Journal of the Medical Association of Thailand, Vol 96, No 9

Differentiating between Abdominal Tuberculous Lymphadenopathy and Lymphoma Using Multidetector Computed Tomography (MDCT)

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Abstract

Objective: To evaluate the specific computed tomography (CT) imaging criteria for differentiating abdominal tuberculous lymphadenopathy from lymphoma by using abdominal multidetector computed tomography (MDCT).

Material and Method: A retrospective review of 31 patients with abdominal tuberculous lymphadenopathy and 85 patients with untreated lymphoma was conducted from abdominal CT scan reports in a single center, Siriraj Hospital, Mahidol University, Bangkok Thailand. CT scan was independently reviewed by two expert radiologists who were blinded to the patient's history, treatment outcome, and final diagnosis. The anatomical site, anatomical distribution, CT enhancement patterns, size of lymphadenopathy, amount and density of ascites, abdominal solid organ involvement, bowel involvement, and lung involvement were recorded.

Results: MDCT showed that abdominal tuberculous lymphadenopathy involved predominately the mesenteric, upper and lower para-aortic, periportal, and pancreaticoduodenal regions. Untreated lymphoma affected mainly the upper and lower para-aortic, iliac, periportal, pancreaticoduodenal, and gastrohepatic regions. Mesenteric and periportal lymph nodes were involved more often in patients with abdominal tuberculous lymphadenopathy than in those with untreated lymphoma ($p = 0.04$). Iliac and inguinal lymph nodes were involved more often in patients with lymphoma than in those with tuberculosis ($p = 0.01$). Anatomical distributions were significantly different between the two groups ($p<0.01$): confluence distribution was noted more often in tuberculous lymphadenopathy. The enhancement patterns had significant difference between the two groups. Peripheral enhancement was seen significantly more often in tuberculous lymphadenopathy, whereas homogeneous enhancement was found more often in lymphoma. The maximum size of enlarged lymph nodes also showed statistical difference between two groups by using t-test ($p = 0.01$). The mean diameters were 2.95 cm in tuberculous lymphadenopathy and 4.10 cm in lymphoma. Ascites was found significantly more often in tuberculous lymphadenopathy than in lymphoma ($p = 0.03$). However, the attenuation of ascites on pre-contrast images did not show statistical difference. Small bowel and large bowel thickening were demonstrated more often in tuberculous lymphadenopathy than lymphoma ($p<0.01$, $p = 0.01$), which mostly showed target sign enhancement in tuberculosis and homogeneous enhancement in lymphoma. The presence of hepatomegaly and splenomegaly were not different between the two groups. The diagnostic interpretations of two readers showed high sensitivity (93.5%) and high specificity (98.8% by reader1 and 97.6% by reader 2).

Conclusion: The present study indicates that the anatomical site, anatomical distribution, enhancement patterns, and size of lymphadenopathy, persistent ascites, and small and large bowel involvement seen on contrast-enhanced MDCT is useful in differentiating between tuberculosis and untreated lymphomas.

Keywords: Tuberculosis, Tuberculous lymphadenopathy, Lymphoma, Multidetector computed tomography

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