

IS COMBINATION OF DEEP LEARNING AND ENDOSCOPIC ULTRASONOGRAPHY A VALID ADJUNCT TO THE DIAGNOSIS OF MEDIASTINAL AND INTRA-ABDOMINAL LYMPHADENOPATHY? A RETROSPECTIVE SINGLE-CENTER TRIAL

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A retrospective single-center study demonstrates that deep learning models, particularly ResNet 50, outperform logistic regression and physician interpretation in differentiating mediastinal and intra-abdominal lymphadenopathy on endoscopic ultrasonography images.

KEY POINTS

- ResNet 50 achieved 95.38% sensitivity, 70.00% specificity, 85.71% accuracy, and AUC of 0.827 with substantial agreement (kappa 0.683) compared to final diagnosis, significantly outperforming other methods ($P < 0.05$).
- Expert physicians achieved 73.85% sensitivity, 65.00% specificity, 70.47% accuracy, and AUC of 0.694 with only fair agreement (kappa 0.383), while beginners performed worse at 58.46% sensitivity, 55.00% specificity, 57.14% accuracy, and AUC of 0.575 with slight agreement (kappa 0.129).
- The study included 200 suspicious lymph nodes with 630 EUS images from 93 patients between September 2016 and January 2023, with 105 images used for validation.
- The authors conclude that deep learning has reliability and feasibility in assisting differentiation of lymphadenopathy on EUS images and effectively supplements clinical experience.
- This material is relevant for gastroenterologists and endosonographers interested in artificial intelligence applications for lymph node assessment during EUS procedures.

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