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Vascular Transformation of Lymph Node Sinuses in a Patient with Liver Cirrhosis. A Case Report

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ABSTRACT

Vascular transformation of lymph node sinuses in retroperitoneal and parapancreatic lymph nodes found incidentally in an autopsy case of 57-year-old male with liver cirrhosis is reported. The lining cells of the capillary like structure in this lesion were considered to be endothelial cells showing coagulation factor-VIII related antigen immunoreactivity, *Ulex europaeus* agglutinin I lectin binding affinity, and pinocytotic vesicles ultrastructurally.

Key words: *Lymph node sinus, Vascular transformation, Liver cirrhosis, Portal hypertension*

Vascular transformation of lymph node sinuses or nodal angiomatosis was firstly described by Haferkamp et al[2] in 1971. The lesion was reported to be found in acute and chronic congestive status such as in mediastinal lymph nodes in superior vena caval obstruction[2] or axillar nodes after radical mastectomy[1]. The morphological characteristics of this lesion are nodal enlargement with fibrosis of the sinuses associated with vascularization. This is a report on vascular transformation of lymph node sinuses in the retroperitoneal and parapancreatic lymph nodes found in an autopsy case of liver cirrhosis. Some immunohistochemical, cytochemical and ultrastructural observations of this lesion are also presented.

CASE REPORT

A 57-year-old man was admitted to the Department of Internal Medicine, Hiroshima University Hospital because of general tiredness for more than four years. Micronodular liver cirrhosis was observed by laparoscopy and diabetes mellitus was diagnosed clinically by glucose tolerance test. The patient died about five months after admission due to severe hepatic coma. Esophageal varices and severe splenomegaly were confirmed clinically as manifestations of portal hypertension, but no superficial lymph node enlargement was observed before death.

Pathological findings

The autopsy was conducted about two hours postmortem. The cadaver was an emaciated man with generalized jaundice. The liver weighed 1300 g and showed micronodular cirrhosis (Fig. 1). The retroperitoneal lymph nodes were brownish tan in color and enlarged but not fused together (Fig. 2).

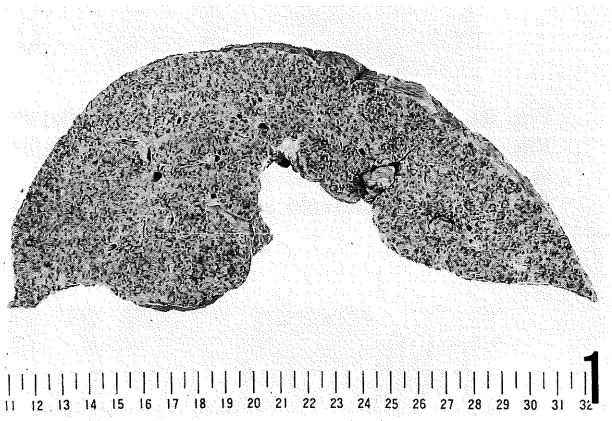

Fig. 1. Cut surface of the liver showing micronodular cirrhosis with moderate intrahepatic cholestasis.

Fig. 2. Retroperitoneal paraaortic lymph nodes are enlarged and brownish-gray in color on cut surfaces.

Microscopically, the lymph node sinuses showed fibrosis with anastomosing capillary like structure

