Successful treatment of soft tissue radionecrosis injury with hyperbaric oxygen therapy

Gunalp Uzun,¹ Fatih Candas,¹ Mesut Mutluoglu,¹ Hakan Ay¹

¹Department of Underwater and Hyperbaric Medicine, Gulhane Military Medical Academy Haydarpasa Teaching Hospital, Istanbul, Turkey
²Department of Thoracic Surgery, Gulhane Military Medical Academy Haydarpasa Teaching Hospital, Istanbul, Turkey

Correspondence to
 Dr Mesut Mutluoglu,
 drmutluoglu@gmail.com

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.¹ HBO has been widely used for various kinds of radiation injuries including soft tissue radionecrosis for almost three decades.¹ 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.¹ 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.

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.

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

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

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow