

Visualization of esophageal non-Hodgkin's lymphoma with Ga-67 scintigraphy

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Although non-Hodgkin's lymphoma of the gastrointestinal tract is common, primary esophageal lymphomas represent less than 1% of all gastrointestinal tumors. We report a case of primary non-Hodgkin's lymphoma of the esophagus. Ga-67 scintigraphy showed characteristic intense accumulation in the esophageal wall. The histopathology belonged to the category of mucosa-associated lymphoid tissue lymphoma.

Key words: Ga-67 scanning, esophageal lymphoma, non-Hodgkin's lymphoma

INTRODUCTION

NON-HODGKIN'S LYMPHOMA has a tendency to involve extranodal areas as its primary site. The gastrointestinal tract is the most commonly involved extranodal site but the primary esophageal lymphoma is the least common site of involvement occurring in less than 1% of patients with gastrointestinal lymphoma.^{1,2} We report a case of primary non-Hodgkin's lymphoma of the esophagus in which Ga-67 scintigraphy showed characteristic intense accumulation in the esophageal wall.

CASE REPORT

A 63-year-old female was admitted to our hospital for further examination of the esophagus. At the time of admission, she had no gastrointestinal symptoms. One year ago she had been treated for gastric polypectomy, and submucosal tumor of the esophagus was pointed out on upper gastrointestinal series and chest computed tomography (CT), but the diagnosis could not be confirmed. The submucosal tumor of the esophagus was later found to be enlarged at the time of follow-up CT.

Blood biochemistry, including renal and liver function tests, were within normal limits. On physical examina-

tion, she had no peripheral lymphadenopathy. Her chest radiograph revealed no abnormalities. Upper gastrointestinal series revealed huge submucosal folds, about 10 cm in length, closely resembling esophageal varices in the mid and distal portions of the esophagus (Fig. 1). The stomach was normal in capacity and outline. CT of the thorax demonstrated a massive mural thickening of the esophagus (Fig. 2). There were no enlarged lymph nodes around the mass or in the mediastinum. On endoscopy, a smooth-surfaced, semibulbous lesion with a bridging fold was found 25 cm from the incisors. Biopsy of the mass revealed evidence of non-Hodgkin's lymphoma which belonged to the category of mucosa-associated lymphoid tissue (MALT) lymphoma.

Ga-67 scintigraphy was performed to determine the clinical staging 2 weeks after the biopsy. The chest spot images in the anterior, posterior and bilateral projections were acquired by means of a 180° opposing dual-head gamma camera (Prism 2000; Picker International, Cleveland, OH) at 72 hr after the intravenous injection of 111 MBq (3 mCi) of Ga-67 citrate. A diffuse and intense long area of Ga-67 accumulation was located in the lower posterior mediastinum corresponding to the mass on the CT scan (Fig. 3). No abnormal Ga-67 accumulation was found in any other organ or lymph nodes.

DISCUSSION

The lymphoid tissue in the gastrointestinal tract is found in the lamina propria and the submucosa, and its amount varies according to the anatomic location within the

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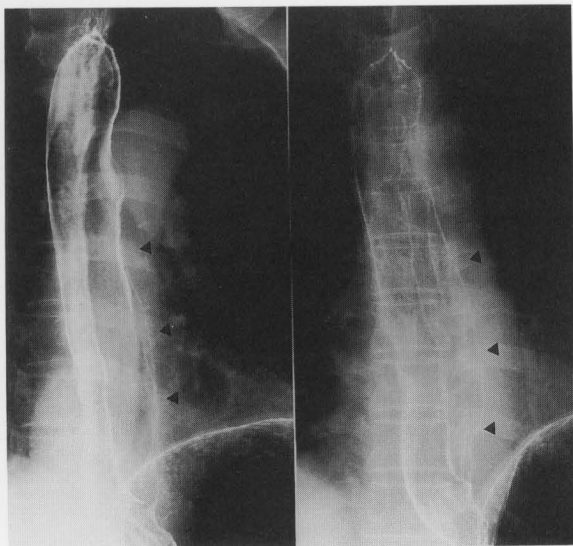


Fig. 1 Esophagogram showing huge submucosal fold (arrow heads), about 10 cm in length, in the mid and distal portions of esophagus.

