Inter-observer agreement in the classification of perifissural nodules as lymphnodes on chest CT

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PURPOSE
Determine the inter-observer agreement of chest radiologists classifying perifissural nodules (PFN) as intrapulmonary lymphnodes on chest CT.

METHOD AND MATERIALS
IRB-approved retrospective study, who approved a waiver on informed consent. All chest CT performed during a four-month period (March through July 2016) were reviewed for incidental pulmonary nodules by a senior chest radiologist who sub-classified them into three categories (typical PFN – likely intrapulmonary lymph node, atypical PFN and non-PFN) by using criteria by de Hoop et al. 120 cases were selected, studies were anonymized and re-viewed by three other senior chest radiologists, who classified them using the same criteria, unaware of the patients’ history. Inter-observer agreement was analyzed using Cohen’s kappa coefficient. 95% CI were calculated and statistical significance was considered at p<0.05.

RESULTS
The global agreement measured by Cohen’s Kappa was 0.603 (95% CI: 0.560 - 0.661). When categories were regrouped, Kappa value for classifying “typical PFN” compared to the remaining categories (“atypical PFN” and “not PFN”) was 0.728 (95% CI: 0.690 - 0.754), in good range of concordance according to Altman et al. When the “not PFN” category was considered (grouping together the remaining categories), Kappa values dropped to 0.530 (95% CI 0.473 - 0.587), moderate concordance according to Altman et al.
CONCLUSION
Incidental pulmonary nodules are a frequent finding in routine chest CT and are followed according to guidelines. Some of these nodules represent intrapulmonary lymph nodes and should require no follow-up. Our results show that there is good interobserver agreement in the classification of PFN as “typical” intrapulmonary lymph nodes. However, classifying as “atypical” PFN has a higher degree of variability, which might hinder its widespread use.

CLINICAL RELEVANCE/APPLICATION
The category of intrapulmonary lymph node has been incorporated in some European incidental pulmonary nodule guidelines, and recently mentioned on the Fleischner Society guidelines. To our knowledge, there are no studies analyzing inter-observer agreement in classifying nodules as intrapulmonary lymph nodes. Our results show that there is good interobserver agreement in the classification of pulmonary nodules as typical PFN, therefore highly suggestive of intrapulmonary lymph nodes and amenable to support the incorporation of this category in future guidelines.