Docetaxel-induced radiation recall dermatitis

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To the Editor:

Radiation recall phenomenon is a tissue reaction that develops throughout a previously irradiated area and which is precipitated by the administration of certain drugs. Only a few cases of radiation recall dermatitis (RRD) associated with docetaxel have been reported in the literature [1–4]. Here we present the case of an uncommon skin reaction after docetaxel administration in a patient with breast cancer (Figure 1).

In January 2003 a 55 year old patient with breast cancer underwent left modified radical mastectomy and axillary node dissection for an oestrogen negative, 2.8 cm, infiltrating ductal carcinoma with involvement of 4 of 12 axillary lymph nodes. She was treated initially with four cycles of adriamycin 60 mg/m2 and cyclophosphamide 600 mg/m2 and subsequently received 5000 cGy to the left breast and regional lymphatics. In December 2003 the patient developed multiple asymptomatic hepatic metastases. She was started on docetaxel 100 mg/m2 with premedication every three weeks. She was also given dexamethasone for a further three days. Eleven days after the administration of docetaxel she developed erythema of the skin in an area corresponding to the previously irradiated fields. The affected area was warm. There was no pain, pruritis, vesicle formation or desquamation. We did not prescribe topical or systemic steroids, or antihistamines. The erythema resolved completely over the following six days. As the skin reaction was mild, we did not modify the treatment. The patient received a further five courses of docetaxel at the same dose with no recurrence of RRD.

RRD consists of a skin reaction occuring in previously irradiated sites after chemotherapy. The skin reactions may include erythema, oedema, maculopapular lesions, desquamation and severe skin necrosis. There is no formal grading system for RRD. However, Camidge and Price have developed a grading system for RRD using a scale based on the RTOG Acute Radiation Morbidity Criteria for skin [5]. In our case, there was erythema without pruritus or dry desquamation in the area of radiation therapy (Grade 1 RRD).

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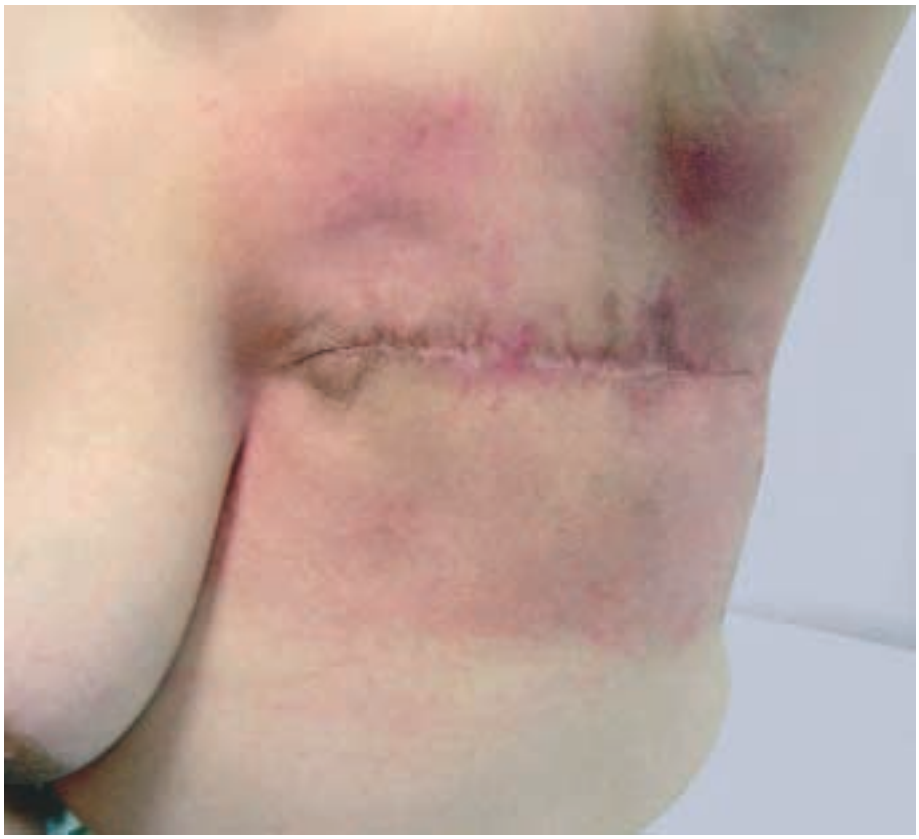

Figure 1

Erythema of the skin in an area corresponding to the previously irradiated field.

The interval from prior radiation therapy to subsequent causative drug administration may vary significantly from only one week to seven years. The speed of onset of symptoms with intravenous drugs ranges from a few minutes to 14 days. Also, with intravenous drugs, the time for RRD to resolve varies from a few hours to two weeks. Although many patients are treated with systemic and/or topical steroids, the role of steroids or antihistamines in the treatment of acute RRD is not clear. Symptoms may persist or be exacerbated by continued treatment with the offending agent. In the majority of reports patients were withdrawn from treatment with the causative drug [5]. In our case, however, we did not modify the treatment. Neither a drug dose reduction nor increased steroid use was employed. The patient continued treatment with docetaxel at the same dose and showed no recurrence on further exposures to the drug.

A number of different hypotheses have been proposed to explain RRD. One proposition suggests that localized tissue changes induced by the radiotherapy may effect the pharmacokinetics of certain agents resulting in RRD [6]. It has been proposed that radiation depletes the number of epithelial stem cells in irradiated tissue and that the stem cell numbers never fully recover [7]. Epithelial stem cell sensitivity has also been proposed as a possible mechanism. Stem cells are depleted following irradiation, but they continue to perform their function as stem cells by increasing their proliferation rate. These epithelial stem cells may be more sensitive to the effects of drugs active in rapidly proliferating cells or radiation may make stem cells more susceptible to drugs by inducing certain stable changes in them [8,9]. Each of these hypotheses depends upon explaining RRD through the cytotoxic action of the chemotherapy drugs. However, these hypotheses are unable to explain how substances other than cytotoxic agents can trigger RRD. Camidge and Price have proposed a different mechanism based on local idiosyncratic drug hypersensitivity reactions [5].

Although a number of mechanisms have been proposed, the aetiology of the condition remains unknown. As the number of case reports on RRD increases, we will learn more about the aetiology of this interesting phenomenon.

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References

1 Camidge DR, Kunkler IH. Docetaxel-induced radiation recall dermatitis and successful rechallenge without recurrence. Clin Oncol 2000; 12:272–3.

2 Yeo W, Leung SF, Johnson PJ. Radiation recall dermatitis with docetaxel: establishment of a requisite radiation threshold. Eur J Cancer 1997; 33:698–9.

3 Piroth MD, Krempien R, Wannenmacher M, Zierhut D. Radiation recall dermatitis from docetaxel. Onkologie 2002; 25(5):438–40.

4 Kandemir EG, Yaylaci M, Ozturk A, Uskent N. Docetaxel-induced radiation recall dermatitis. THOD 1999; 9(2):111–3.

5 Camidge R, Price A. Characterizing the phenomenon of radiation recall dermatitis. Radiother Oncol 2001; 59:237–45.

6 Bostrom A, Sjolin-Forsberg G, Wilking N, Bergh J. Radiation recall: another call with tamoxifen. Acta Oncol 1999; 38:955–9.

7 Hellman S, Botnick LE. Stem cell depletion: an explanation of the late effects of cytotoxins. Int Radiat Oncol Biol Phys 1977; 2:181–4.

8 Abadir R, Liemann J. Radiation reaction recall following simvastatin therapy: a new observation. Clin Oncol 1995; 7:325–6.

9 Wright EG. Radiation-induced genomic instability in haemopoietic cells. Int J Radiat Biol 1998; 74:681–7.

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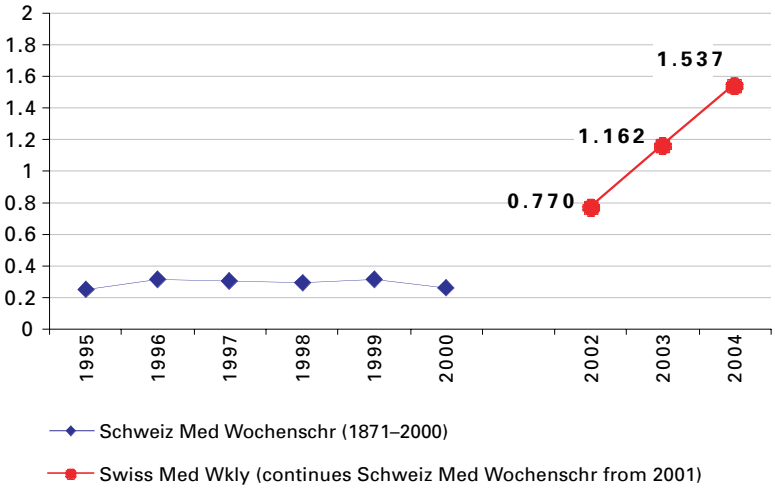

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