The patient’s clinical records were reviewed and an auditory canal in a pediatric patient causing significant discomfort was noted. This is a case report of pencil lead in the external auditory canal (EAC) of a pediatric patient. No documentation was found on graphite punctate lesions which produced this unusual artifact. The disturbance was from "pencil lead," though modern pencils are commonly made of graphite. The patient also denied any complaints of right ear pain prior to evaluation.

An extensive literature search was performed with a limited number of publications reporting a similar artifact caused by graphite in other areas of the body. Susceptibility halos are a known artifact seen on MRI from metallic foreign bodies, but the extent of susceptibility has not been precisely established. A common cause of this disturbance is from “pencil lead,” though modern pencils are commonly made of graphite. The ferromagnetism produced by graphite increases the apparent size of the FB on MRI due to its diamagnetic properties. In other documented incidences of a graphite FB identified on imaging, computed tomography (CT) showed evidence of metallic FBs, but the extent of susceptibility has not been precisely established. A common cause of this disturbance is from “pencil lead,” though modern pencils are commonly made of graphite. The ferromagnetism produced by graphite increases the apparent size of the FB on MRI due to its diamagnetic properties. In other documented incidences of a graphite FB identified on imaging, computed tomography (CT) was found to have the greatest degree of resolution once the size of the FB reached 2mm, however MRI and plain film demonstrated greater sensitivity at smaller diameters. No documentation was found on graphite punctate lesions producing such an interference.

Upon a thorough directed history, the patient self-reported a history of placing pencils into his ear canals. Fiberoptic otoscopy of the ear confirmed several grey punctate areas visualized along the superior portion of the right external auditory canal consistent with graphite involvement. No further intervention was necessary.

In our particular case, the graphite involved produced a susceptibility halo incidentally found on MRI. Literature has previously described graphite causing similar interference in other areas of the body. As the purpose of the MRI was not specifically to find a foreign body, this negated any critique on imaging modality selection for purposes of FB detection and localization. Direct visualization of the ear demonstrated the absence of a true foreign body and instead revealed the presence of graphite punctate lesions which produced this unusual MRI interference.

The pediatric otolaryngologist has a unique toolset at their disposal: they are readily able to visually inspect the ears, nares, and airway in manners that other specialties cannot. Here, we provide our experience with a graphite FB in the ear and discuss the importance for the astute pediatric otolaryngologist to be familiar with possible FBs seen on imaging when they are called on for further investigation.

References