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Painful burning lesions on the chest wall of a patient with advanced breast cancer

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Ethics approval and consent to participate: as this was a descriptive case report and data was collected without patient identifiers, ethics approval was not required under our hospital’s Institutional Review Board guidelines.

Informed consent: the patient provided consent for access to medical records at the time of admission.



Descriptive legend

A 90-year-old woman presented at our emergency department complaining of dyspnea (sO₂ 88% on room air, respiratory rate 24/min) and severe (NRS 8/10) burning chest pain. Ten years earlier, she had undergone a bilateral radical mastectomy and radio-chemotherapy for breast cancer. In September 2023, she developed some nodules on her chest skin treated with electrochemotherapy, multiple liver lesions, and a bilateral paraneoplastic pleural effusion.

Question: Given the patient's history, what is the most likely diagnosis?

1. atopic dermatitis
2. necrotizing fasciitis
3. iatrogenic necrotic ulcers
4. Stevens-Johnson syndrome

Answer

The patient developed iatrogenic necrotic ulcers after being treated with electrochemotherapy (ECT). ECT is a possible therapeutic option for primary skin cancer or cutaneous metastases unresponsive to conventional chemo/radiotherapy or unsuitable for surgery, including melanoma, basal cell, and squamous cell carcinoma, Kaposi's sarcoma, and breast cancer.¹⁻³ ECT is based on the local application of pulses of electric current to tumor tissue to render the cell membranes permeable to otherwise impermeant or poorly permeant anticancer drugs, such as bleomycin, allowing for a potent localized cytotoxic effect.⁴ The first use of ECT with bleomycin in humans was by Mir *et al.* in 1991.⁵ All cancer types are sensitive to ECT with bleomycin; however, their anatomic location may preclude the application of an electroporation current. ECT is generally safe, well-tolerated, repeatable, and associated with brief hospitalization, with a favorable cost-benefit ratio. ECT is nowadays indicated as a palliative treatment in cases of bleeding metastases, or to reduce mass-related symptoms.⁶ After the administration of the electric pulses, the overlying skin can blanch due to reflex vasoconstriction called “vascular lock” mediated by the sympathetic nervous system that occurs across the tumor and immediately nearby tissues for 1 to 2 minutes.⁷ Because the cytotoxic effects are confined to the region of tumor tissue covered by the electrical field, ECT can cause local pain and ulcers. Considering our patient’s advanced age, the poor prognosis of her relapsed breast cancer, and her severely reduced quality of life due to pain and respiratory discomfort, we discussed the case with palliative care colleagues and decided to start IV morphine infusion (20 mg) with an elastomeric pump 24 hours a day with complete control of her suffering and dyspnea.⁸ The patient was transferred to the hospice and died 72 hours later.

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