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AUDITORY IMPLANTS

Cochlear implant extrusion due to internal magnet allergy

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Abstract

The most common reasons for cochlear implant extrusion are poor surgical technique, flap necrosis and infections. However, some cases of device extrusion reported in the literature seem to be delayed in onset and associated with negative wound culture results, which challenges the established etiologies and suggests a possible alternative causality[1-3].
We report a rare case of cochlear implant extrusion due to an allergy to the internal magnetic component.
The patient underwent an uneventful right cochlear implantation at the age of 17 years old for a progressive bilateral sensorineural hearing loss.
Three months after implantation, a skin dehiscence appeared over the receiver-stimulator.
An allergic test demonstrated an allergy to the internal magnetic component of the cochlear implant.
The implant was immediately removed and a probe was inserted into the cochlea. Ten months later, a custom-made cochlear implant was reimplanted without further problems.
In literature, few cases about cochlear implant extrusion as a result of an allergic reaction are reported. To the best of our knowledge, no cases of allergic reactions to the magnetic components of the cochlear implants have been reported until now.

Objectifs

We introduce a rare case of cochlear implant extrusion due to an allergy to the internal magnetic component and we discuss its management.

Méthodes et Matériels

The patient has a progressive bilateral sensorineural hearing loss due to an enlarged vestibular aqueduct (fig. 1). Diagnosis of hearing loss was made at 38 months of life. Due to a progressive auditory worsening and poor right hearing aid outcomes, he underwent an uneventful right cochlear implantation at the age of 17 years.

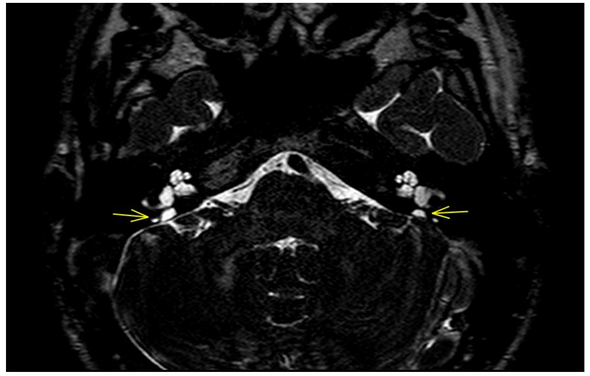

Fig.1: preoperative MRI showing bilateral enlarged vestibular acqueducts (yellow arrows)

Résultats

The patient did well until 3 months postimplantation, when skin ulceration and granulation tissue appears over the receiver-stimulator. After initial recovery the skin dehisced again with serous discharge. CT scan showed tissue swelling near the internal magnet of the receiver (fig. 2). An allergic reaction was suspected and patch testing was performed showing a cell mediate contact hypersensitivity to the iron part of the magnetic component of the cochlear implant.
The implant was immediately removed and a probe was inserted into the cochlea to avoid ossification. Granulation tissue was find near the receiver-stimulator. Intraoperative cultures were negative. The patient healed without difficulties and 10 months later a custom-made cochlear implant with rotatable magnet within hermetic titanium housing was reimplanted. The patient had no further problems. He is an active cochlear implant user 3,5 years after implantation with good speech perception outcomes.

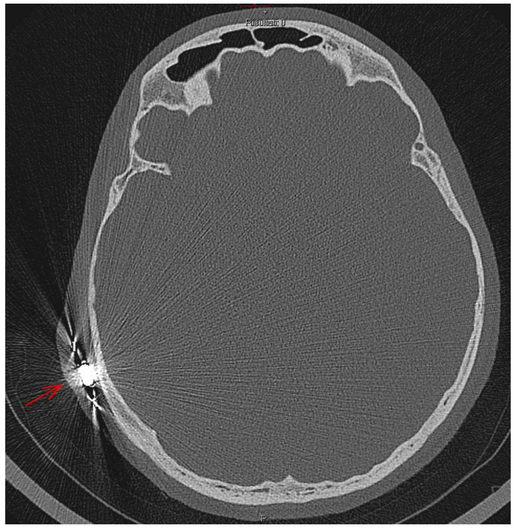

Fig.2 CT scan before the removal of the cochlear implant: tissue swelling that causes deformation near of the receiver (red arrow)

Conclusion

In literature, few cases about cochlear implant extrusion as a result of allergic reaction are reported. In all these cases, the patients developed an allergic reaction to the silicone components of the cochlear implants[4-5].
To the best of our knowledge, no cases of allergic reaction to the magnetic components of the cochlear implants have been reported until now.

Références

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19›22 September 2024
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