Magnetic resonance imaging: a useful tool to distinguish between keratocystic odontogenic tumours and odontogenic cysts.

Abstract:
In contrast to odontogenic cysts, keratocystic odontogenic tumours often recur and require more aggressive surgical treatment, so we tried to find features that distinguished between them on magnetic resonance imaging (MRI). Without knowing the diagnosis, two radiologists reviewed intensity (low, intermediate, or high) and homogeneity (homogeneous or heterogeneous) of signals in short-tau-inversion-recovery (STIR), T1- and T2-weighted, and fat-suppressed, contrast-enhanced MRI in 20 consecutive patients with oval, radiolucent lesions of the mandible on panoramic radiography, and who were subsequently confirmed histopathologically to have either an odontogenic cyst or a keratocystic odontogenic tumour (n=10 in each group). Fisher’s exact test was statistically significant at p<0.05. Delineation of a contrast-enhanced wall of a cyst with high signal intensity distinguished odontogenic cysts (9/10 and 8/10, respectively) from keratocystic odontogenic tumours (3/10, p=0.02, and 1/10, p=0.01, respectively). One radiologist found odontogenic cysts were more likely to be homogeneous on unenhanced T1-weighted images (odontogenic cysts 9/10, keratocystic odontogenic tumours 3/10, p=0.02) and one on contrast-enhanced MRI, when the cyst wall was enhanced (odontogenic cysts 7/9, keratocystic odontogenic tumours 3/10, p=0.01).
There were no other significant distinguishing features on MRI. In conclusion, the signal intensity of the enhanced wall seems to be a feature on contrast-enhanced MRI that differentiates odontogenic cysts from keratocystic odontogenic tumours.