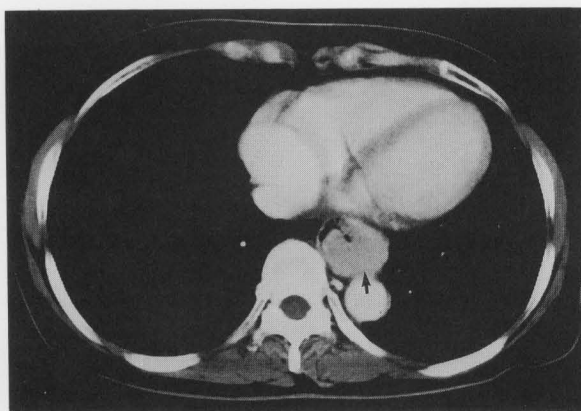


Fig. 2 CT scan at the level of the lower esophagus showing a massive mural thickening of esophageal wall due to lymphoma (arrow) mainly in the postero-lateral aspect.

gastrointestinal tract. Although disseminated lymphoma of the gastrointestinal tract is common, primary esophageal lymphomas represent less than 1% of all gastrointestinal tumors.^{1,2} Reported cases of esophageal lymphoma were judged primarily based on the criteria suggested by Dawson et al. including predominant esophageal involvement with only regional lymph node involvement, absence of peripheral or mediastinal lymph node involvement, as well as splenic or hepatic involvement, and a normal white cell count.³ Our case with predominant esophageal involvement had no evidence of involvement of the liver, spleen, stomach or distant lymph nodes, and can be categorized as primary esophageal lymphoma.

Lymphomas of the gastrointestinal tract, salivary glands, lung and thyroid are grouped together as tumors arising

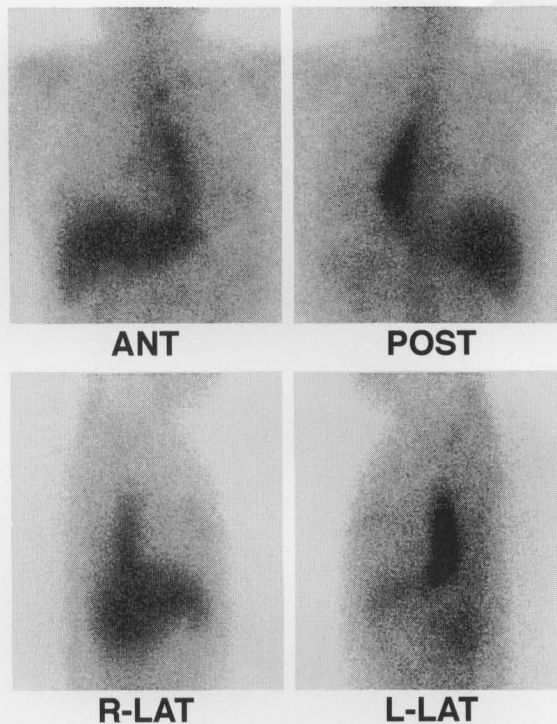


Fig. 3 Ga-67 imaging in the anterior, posterior and bilateral projections showing a diffuse and intense long area of accumulation in the lower posterior mediastinum corresponding to esophageal lymphoma. Although the hot spot are seen at upper thoracic area, there is no evidence of lymph node swelling by chest CT.

from MALT.⁴ MALT within the esophagus has been described in Barrett's esophagus.⁵ Atypical hyperplastic lymphoproliferative responses are also known to occur due to Epstein-Barr virus, human immunodeficiency virus, human T-cell leukemia/lymphoma virus type I, and certain drugs, and in post-transplant organ recipients and autoimmune disorders.⁵ Our case had no evidence of virus infection and had no past medical history of any of the above conditions.

Barium study and endoscopic examination are commonly used to detect gastrointestinal lymphoma but with these examinations it is difficult to demonstrate a submucosal tumor, which is one of the characteristic features of lymphoma.⁶ Ga-67 scanning, known for its avidity for lymphoma cells, is often used in detecting, staging and evaluating the treatment response of lymphomas. Ga-67 scanning sensitivity of 78% and specificity of 97% for detecting lymphomas by planar imaging has been documented.⁷ The mechanisms of Ga-67 uptake were shown to be mediated by histology, transferrin receptors and the presence of large cell components.⁸ In this case, histological analysis identified the mixture of small lymphocytes and large cells. Therefore, intense Ga-67 uptake of the esophageal MALT lymphoma was shown.

Although, in patients with gastrointestinal lymphoma,

only a few researchers have reported its utility for detecting lymphoma,⁹⁻¹² Ga-67 scanning of primary esophageal lymphoma, to our knowledge, has not been reported. Relative advantages of Ga-67 scanning include its ability to accurately demonstrate lymphomatous extensions, to survey the whole body at one scanning, and to assess therapeutic effects.

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