Case Report
pISSN 1738-2637 / eISSN 2288-2928
J Korean Soc Radiol 2014;70(2):163-166
http://dx.doi.org/10.3348/jksr.2014.70.2.163

대한영상의학회지

# CT Findings of Lymphoepithelioid Cell Lymphoma: A Case Report[1]
# 림프상피양 림프종의 전산화단층촬영 소견: 증례 보고[1]

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We report the computed tomography (CT) findings of a 70-year-old woman diagnosed with lymphoepithelioid lymphoma (Lennert's lymphoma). Neck, chest, and abdominal CT images revealed multiple enlarged lymph nodes, some of which showed heterogeneous mass or central low attenuation with peripheral rim enhancement. Although lymphoepithelioid cell lymphomas are very rare, they should be considered in the differential diagnosis of necrotic lymph nodes, particularly when combined with non-necrotic lymph nodes that show the typical radiologic features of lymphoma.

**Index terms**
Lymphoepithelioid Cell Lymphoma
Computed Tomography
Lymph Node
Necrosis

**Received** September 25, 2013; **Accepted** October 16, 2013
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This paper was supported by Wonkwang University in 2013.

## INTRODUCTION

Lymphoepithelioid lymphoma (Lennert's lymphoma) is a variant of peripheral T-cell lymphoma (1, 2), characterized by a high content of epithelioid cells, the presence of an atypical variant of Hodgkin and Sternberg giant cells, and an abundance of plasmocytes (3). It can be confused with various diseases that show a Lennert's pattern on histopathology, such as granulomatous lymphadenitis or other malignant conditions (4). Here, we report a case of Lennert's lymphoma mimicking tuberculous lymphadenitis on computed tomography (CT) images and pathologic findings.

## CASE REPORT

A 70-year-old woman, who presented with palpable masses on the right neck, visited our institution. She had been experiencing pain on the right side of her neck for 3 weeks. All laboratory findings were within the normal limits (hemoglobin: 11.6 g/dL; hematocrit: 34.8%; red blood cell count: 3.06 × $10^3$/μL; white blood cell count: 6.69 × $10^3$/μL; and platelet count: 383 × $10^3$/μL). A physical examination revealed palpable and tender multifocal lumps. Percutaneous fine needle aspiration biopsy revealed reactive lymphoid cells on a histopathological examination. Neck, chest, and abdominal CT scans were obtained to evaluate nodal involvement. Neck and chest CT showed multiple enlarged lymph nodes in cervical, supraclavicular, and both axillary and mediastinal areas. Abdominal CT showed a heterogeneous enhancing mesenteric mass and multiple enlarged lymph nodes in the mesentery and both inguinal areas. Nodal involvement was most predominant in the cervical area. A chest CT showed no abnormalities in either lung. The tentative radiologic diagnoses were tuberculous or metastatic lymphadenopathy, because some of the nodal images showed central low attenuation with rim enhancement, which represents central necrosis (Fig. 1A–E). An excisional biopsy of the right neck nodes was

performed under local anesthesia, and a diagnosis of tuberculous lymphadenitis was made because the lymph nodes showed chronic granulomatous inflammation with necrosis.

The patient took anti-tuberculosis drugs for 1 month; however, a follow-up CT showed disease progression. A second excisional biopsy was performed on the neck, and the histopathological analysis revealed chronic granulomatous inflammation with necrosis yet again. However, follow-up neck, chest, and abdominal CT scans showed disease progression despite additional anti-tuberculosis drug therapy for 2 months, so an excisional biopsy of the axillary lymph nodes was performed. The histopathology report obtained at that time showed malignant cells admixed with epithelioid histiocytes and inflammatory cells (Fig. 1F, G). The cells showed positive immunoreactivity for CD3 and CD4, focal positivity for CD30 and Ki-67, but no immunoreactivity for CD20, CD15, CD8, epithelial membrane antigen, or CD10. The cells showed negative results for both alpha fetoprotein and periodic acid Schiff staining.

A diagnosis of lymphoepithelioid lymphoma (Lennert's lymphoma) was made for all lymph nodes throughout the body by clinical, radiologic, and histopathologic findings, and we concluded that the granulomatous lesions in the previously obtained biopsy specimens were mistaken for tuberculous lymphadenitis by the pathologist.

The patient underwent chemotherapy for 2 months, and the follow-up CT revealed a marked decrease in both the size and extent of all the affected lymph nodes in cervical, supraclavicular, both axillary, mediastinal, mesenteric, and both inguinal areas, thereby suggesting improvement in the patient's condition.

