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Generalized Lipomatosis of Lymph Nodes: A Lymphographic Problem in Differentiating from Malignancy

A Case Presentation

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Summary

Lymphography in a 50-year-old male patient showed suspicious lymph nodes in the para-aortal regions. Exploratory laparotomy and histological examination of biopsied material gave no evidence of tumor or lymphoma. The lymph nodes had distinct lipomatous changes. The differential diagnosis of positive lymphography is discussed.

Introduction

The gradual replacement of the parenchymal tissue of lymph nodes with fat is a normal aging process, or due to previous inflammation (3, 4, 11, 12, 13, 17). The lipomatous nodes can be normal (11, 16) or enlarged (6, 13, 17). According to the literature, malignant changes cannot be differentiated from lipomatous changes in the lymphadenogram. Differentiation is possible only during the lymphangiogram (1, 2, 13, 16). In this paper a case is described where lymphography during the lymphangiogram and the lymphadenogram showed definite evidence of malignancy.

Case Report

Since 1974 the patient had recurring attacks of pain in the distal portion of his left foot. At the end of 1976 he was admitted to the hospital after an episode of renal colic with a provisional diagnosis of gout. Except for excessive alcohol intake over many years (150–200 g of pure alcohol per day) the remaining history appeared insignificant. A diagnosis of alcoholic liver disease had been established in 1969 and 1973.

Physical examination showed an obese patient (175 cm, 85 kg) with a grossly enlarged liver. There were small lymph nodes palpable bilaterally of up to 2 cm in diameter in both the cervical and inguinal regions.

Pathological laboratory findings (normal values in parentheses): hemoglobin 12 g/100 ml (14–18), mild normochromic anemia; ESR 40 mm Westergren; serum uric acid 558 μmol/l (200–422); gamma-GT 55 U/l (6–28); gamma globulin 18.4 g/l (5–17); IgA 525 mg/100 ml (90–450). Examinations were negative in reference to HBs-antigen and anti-HBs-antibodies. The liver-spleen scan showed marked hepato-splenomegaly with a homogeneous pattern. The bone marrow cytology and histology presented no malignant but only nonspecific reactive changes.

An intravenous pyelogram revealed lateral deviation both of the left distal pole of the kidney and the proximal portion of the ureter owing to a tissue mass. This finding suggested a tumor in the left retroperitoneal space. With regard to the enlarged lymph nodes of the cervical and inguinal regions, a generalized lymphoma was assumed. Therefore biopsies were taken from the cervical and inguinal nodes. The histological examination revealed an extensive fatty infiltration with a "lipomatous pseudohypertrophy" (6). There was no conclusion for a malignant disease.

In order to locate the retroperitoneal tumor better, an aortic angiography was undertaken with selective demonstration of the left renal

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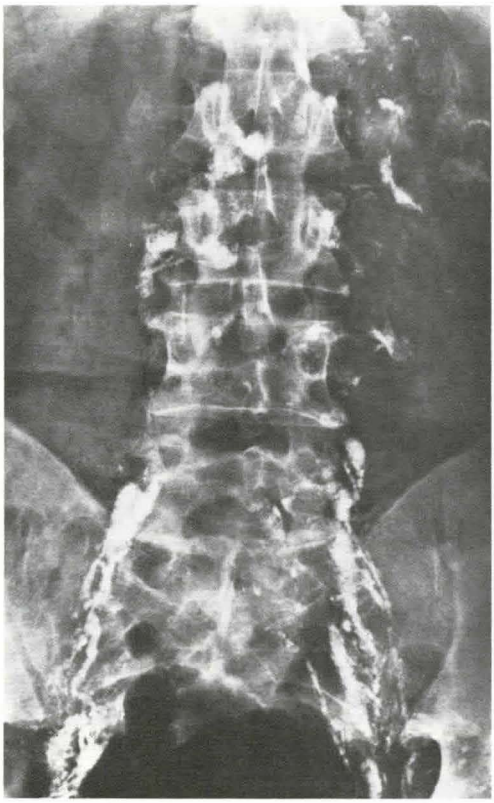

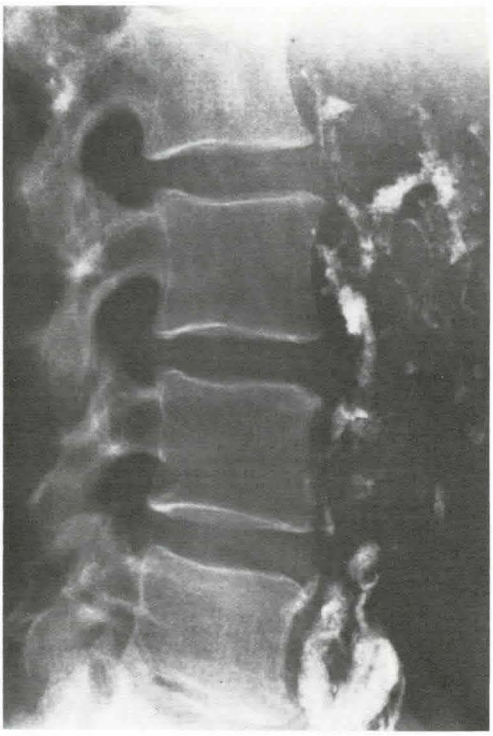

Fig. 1a and 1b Lymphangiogram in two planes. Abnormal lymphatic network especially para-aortal left and partly para-aortal right at L_I–L_{IV}

