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Title: Highly diagnostic yield of ultrasound-guided pleural biopsy for exudative lymphocytic pleural effusion

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Body: Background: Pleural biopsy is diagnostic tools for etiological diagnosis of lymphocytic pleural effusion (PE), conventionally performed without ultrasound (US) guidance. However, the benefit of US-guided pleural biopsy has not clearly demonstrated. Materials and Methods: To assess the diagnostic value of the US-guided pleural biopsy, we prospectively enrolled 54 patients with nondiagnostic exudative PEs between May, 2011 and January, 2012 at Phramongkutklao Hospital. Nineteen cases were received traditionally closed pleural biopsy with Abrams needles and the others were performed the US-guided pleural biopsy with the Abrams and Cope's needles. Results: Twelve (63.15%), 6 (31.6 %), and 1 (5.3 %) cases receiving closed pleural biopsy were diagnosed as malignancy, tuberculosis, and uremic pleurisies, respectively. Twenty five (71.4 %) and 9 (25.7%) cases receiving US-guided pleural biopsy were diagnosed as malignancy and tuberculosis. No significant difference between the etiologies and the methods of biopsy was demonstrated. There were significant difference between the diagnostic yield of closed pleural biopsy and the US-guided pleural biopsy (8 of 19, 42.1% vs 26 of 35, 74.3%, respectively, p = 0.019). The diagnostic value of US-guided pleural biopsy was 54.6% (6 of 11), 91.7% (11 of 12), and 83.3% (10 of 12) for no pleural abnormality, thickening pleura, and pleural nodules on US image, respectively (p = 0.045). Also, the US-assisted Abrams needle biopsies had a higher diagnostic value than the US-guided Cope's needle biopsies (74.3% vs 42.9%, p = 0.015). Conclusion: US-guided pleural biopsy with Abrams needle is effective for specific diagnosis of exudative lymphocytic PEs.