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Title: The outcome of lymph nodes previously sampled with EBUS-TBNA and deemed "inadequate" - what lessons can be learnt?

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Body: Introduction EBUS-TBNA is becoming increasingly widespread in the diagnosis and staging of suspected lung cancer and in other causes of mediastinal or hilar lymphadenopathy. EBUS-TBNA samples may be deemed "inadequate" by the reporting histopathologists if there is insufficient lymphoid tissue to confer adequate sampling of the node. We postulate, however, that meaningful conclusions can still be drawn in such cases when CT, PET-CT and ultrasound appearances are taken into account. Methods Prospective data was collected on all inadequate EBUS-TBNA samples at our centre from 2010 to 2012. Radiological characteristics, subsequent nodal sampling results and six months of clinical-radiological follow-up was recorded for each individual lymph node. Results 51 lymph nodes were judged to have been inadequately sampled during the study period. 30/51 lymph nodes subsequently demonstrated no evidence of malignancy during the follow-up period and were "true negatives". The remaining 21 demonstrated evidence of malignancy and were "false negatives". Radiological characteristics of both groups are shown below.

Table 1 - Radiological characteristics of true and false negatives

	True negatives	False negatives
Mean Size (mm)	11.17 (7-19)	18.58 (9-32)
Mean SUV	3.14 (1.5-4.2)	9.56 (5.3-13.2)
Benign USS appearances (central hilar structure, homogenous, oval)	24/30 (80%)	1/21 (4.8%)

Conclusions Small lymph nodes with benign ultrasound appearances and low SUV are highly likely to be benign even in the context of an "inadequate" EBUS-TBNA. In such cases EBUS-TBNA could be considered "negative", the patient given the benefit of the doubt and definitive management planned accordingly.