artery and superior and inferior mesenteric arteries. Since so far nothing pathological had been detected, a lymphography of the lower extremities was carried out. The transport of the Lipiodol® Ultra-Fluid (Byk Gulden Konstanz) contrast medium was prolonged. The lymphangiogram on the left and partly on the right side was abnormal at the level of L_I–L_{IV}. The three chain arrangement of the external, middle and internal iliac vessels ended up in a irregular arrangement of multiple fine para-aortal vessels with a lack of the lymphatic valves (Fig. 1a and 1b). The thoracic duct was not visualized. In the lymphadenogram, the nodes had defects and spongy structure at the level of L_{IV}, and an incomplete filling of enlarged nodes at the left para-aortal side at L_I–L_{IV}. The marginal sinus of the nodes were partly defective (Fig. 2a and 2b).

An exploratory laparotomy followed the lymphographic results. Massive fatty infiltration was present in the abdominal organs and in the retroperitoneum. Extensive fatty tissue with nodes was removed from the regions which were lymphographically suspicious of malignancy (Fig. 3). Splenectomy and liver biopsy were performed simultaneously.

The histological examination of the retroperitoneal lymph nodes showed a marked lipomatosis but no evidence of malignancy. In addition, some of the nodes exhibited considerable "lipomatous pseudohypertrophy" (Fig. 4a and 4b). The liver revealed portal cirrhosis with some evidence of progression. In the spleen, weighing 360 g, only a distinct chronic congestion was evident.

Fig. 2a

Fig. 2b

Fig. 2a and 2b Lymphadenogram in two planes. Incomplete and fragmentary illustration of the left and of the right para-aortal nodes at the level of L_I–L_{IV} and of the nodes at the right upper iliac side

Fig. 3 Status after exploratory laparotomy with multiple nodal extirpations para-aortal left, para-aortal right and at the right upper iliac side (silver clips). The intravenous pyelogram depicts a lateral deviation of the left lower kidney pole and a latero-caudal position of the left ureter

Fig. 4a Para-aortal lymph node with subtotal fatty infiltration and "lipomatous pseudohypertrophy". Only few areas of normal tissue are present in the subcapsular space. Paraffin embedded. Van Gieson stain

Discussion

Morehead and *McClure* (11) were first to describe enlarged lymph nodes associated with fatty infiltration of the parenchyma. They termed this process "lipoplastic lymphadenopathy", and wanted to express that fat cells are developed from the reticulum cells of the nodal stroma (9). In the literature only a few cases have been extensively described where patients with lipomatous enlarged nodes have had suspicious lymphograms leading to exploratory laparotomy (12, 17). Previous inflammation has been suggested as the cause of this fatty change.

The patient described here had palpable enlarged lymph nodes bilaterally in both the cervical and inguinal regions as well as definite pathological changes in the lymphogram. The histological examination of nodal tissue from the cervical, inguinal and retroperitoneal regions showed distinct lipomatosis with a "lipomatous pseudohypertrophy" (6). There was no evidence of malignancy. Histologically, the liver had a portal cirrhosis probably resulting from chronic alcohol abuse. The pathological laboratory findings are presumably due to the liver cirrhosis.

The etiology of the remarkable lipomatosis of the lymph nodes is in the present case unclear. It could be due to the gradual replacement by fat in the process of aging of the lymphatic system (9) or to the existing obesity in the pa-

Fig. 4b Enlarged section of Fig. 4a. Subcapsular remains of lymphatic tissue

tient (12). The fact that not only the cervical and inguinal but also the retroperitoneal lymph nodes showed fatty infiltration suggests the latter possibility. In addition to this, the nodes had a "lipomatous pseudohypertrophy" (6), which is not part of the aging process (4). A causal relationship between liver cirrhosis and lipomatosis of the lymph nodes has not been reported. The effect of drugs, as described in the retroperitoneal fibrosis (15), can be excluded on the basis of the history.

Metastatic lymph nodes or advanced malignant lymphomas show lymphographic abnormalities of vessel diameter, flow velocity and flow direction, and changes caused by filling defects, lymph blockades and collateral vessels (1, 3, 10, 13, 16). The differentiation between lipomatous and malignant changes is only possible in the lymphangiogram (1, 2, 13, 16). Malignant nodes show altered lymph circulation in comparison to lipomatous nodes. The lymphadenogram presents similar changes and does not allow differentiation in lipomatous and malignant nodes.

The patient here described showed in both the lymphangiogram and the lymphadenogram definite signs of a malignant process. The pathological examination demonstrated only lipomatous changes. Therefore the diagnostic value of lymphography is strongly limited in the presence of lymph node lipomatosis.

The validity of lymphography, i.e. the agreement of the lymphographic with the histological findings, in the lower extremities and in the retroperitoneum is 50–87 % according to the literature (5, 7, 8, 13, 14). This depends on the location and size of the tumor, the type of tumor and its tendency to lymphatic metastases, on the extent of the malignant nodal changes and of the radiologist's experience in the interpretation of lymphograms. False negative readings can occur with micrometastases which are not lymphographically visible, or by complete malignant nodal destruction (3, 10). False positive readings occur mostly in lipomatosis and/or fibrosis of nodes (14). Each case with a lymphographic tumorlike finding must be confirmed or refuted by nodal biopsy and histology.

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