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The use of whole-body MR imaging in children with hereditary multiple osteochondromas

Background: Patients with hereditary multiple osteochondromas (HMO) undergo frequent radiographs to evaluate the growth of their osteochondromas. The conventional radiographic images clearly show the growth of the bony part of the osteochondromas and the growth direction of the long bones. The radiographs do not show the cartilage cap on top of the osteochondroma nor do they show the surrounding soft tissue or the cartilage of the nearby epiphysis. Alongside these disadvantages, taking frequent radiographs carry the potential risk of inducing malignant degeneration through ionizing radiation. We investigated the use of whole-body MR imaging as a screening tool to follow patients with HMO.

Findings: Two HMO affected children underwent two whole-body MR imaging scans in one-year time to identify the osteochondromas and to evaluate their growth. The MR images were compared to regular follow-up radiographs of these patients. All radiographically detectable

osteochondromas were visible on the whole-body MR images. At least one osteochondroma was clearly seen on the whole-body MR images before detection was possible on the radiographs. The proton density sequence with fat suppression proved to be the best sequence to visualize osteochondromas.

Conclusion: Whole-body MR imaging is an effective follow-up tool for patients with hereditary multiple osteochondromas

Speaker Biography

H M Staal received a Master's degree in Medicine, at Catholic University of Nijmegen in 1996, with a minor in Tropical Medicine and Applied Mathematics. Between 2001 and 2007, she did her post-academic education to become an Orthopedic Surgeon. Since 2007, she is working as an Orthopedic Surgeon at MUMC Maastricht, specialized in Child Orthopedics and Hand Surgery. She has a special interest in medical education and holds an academic educational qualification. In 2012, she became Program Director of trainee orthopedic surgeons. In 2016, she received a PhD for her research into the growth of osteochondromas in HMO.

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