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Online Case Report

Allergy to technetium-labelled nanocolloidal albumin for sentinel node identification

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Optimal sentinel node identification requires using the combination technique with blue dye and radiocolloid. Allergic reactions to the common blue dyes in use are well recognised. In this report, we present a patient with breast carcinoma who developed a type I hypersensitivity reaction to intradermal injection of technetium-99m labelled nanocolloidal albumin. While reactions to colloids are rare, and in this case minor, operators using this radiopharmaceutical should be prepared for a potential severe anaphylactic reaction.

Keywords: Sentinel node – Allergy – Albumin – Colloid – Breast cancer

Sentinel node biopsy is emerging as the standard of care for axillary staging in early breast cancer, supported by the publication of several randomised controlled trials confirming high accuracy and significantly lower morbidity when compared to axillary lymph node dissection.[1] Allergic reactions to isosulphan and Patent Blue dye are well recognised, with a range of manifestations from a transient skin urticarial reaction to severe anaphylaxis. Here, we report a patient developing a type 1 hypersensitivity reaction to intradermal technetium-99m labelled nanocolloidal albumin.

Case history

An 80-year-old woman presented with a 4-month history of a left breast lump. Clinical examination revealed a 3-cm central irregular lump. Triple assessment confirmed the diagnosis of breast carcinoma. Past surgical history included abdominoperineal resection, hysterectomy and oophorectomy for extensive rectal carcinoma requiring a 10 unit blood transfusion 18 years previously. Past medical history included allergic rhinitis though she was on no treatment for this. She reported allergy to penicillin but no other drugs or plasters. Surgical management by mastectomy (due to the central location of the tumour) and sentinel node biopsy was planned.

Nanocolloidal albumin was re-constituted under sterile conditions within the radiopharmacy according to the manufacturer's instructions and labelled with technetium-99m. 14.4 MBq in 0.2 ml of the radiocolloid was injected intradermally overlying the tumour. Imaging was commenced within 5 min and demonstrated two areas of uptake within the left axilla representing two sentinel nodes.

At 1 h after injection, the patient reported itching over the breast and axilla. On examination, a raised urticarial rash was noted over the upper half of the breast extending from the injection site to the axilla. There was no drop in blood pressure or oxygen saturation and no wheezing was found clinically. A topical steroid cream was applied with rapid resolution of both the itching and the rash within 30 min.

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Surgery utilising 2 ml Patent Blue dye injected intradermally proceeded uneventfully the following day.

Discussion

Allergy to isosulphan blue and Patent Blue used for sentinel node identification is a well-recognised phenomenon, following an initial report in 1971 when the dye was commonly used for lymphography.[2] The most common manifestation is a transient urticarial reaction ('blue hives'). Anaphylactic shock has been reported,[3] but to date there have been no fatalities. The reported incidence of blue dye allergy ranges from 1–2%. Some authors have suggested routine premedication with antihistamines and steroids prior to blue dye injection or skin prick testing for those patients with an allergic history.[4] The mechanism of blue dye allergy appears to be an IgE-mediated event, as demonstrated by positive skin prick tests.[3]

Optimal sentinel node identification is achieved by using the combination technique of blue dye and radiocolloid injection. The three colloids in common use are albumin colloid, sulphur colloid and antimony trisulphide, with albumin colloid most popular within Europe. To date, there has been only a single episode of allergy to albumin colloid (Nanocoll®) reported in the literature, with a similar transient urticarial skin reaction described.[5] On enquiry to the manufacturer, we were informed that there are less than 10 such reported events logged as adverse drug effects attributable to Nanocoll®. While these events to date have been similar mild reactions, those injecting albumin colloid should be aware of this small risk, and be prepared for the potential of a severe anaphylactic reaction, and suitable facilities for management thereof should be in place. A history of hypersensitivity to human albumin products is a contra-indication to the injection of Nanocoll®, and this important clinical information is easily overlooked.

References

1. Mansel RE, Fallowfield L, Kissin M, Goyal A, Newcombe RG, Dixon JM *et al*. Randomized multicenter trial of sentinel node biopsy versus standard axillary treatment in operable breast cancer: the ALMANAC Trial. *J Natl Cancer Inst* 2006; **98**: 599–609.
2. Mortazavi SH, Burrows BD. Allergic reaction to patent blue dye in lymphangiography. *Clin Radiol* 1971; **22**: 389–90.
3. Laurie SA, Khan DA, Gruchalla RS, Peters G. Anaphylaxis to isosulfan blue. *Ann Allergy Asthma Immunol* 2002; **88**: 64–6.
4. Cimmino VM, Brown AC, Szocik JF, Pass HA, Moline S, De SK *et al*. Allergic reactions to isosulfan blue during sentinel node biopsy – a common event. *Surgery* 2001; **130**: 439–42.
5. Burton DA, Cashman JN. Allergic reaction to nanocolloid during lymphoscintigraphy for sentinel lymph node biopsy. *Br J Anaesth* 2003; **90**: 105.