

# Successful treatment of soft tissue radionecrosis injury with hyperbaric oxygen therapy

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## DESCRIPTION

A 59-year-old male patient presented with a large deep non-healing wound over his left scapula (figure 1), which had occurred following a long-course of radiotherapy and did not heal with standard measures for 2 months. Besides standard wound care management the patient received 40 sessions of hyperbaric oxygen treatment (HBO), at 2.4 ATA, 2 h each, in a multiplace chamber. The wound showed a gradual progress towards healing over the course of HBO treatment and achieved a good granulating base at the end of 3 months, whereafter it was closed by primary intention (figure 2). On examination, the length, width and depth of the wound were 20 cm, 10 cm and 2.5 cm, respectively. The wound base was granulated and not infected as evidenced by wound culturing.

Radiation exposure may, more frequently in the long term, cause severe injuries to the afflicted tissues, due to a phenomenon usually termed as fibroatrophy effect. According to this dictum, beside vascular alterations, severe fibrosis and cellular depletion account for the morbidity and mortality observed following irradiation.<sup>1</sup> HBO has been widely used for various kinds of radiation injuries including soft tissue radionecrosis for almost three decades.<sup>1</sup> HBO enhances neo-vascularisation both



**Figure 2** Primary closure of the wound following the achievement of a good granulating base.

through angiogenesis and vasculogenesis and also relieves fibrosis by improving the oxidative stress imbalance through enhanced production of antioxidants.<sup>1</sup> HBO may be a potential adjunct to standard wound care in the management of radiation-induced injuries.

## Learning points

- ▶ Wound healing is compromised in irradiated tissues.
- ▶ Hyperbaric oxygen treatment may be a potential adjunct to standard wound care in the management of radiation-induced soft tissue injuries.



**Figure 1** A large deep non-healing radiation injury over the left scapula.

**Competing interests** None.

**Patient consent** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

## REFERENCE

- 1 Feldmeier JJ. Hyperbaric oxygen therapy and delayed radiation injuries (soft tissue and bony necrosis): 2012 update. *Undersea Hyperb Med* 2012;39:1121–39.

**To cite:** Uzun G, Candas F, Mutluoglu M, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009555

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