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PRACTICE GAPS

ONLINE FIRST

The Role of Patch Testing in the Selection and Management of Metal Device Implants

Most dermatologists are familiar with patch testing, but expanded testing beyond standard trays is not ubiquitous. Patients with metal implants (orthopedic, dental, or cardiac devices) referred to dermatologists for patch testing present a unique challenge an important practice gap. How should we manage these patients? Who benefits from testing? What, if any, impact does patch testing have on implant selection or management?

Whether seeing the patient preoperatively to determine what metals the patient is allergic to or postoperatively to help manage issues of joint failure or device complications, the dermatologist must set realistic expectations

for the patient and referring physician about what information will be obtained through patch testing. For the patient undergoing testing prior to implant selection, the dermatologist must emphasize that the patch test detects current allergy but is not indicative of future allergy. In addition, limitations must be discussed. The patch test is a cutaneous test that does not recreate the environment in which the metal resides. Therefore, the testing might not recreate or elicit the same response as that of a metal within a joint space, for example. Coordinating the patch test procedure with a surgeon's timeline is yet another challenge.

The clinical situation is not always clear and depends on whether testing is done before or after implantation.

Unfortunately, there is a knowledge gap. Our current understanding is based primarily on retrospective studies and case reports. But how do patch test results impact joint selection and management among orthopedic surgeons and the subsequent outcomes of their patients? Studies such as that conducted by Atanaskova Mesinkovska et al¹ help better define the role of patch testing in these situations. As shown in this study, implanted static devices associated with overlying dermatitis and a positive patch test result tend to more reliably respond to removal, and so patch testing might be most beneficial in this context.

Issues of joint loosening, pain, and diffuse dermatitis are more difficult. When postoperative patch test results are positive, did the joint problem cause the allergy? Did the allergy cause the joint problem? Are they related? Decisions for removal must be made on an individual basis, with the surgeon and the patient taking into consideration all the risks with the possibility of improvement. It appears that individuals with a history of metal allergy are more likely to have a positive patch test result that can direct implant choices and may benefit the most from preimplantation testing.²

Most studies, including this one,¹ are retrospective. What is needed to close the knowledge gap is a multidisciplinary prospective study looking at patch testing

both before and after implantation and looking at the effect of results on implant selection and outcomes in patients tested compared with those who are not tested. Other tests such as the lymphocyte transformation assay may be helpful but are not widely available and their role in clinical practice remains undetermined.

For now, the dermatologist who patch tests must set realistic expectations for the patient and referring physician alike, providing them with the best information we currently are able to provide.

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