Discrimination between invasive pulmonary aspergillosis and pulmonary lymphoma using CT

Nadine Kawel, Georg M Schorer, Lotus Desbiolles, Burkhardt Seifert, Borut Marineck & Thomas Boehm

OBJECTIVE: The purpose was to assess the characteristic CT features of invasive pulmonary aspergillosis (IPA) and pulmonary lymphoma (PL) and to analyze the potential to distinguish the two entities using CT. METHODS: The CT images of 70 patients with either proven IPA (n=35) or PL (n=35) were evaluated retrospectively and independently by two radiologists (reader 1 [R1] and reader 2 [R2]), analyzing images for presence, number and characteristics of pulmonary nodules and masses, ground-glass opacities, consolidations and other interstitial changes. RESULTS: Interreader agreement was moderate (4/33 CT features), good (9/33) or excellent (20/33). Pulmonary nodules (P=0.045 [R1], P=0.001 [R2]), nodules with spiculated outer contours (P<0.001 [R1], P=0.001 [R2]), nodules with a halo sign (P<0.001 [R1+R2]), nodules with homogeneous (P=0.030 [R1], P=0.006 [R2]) and inhomogeneous (P=0.001 [R1], P<0.001 [R2]) attenuation patterns, nodules with cavitation (P=0.006 [R1], P=0.003 [R2]) and wedge-shaped, pleural-based consolidations (P<0.001 [R1+R2]) occurred significantly more often in patients with IPA, while masses without a halo sign (P=0.03 [R1], P=0.01 [R2]), lobar consolidations with bronchogram (P=0.02 [R1+R2]) and consolidations with homogeneous attenuation patterns (P<0.001 [R1+R2]) were found significantly more frequent in PL-patients. CONCLUSIONS: Those CT features can therefore be considered suggestive for either IPA or PL. However, in most cases the diagnosis cannot be made based on CT findings solely because no single feature gained a high sensitivity and specificity concomitantly. Furthermore, the logistic regression did not show a combination that was significantly better than the best univariate predictor.