

**Idiopathic post-traumatic
dermatitis at the site of
recent joint replacement**

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Idiopathic dermatitis over the site of previous trauma is a recognized but infrequently reported phenomenon that provides a diagnostic dilemma. Careful

investigation is needed in order to exclude other rare and/or treatable causes.

Key words: autosensitization; idiopathic dermatitis; idiopathic eczema; joint replacement; orthopaedic prosthesis; post-traumatic dermatitis; post-traumatic eczema.

Case Report

We present the case of a 76-year-old man who presented to our clinic 5 weeks after a left total knee replacement with a pruritic eczematous rash covering his left knee. The rash initially was distributed exclusively over the knee, and then became disseminated to include the whole leg with eruptions over his trunk and contralateral leg. He had no previous history of contact dermatitis or allergies, and was taking no medications. He had a normal blood count, and clinically did not have an infective cause or drug eruption postoperatively. He was using sorbolene and vitamin E-based emollients over the affected area, but was not gaining any relief. The rash did not improve upon ceasing the use of the emollients, but he did gain some relief from using the topical corticosteroid Aristocort (Sigma, Melbourne, Australia) t.d.s.

The patient was patch tested with the European standard series with the addition of his emollients, methyl methacrylate (bone cement), and an antiseptic (chlorhexidine digluconate). The standard series covered the main constituents of the cobalt chrome from which his knee prosthesis was manufactured. After 2 days, the patient showed no positive results but after 4 days, the patient showed a ++ (strong vesicular reaction) result to benzocaine 5%. After around 9 months of symptomatic treatment with the topical corticosteroid, the rash completely resolved.

Discussion

Benzocaine is an ester-linked 'caine' drug, which is similar in properties to procaine local anaesthetic agents, a possible allergen contact during the patient's knee surgery. We feel that this is unlikely to be the cause of the rash because of the timing and nature of presentation. Some topical preparations such as sunscreens containing para-amino benzoic acid can cause cross-reactions to benzocaine; however, the patient denied the use of

such products. There is a theoretical possibility of cross-reaction with some azo and aniline dyes such as FD&C yellow 6 (sunset yellow); however, no source could be identified.

There have been reports of allergy to suture materials in the past, with sterilizing method (1), suture colouring (2), and composition (3), all being implicated. This patient's skin wound was closed with metal staples (now removed), and the permanent sutures used to approximate the deep soft tissues of the knee were sterilized with gamma radiation, dyed with D&C green 2 (which has no recorded allergic reactions) and made from polyethylene (also no known reactions). A foreign body reaction could explain the local symptoms but not the short duration or contralateral spread. The patient's symptoms abated before cutaneous suture sensitivities could be arranged.

Implantation of orthopaedic prostheses has been shown to cause a dermatitis that can be explained by metal sensitivity, but the pattern that Verma et al. (4) describe does not apply to this patient. Allergies to metal prostheses (5) and bone cement (6) are well described; however, this patient was not sensitive to either of these substances.

Mathias (7) first characterized and classified 'post-traumatic dermatitis' in 1988. Since then, there has been limited mention of this condition in the literature, and to our knowledge, no research on the topic has been published. Beukers and Van der Valk (8) described a similar case to this patient with a history of dermatitis localized to the site of previous sharp instrument trauma. We believe that this patient also suffered from a form of idiopathic post-traumatic dermatitis that, because of its severity, extended beyond the site of trauma to the contralateral limb and trunk as a type of autosensitization or 'i.d.' reaction. With the growing number of reports, this condition may be more prevalent than previously thought, and with further research, a better understanding may be reached.

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