MR-imaging of the TMJ: artefacts caused by dental alloys.


Department of Prosthodontics, University of Regensburg, Germany.

The aim of the study was to investigate the influence of dental alloys and their components on magnetic resonance imaging of the temporomandibular joint. A plaster and a water-filled acrylic resin phantom - representing the disc and the condyle of the TMJ - were used. Cylindrical crow-type samples of 13 alloys and 14 pure substances were investigated. All alloys were examined with regard to their magnetic susceptibility, using a vibrating sample magnetometer. Metallic artefacts appeared on spin-echo technique as distortions, and on gradient-echo technique signal loss could be observed. Precious alloys were shown to be diamagnetic. The non precious alloys we investigated were paramagnetic. Paramagnetic alloys with a magnetic molar-susceptibility Cmolor > 2000 x10(-6) cm3/mol can produce clinically relevant artefacts.

PMID: 9171016 [PubMed - indexed for MEDLINE]