation and hyalinization of collagen and a focal deep perivascular lymphoplasmacytic infiltrate, consistent with RIM. An autoimmune screen and Borrelia serology were negative.

Multiple treatments with moisturisers, topical steroids, prednisolone, PUVA and UVA1 were trialled. UVA1 treatment was initially successful but unfortunately she developed increasing pain and breast tissue volume loss. She was found to have a BRCA2 gene mutation and therefore bilateral mastectomy was offered.

She underwent an extended mastectomy with deep inferior epigastric perforator (DIEP) flap reconstruction to the left breast in 2014. She underwent a right-sided skin sparing mastectomy and implant-based reconstruction with liposuction and Coleman fat transfer to both breasts in 2016. There has been no morphea recurrence or problems with healing.

Key message: There are limited reported cases of mastectomy with reconstructive surgery offered to patients with RIM of the breast due to concerns regarding healing and recurrence.
To our knowledge, this is the first reported case with DIEP flap reconstruction. Our case highlights that mastectomy and reconstruction should be offered to these patients who suffer significant morbidity, reduced quality of life and psychological impact from this disease.