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'CAN MY BODY REJECT DENTAL IMPLANTS?'

Main Line implantologist **Dr. James A. Vito** answers essential questions about dental implants and provides informed guidance as patients proceed in their treatment.

by **JAMES A. VITO, D.M.D.**

I have been doing dental implant surgery for more than 37 years. I have spent countless hours in continuing education honing my surgical and restorative skill sets with regards to dental implants. I have always been taught that the overall success of dental implants is based on three factors: width of bone, height of bone, and a wide zone of attached gingiva. Deficiency in any one of these three requirements will result in a compromise and hence result in either a short-term or a long-term failure of a dental implant.

I recently had an experience with one of my patients where I did a number of implants in both her upper and lower jaws, and restored both jaws with implant-supported bridgework. Two years after treatment she started to develop a rash over her torso and legs and felt lethargic. She sought care from traditional and holistic medical professionals with no resolution. After several years of so-so results, she was advised that she may have an allergy to her implants.

We discussed this at length, and I told her in my nearly 40 years of doing this, and having

placed thousands of dental implants, I have never seen this cause-and-effect situation. Long story short, she sought care in Switzerland, where they perform zirconia (ceramic) implants because they believe there is some sort of reaction between metal dental implants and the body.

They recommended the removal of all her dental implants and the removal of teeth with root canal therapy. She was told there were no guarantees with the ceramic implants, but that they believed this would help her. They removed her titanium implants, as well as the root canal teeth, and replaced them with ceramic implants. They also fabricated temporary bridgework that she will need to wear for the next eight to 12 months before the final restoration is made.

She is still a patient of mine and shared this experience with me. She has since revealed that, with the removal of the implants and root canal teeth, all her rashes and other ailments have disappeared. She feels much better and has more energy.

This caused me to investigate this and see

what the current thought process is on titanium implants because now both the dental and medical professions have ceramic alternatives to conventional titanium. Currently there are ceramic dental implants and ceramic joint replacements.

So is there something to an allergic reaction between titanium and the body? The scientific literature puts the success of titanium implants at 98 percent. There is a process called tribocorrosion that dental implants can undergo. Tribocorrosion can be defined as a process through which material degradation is caused by the combined effect of corrosion and wear. Metallic biomaterials such as dental implants and their frameworks, abutments, orthodontic devices, and maxillofacial surgical structures are susceptible to tribocorrosion damage in the oral environment. The process releases titanium ions into the surrounding tissues, which can trigger a cascade of reactions, localized or at a distance, or even systemic reactions.

Can titanium implants cause neurological problems? The toxicity of titanium diox-

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If you know or suspect you have a titanium allergy, talk to your dentist about your dental implant options.”

— DR. JAMES A. VITO



ide nanoparticles in the central nervous system has been reviewed by Czajka, et al., who cited numerous cases with reported internalization of titanium dioxide nanoparticles into the brain. In most of these cases, neurological damage is also reported.

Can titanium cause inflammation in the body? Multiple investigators have found that titanium implants can induce inflammation in the surrounding tissue over time, leading to the expression of certain mediators known to cause local and systemic health problems.

Can titanium dental implants cause autoimmune disease? Some research suggests that metal medical and dental implants may cause an autoimmune reaction in people with metal allergies and other genetic predispositions. Some of the diseases researched in connection to metal devices include multiple sclerosis and systemic lupus erythematosus, the most common type of lupus.

Can titanium implants cause autoimmune disease? One study concluded that prolonged exposure to a prosthesis containing nickel and titanium could have triggered the symptoms of systemic autoinflammation, which responded to corticosteroids. The patient had florid systemic features of inflammation for at least two and a half years, until the removal of the titanium implant.

Can Dental Implants Make You Sick?

Dental implants are generally safe and do not cause illness in most cases. However, titanium implants can make you sick if you are allergic to the metal. Though only 0.6 percent of the population has a titanium allergy, it can impact your health and wellness, including your dental implant's success. Symptoms of a titanium

allergy include acne-like swelling or facial inflammation, problems with wound healing, hives or rash, achy joints and muscles, and sores and swelling in the mouth's soft tissues.

If you know or suspect you have a titanium allergy, talk to your dentist about your dental implant options.

Am I Rejecting My Implant?

The *International Journal of Implant Dentistry* notes that due to implants' corrosion and wear, titanium alloy particles can get deposited in the surrounding tissues. In some people, this can cause bone loss due to inflammatory reactions or hypersensitivity reactions that cause implant failure.

So how can you recognize a dental implant allergy? Seminal studies cited by the *International Journal of Implant Dentistry* report that titanium allergy symptoms include the following: erythema (skin redness, in this case, in the tissues around the implant); urticaria (hives that may be seen on the skin or gum surface); eczema (itchy inflammation of the skin or gum tissue); swelling or pain; necrosis (death of cells or tissue, in this case, around the implant); toxic reactions in other tissues, which can also affect the lungs and airways; and bone loss.

If you notice any of these symptoms, contact your dentist immediately.

Diagnosing Titanium Allergy

If medical or dental professionals suspect that you might be allergic to the titanium in your dental implant, the first step is to take diagnostic tests, such as a patch test. Some physicians might also recommend in vitro blood tests to detect metal allergy, including the lymphocyte transformation test, the lymphocyte migration

inhibition test, and the commercially available MELISA test.

The *International Journal of Implant Dentistry* points out that zirconia implants can be an alternative to titanium implants. There isn't long-term clinical data associated with their usage, so your dental professional will be the best person to speak to about alternative options.

It can feel disappointing and/or overwhelming to learn that you're not taking to your new implant as well as you'd hoped. The good news is that there are other options available. A dental professional can help you treat your titanium allergy and ensure that you fill the gap in your mouth with a treatment that works for you.

Notably, there are specific oral conditions that include food intake, oral microbiota, fluoridated dentifrices, salivary pH, and biomechanical loading that may significantly increase corrosion and speed up the degradation process. As a result, they can have a direct influence on the survival of a dental implant.

Also at risk are patients with autoimmune issues, those who demonstrate highly allergic reactions to metals, food, and pets, and patients with a history of failed implants or peri-implantitis. Patients should share with their dentist if they have any allergies or autoimmune issues, as they may be better candidates for ceramic implants. ■

→ **Dr. James A. Vito, who has been placing and restoring dental implants for 37 years, remains on the forefront of the art and science of dental implants. For more information, contact him at (610) 971-2590 or visit www.jamesvito.com.**