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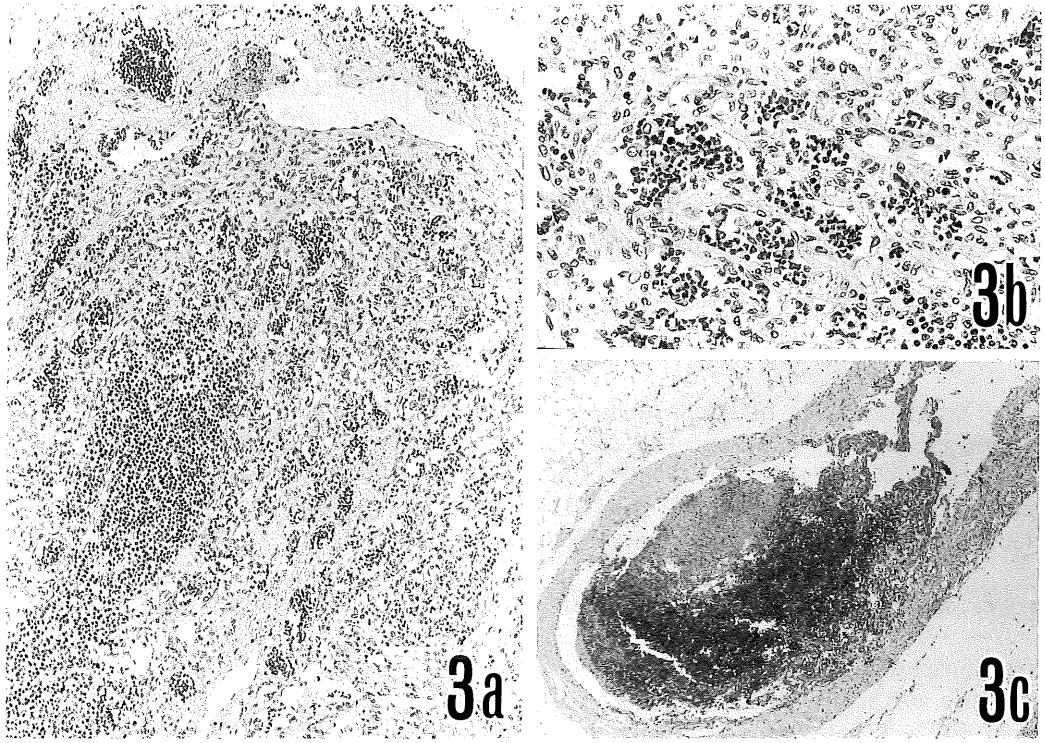

Fig. 3a. Anastomosing capillary or vessel-like structures are seen in the lymph node sinuses. H.E. × 93.
Fig. 3b. These capillary-like architectures are lined by flat endothelial cells and filled with red blood cells and macrophages. H.E. × 186.
Fig. 3c. Fresh thrombi are observed in small veins around these lymph nodes. H.E. × 40.