## DISCUSSION

Lymphoepithelioid lymphoma (Lennert's lymphoma) was first described by Lennert and Mestdagh (3) in 1968. It is characterized by a high concentration of epithelioid cells, the presence of an atypical variant of Hodgkin and Sternberg giant cells, and an abundance of plasmocytes. It was initially considered to be a variant of Hodgkin's disease (3). Lymphoepithelioid lymphoma has been regarded as a variant of malignant peripheral T-cell lymphoma (1) and is included as a peripheral T-cell lymphoma not otherwise specified (NOS) in the Revised European-American classification of lymphoid neoplasms and World Health Organization (2).

Lennert's lymphoma should not be confused with Lennert's pattern, which shows a diffuse scattered epithelioid population throughout the lymph node on histopathology. The following conditions are considered in a differential diagnosis with Lennert's pattern: granulomatous lymphadenitis, tuberculosis, sarcoidosis, abnormal immune response, peripheral T-cell lymphoma, T-cell rich B-cell lymphoma, mixed cellularity Hodgkin's lymphoma, nodular lymphocytic and histiocytic Hodgkin's lymphoma and lymphoepithelioma-like carcinoma. Lennert's lymphoma can be confused with all of these diseases, particularly when aggregates of epithelioid cells closely mimic granuloma, and can be mistaken as tuberculosis as in this case (4).

Dong et al. (5) reported six cases of non-Hodgkin's mesenteric lymphoma, which were of mixed homogenous and rim enhancing patterns. Mesenteric (Hodgkin's- and non-Hodgkin's-) lymphoma can be found as a solitary mass by fusion of multiple lymph nodes in most cases but can be by a single enlarged lymph node. Mesenteric lymphoma can also be found as multiple nodular or diffuse types (6). In our case, abdominal CT revealed one large mass type of mesenteric lymph node showing heterogeneous enhancement (Fig. 1D), and other multiple nodular mesenteric lymph nodes showing a homogenous enhancement pattern (Fig. 1E).

Choi et al. (7) reported CT findings with four enhancement patterns of peripheral T-cell lymphoma in the cervical area. Particularly, peripheral T-cell lymphoma NOS showed two enhancement patterns; 1) nodal necrosis, and 2) ill defined margin with heterogeneous enhancement. Cervical and thoracic lymph nodes in our case showed nodal necrosis or homogenous enhancement (Fig. 1A–C).

Low attenuated lesions on CT may represent necrosis or tumor replacement. Peripheral T-cell lymphomas first involve the marginal sinuses of the nodal cortex via afferent lymphatics and then invade the medulla. Proliferation of neoplastic cells results in blockage of the lymphatic flow and nodal necrosis (8).

The CT images in our case showed that the non-necrotic lymph nodes were much more numerous than the necrotic nodes. Non-necrotic lymph nodes showed homogenous enhancement and some mesenteric nodes encased mesenteric fat and vessels, which are typical findings of lymphoma (Fig. 1E) (9). However, the presence of some necrotic lymph nodes led us to misdiag-

