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Title: Ultrasonographic evaluation of mediastinal lymph nodes using endobronchial ultrasound

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Body: Background: Endobronchial ultrasound (EBUS) has the ability to visualize the mediastinal and hilar lymph nodes (LN). Preliminary studies have shown that ultrasonographic (US) appearance might have predictive value for malignancy. Objectives: To evaluate the utility of the EBUS ultrasonographic features in predicting benign and malignant LN and validate the previously proposed score of combined US criteria as a score for clinical application. Methods: The study enrolled 142 patients with 189 hilar/mediastinal LN. The following US features were evaluated: short axis ≥ 1 cm, round shape, heterogeneity, distinct margin, absence of central hilar structure (CHS) and the presence of hyperechoic density inside the LN. A simplified score was generated where the presence of each criteria was scored as 1 except for the distinct margin that was scored between (0= indistinct to 2= well distinct). These criteria were correlated with the histopathological results and the sensitivity, specificity, positive and negative predictive values were calculated. Results: Malignancy was the diagnosis in 54% of the involved LN. It was found that heterogeneity had the best sensitivity (99%) in predicting malignant LN and the presence of hyperechoic density inside LN had the best specificity (78%). Both the heterogeneity and the absence of CHS (with or without blood vessels) had the best negative predictive value (93% and 89% respectively). A score >4 of the different criteria had a sensitivity of 86% in predicting malignant LN and that >5 showed a specificity of 80%. Conclusion: The proposed score of the US features of the LN is easy for onsite clinical application and have a good prediction for malignant LN.