

Metal sensitivity to Elektra™ prostheses – two cases from a metal on metal implant for hand joint replacement

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Metal sensitivity relevant to joint prostheses is a controversial area with few reports of sensitivity causing failure. We present two convincing cases of metal on metal implants with metal allergy histories where prosthesis removal resolved symptoms.

Case 1

A 51-year-old female was referred by orthopaedic surgeons for patch testing. One year earlier, she had undergone a right trapezio-metacarpal joint arthroplasty with an Elektra™ [Small Bone Innovations International® (formerly Fixano®) ZA, Les Bruyères – BP 28, Peronnas, France) cementless metal on metal prosthesis. Four months postoperatively she developed swelling and constant pain at the site but no rash. She reported previous nickel allergy.

The joint was swollen but not erythematous. Active but not passive movements were painful. There was no evidence of infection, loosening or dislocation; bone scintigraphy revealed localized increased uptake.

She was patch tested to a modified European baseline series and methacrylate series with a 3+ positive reaction (ICDRG criteria) to both cobalt chloride and nickel sulphate at D4.

Given the clinical picture and strongly positive patch test, the prosthesis was removed and revised to

a pyro-carbon spacer. Five months later, the patient was pain-free having regained good hand function.

Case 2

A 52-year-old female referred by orthopaedic surgeons had intermittent left thumb pain and swelling following prosthesis insertion. Eight months previously, she had undergone an Elektra™ carpo-metacarpal joint replacement; symptoms started 2 months later. There were no signs of infection or erythema, she had good range of movement. She was atopic and noted an intolerance to metal jewellery.

There were concerns because of plans for a second joint replacement in the right hand. She was tested to modified European baseline series with a 3+ positive reaction to cobalt chloride only at D4. Her prosthesis was taken out and within 2 months she was symptom-free.

The histories and rapid, sustained responses to removal make allergy the likely cause of symptoms in both cases.

Discussion

Metal allergy has been reported to knee and more often hip replacements. Postoperative patch testing by Benson et al. (1) demonstrated metal allergy in 28% of subjects with metal on metal prostheses but associated it only with loosening. The commonest allergen was cobalt followed by nickel then chromate. The prevalence of metal allergy in studies of prosthetic loosening varies from 13% to 74% (2).

The single study looking at sensitivity causing metal-on-metal hip prosthesis failure suggested an association but used too few subjects to confirm this (3). Reed et al. (4) recently concluded that preoperative testing could be of use in guiding device choice.

Elektra™ trapezio-metacarpal implants made by Small Bone Innovations International® are metal on metal, containing cobalt, chromium and titanium. The alloy is similar to early hip replacements with modification to improve wear resistance rather than reduce hypersensitivity, which is seen less in metal on plastic joints.

Regnard (5) reported results of his first 100 Elektra™ prostheses with average follow up of 54 months. Only one experienced failure due to nickel allergy, presenting as non-infectious

inflammation. Small Bone Innovations International® advise of risks on their packaging but have not received other reports of symptomatic allergy. The two cases reported here are from seventy Elektra™ procedures performed in our orthopaedics department. These findings suggest sensitivity can cause joint device failure requiring revision in some patients with known metal allergy. Dermatologists should be aware of this group and have a low threshold for patch testing them.

References

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