

Allergic or Sensitive to Metal?

If you are allergic or sensitive to metal, then it is important to alert your surgeon prior to having joint replacement surgery. The most common metal allergy is nickel, which is found in very small quantities in knee implants and in some hip implants. While up to 14% of people will have some reaction to certain metal allergy tests, **metal allergy is a very rare cause of failure in knee replacements.**

Testing for Metal Allergy

In the past, skin patch testing was used to help diagnose a metal allergy; however, research has shown a skin test that is positive for metal allergy does not necessarily mean you will have complications with your joint replacement. Blood tests are available to check for metal sensitivity, but these tests also are not the best predictors of whether or not your joint replacement will have complications. **Routine skin or blood tests to check for metal allergy/sensitivity are not recommended since there is still not enough evidence to suggest these are helpful.**

Signs of Metal Sensitivity before Surgery

If you have had skin reactions to jewelry (rings, necklaces, earrings, etc.) or eyeglasses, this may be a clue to possible metal sensitivity. Let your surgeon know before you schedule your surgery about these reactions. Also, some people who work with or around certain metals can develop a sensitivity to metal. In either case, your surgeon may decide to use special, non-allergenic implants if they are available.

Implants Contain Metal

The metal hip or knee implants themselves will not likely be the cause of a reaction. In older, poorly functioning “metal-on-metal” joint implants, where the metal ends of the implants are in contact, large quantities of metal could be released inside the joint. If you have a metal allergy, and metal particles are present in your joint, then that may play a role in failure of the joint replacement. In implants with plastic parts, wear of the plastic may over time lead to unintended wear of metal against metal. This happens in poorly-functioning joint replacements. Typically, well-functioning joint replacements do not lead to deterioration of the implants and generation of metal particles.

Signs of Metal Allergy after Surgery

The diagnosis of a metal allergy after surgery is very challenging. The symptoms may include skin rash, itching and discoloration in the area around the artificial joint. Other symptoms such as joint pain, swelling, and joint stiffness can have numerous causes and not necessarily be because of a metal allergy/sensitivity. If you develop a skin reaction near the location of your hip or knee implants, steroids or topical creams can be used for mild symptoms.

Revision Surgery

A second surgery, called “revision,” to non-allergenic implants is generally not needed and should be considered only as a last resort. Because diagnosing metal allergy after surgery cannot be done with 100% certainty, the outcomes of a revision surgery are unpredictable.

It is rare to have a hip or knee replacement fail because of metal sensitivity/allergy. It is best to discuss a possible metal sensitivity prior to surgery with your surgeon. If you have had a joint replacement surgery and have a skin reaction, contact your surgeon's office for treatment options.

References

1. Bergschmidt P, Bader R, Mittelmeier W. Metal hypersensitivity in total knee arthroplasty: revision surgery using a ceramic femoral component – a case report. *Knee* 2012 Mar;19(2): 144-7
2. Hallab N, Merritt K, Jacobs JJ. Metal sensitivity in patients with orthopaedic implants. *J Bone Joint Surg Am.* 2001 Mar;83-A(3):428-36.
3. Innocenti M, Carulli C, Matassi F, Carossino AM, Brandi ML, Civinini R. Total knee arthroplasty in patients with hypersensitivity to metals. *Int Ortho.* 38(2014):329-33.
4. Lachiewicz PF, Watters TS, Jacobs JJ. Metal hypersensitivity and total knee arthroplasty. *JAAOS* 2016;24:106-112.
5. Merritt K, Brown SA. Metal sensitivity reactions to orthopedic implants. *Int J Dermatol.* 1981 Mar;20(2):89-94
6. Thyssen JP, Menne T, Schalock PC, Taylor JS, Maibach HI. Pragmatic approach to the clinical work-up of patients with putative allergic disease to metallic orthopaedic implants before and after surgery. *Br J Dermatol.* 2011 Mar;164(3):473-8.

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