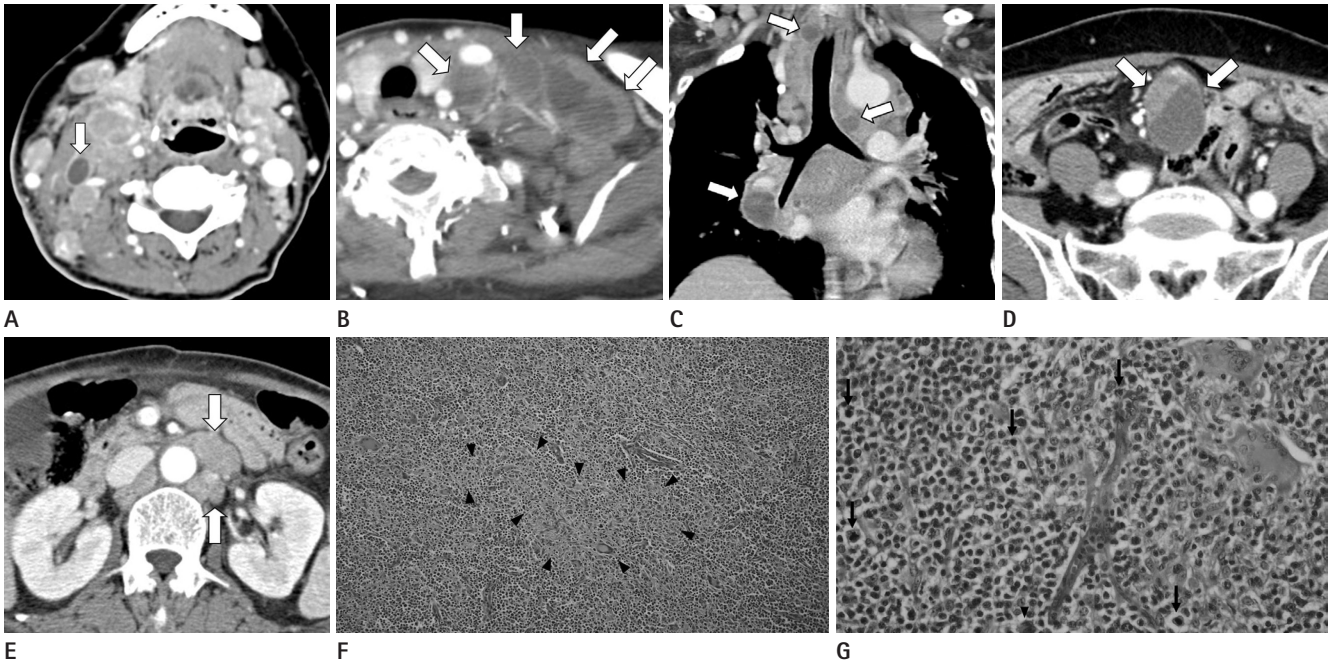


**Fig. 1.** Lymphoepithelioid cell lymphoma in a 70-year-old woman.
**A.** Contrast-enhanced axial image of neck CT shows multiple enlarged lymph nodes in both neck spaces. The image demonstrates a necrotic lymph node at right level IIA (arrow).
**B.** Contrast-enhanced axial image of chest CT shows multiple enlarged lymph nodes in both supraclavicular fossas. Note the central necroses in the left supraclavicular lymph nodes (arrows).
**C.** Contrast-enhanced coronal image of chest CT also shows multiple necrotic lymph nodes with peripheral rim enhancement in the mediastinum and both pulmonary hila (arrows).
**D.** Contrast-enhanced axial image of abdominal CT shows a markedly enlarged mesenteric lymph node (arrows) that contains solid and necrotic portions.
**E.** Contrast-enhanced axial image of abdominal CT shows multiple enlarged lymph nodes (arrows). They show homogeneous enhancement and encase the mesenteric fat and vessels.
**F.** Histopathologic exam shows neoplastic small cells that are admixed with confluent clusters of epithelioid histiocytes (arrowheads) (H&E, × 100).
**G.** The tumor cells have nuclear irregularities and show frequent mitoses (arrows) and scattered Reed-Sternberg-like cells (arrowhead) (H&E, × 400).

nose tuberculous lymphadenitis. Radiologic reports of Lennert's lymphoma are extremely rare. Only one case describing the radiologic findings of Lennert's lymphoma has been reported in the English literature. In that report, the CT scan showed a large mesenteric mass with central calcification (10). The findings of that report were different from those of our case, which showed a large solid and necrotic mesenteric mass and other multiple small mesenteric lymph nodes.

This case is the first report of a CT finding of lymphoepithelioid cell lymphoma mimicking granulomatous lymphadenitis, presenting as a necrotic mesenteric mass and multiple lymph nodes with or without necrosis.

Here, we report a very rare and interesting case of lymphoepithelioid cell lymphoma with CT findings. Even though it is extremely rare, lymphoepithelioid cell lymphoma should be considered in the differential diagnosis of necrotic lymph nodes, particularly when combined with non-necrotic lymph nodes that show typical radiologic features of lymphoma.

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# 림프상피양 림프종의 전산화단층촬영 소견: 증례 보고[1]

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저자들은 70세 여자 환자에서 발생한 림프상피양 림프종(레너트 림프종)의 증례를 보고하고자 한다. 이 환자의 경부, 흉부, 복부 CT상 다발성 림프절의 크기 증가 및 중심성 괴사와 테두리 조영증강, 그리고 불균질한 종괴 형태 등이 보였다. 림프상피양 림프종은 매우 드물지만 중심성 괴사를 보이는 림프절이 보일 때 감별진단에 포함하여야 한다.

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