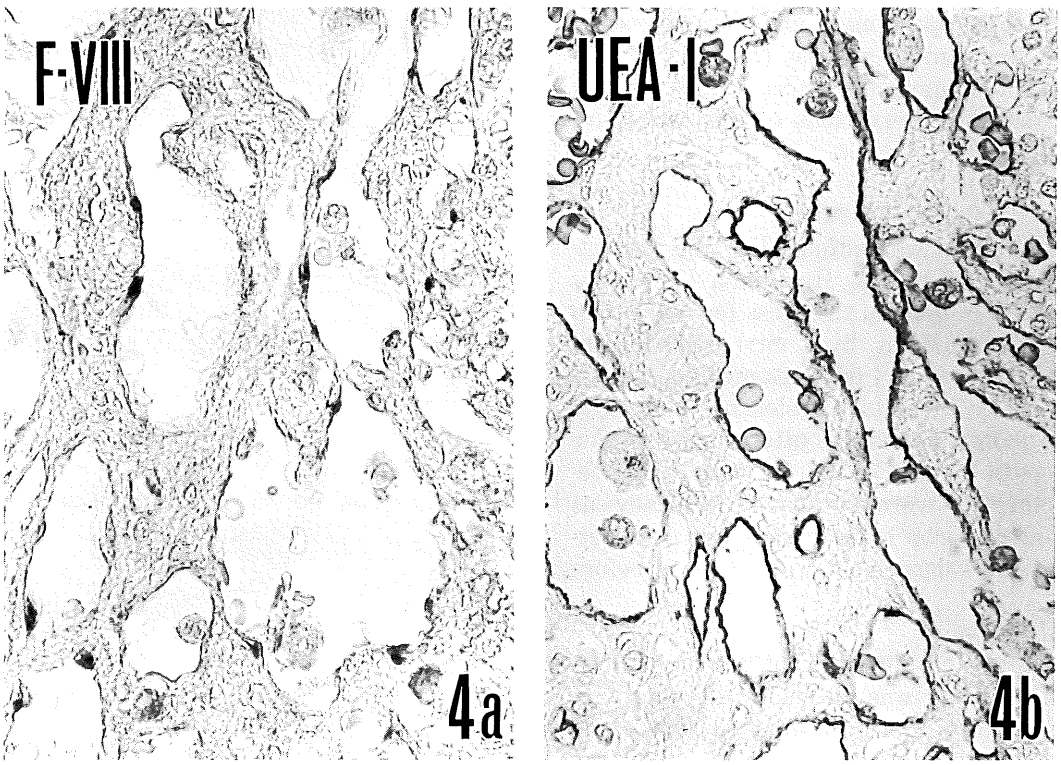

Fig. 4a. The lining cells of these vascular structures show coagulation factor VIII (FVIII) immunoreactivity in the supranuclear part of the cytoplasm. PAP × 386.
Fig. 4b. They also show positive reaction to *Ulex europaeus* agglutinin I (UEA-I) lectin. × 386.

Fig. 5. Ultrastructurally the cytoplasm of the lining cells contains a small amount of endoplasmic reticulum, free ribosomes and mitochondria. × 13125. *Inset*: Small pinocytotic vesicles are seen on the antiluminal surface of the cell. × 77500.

containing red blood cells and a few macrophages, associated with slight atrophy of lymphoid follicles (Fig. 3a, b). Some perinodal vessels contained fresh thrombi (Fig. 3c). The lining cells of these capillary like structures showed coagulation factor-VIII (FVIII) associated antigen immunoreactivity and *Ulex europaeus* agglutinin I (UEA-I) binding affinity (Fig. 4a, b). Nuclear atypia and proliferation of spindle cells with formation of vascular slits were not observed. Ultrastructurally, these lining cells contained small pinocytotic vesicles, a small amount of endoplasmic reticulum, free ribosome and mitochondria (Fig. 5). In view of these findings, the lining cells were regarded to be endothelia. Similar lesions were observed in parapancreatic lymph nodes.

Other pathoanatomical findings included splenomegaly with the organ weighing 300 g, prominent esophageal varices without rupture, cholemic nephrosis, severe gastrointestinal bleeding and bronchopneumonia of both lungs.

DISCUSSION

The pathological findings of the lymph nodes in this case agree with "vascular transformation of lymph node sinuses due to venous obstruction" described by Haferkamp et al[2] and "nodal angiomatosis" reported by Fayemi and Toker[1]. This is characterized by enlarged congested lymph nodes with prominent endothelial lined spaces (vascularization) and loose fibrosis of the sinuses without follicular or paracortical reaction. This lesion frequently occurs in congestive status such as in mediastinal lymph nodes in acute vena caval obstruction due to bronchogenic carcinoma or in axillar nodes in radically mastectomized women. There has been no report of the lesion in liver cirrhosis. However, in view of the portal hypertensive status of this patient manifested clinically and also pathologically by splenomegaly and esophageal varices produced chronic congestive status to lymph nodes of the intraabdominal region, it is not contradictory even if liver cirrhosis has vascular transformation of lymph node sinuses.

In vascular transformation of lymph node sinuses, the lining cells of capillary like architecture has been assumed to be endothelia[1,2], but there has been no morphological evidence or analysis because of the rarity of this lesion. We confirmed that these cells showed FVIII immunoreactivity and UEA-I lectin binding affinity, both of which are histochemical markers for endothelia[3,6]. Moreover, these cells contain pinocytotic vesicles ultrastructurally.

The differential diagnosis of this lesion should be considered to be early phase of Kaposi's sarcoma involving lymph nodes[1,2]. Kaposi's sarcoma also shows an angiomatous change in cortical sinuses of lymph nodes, associated with proliferation of atypical spindle-shaped cells[4,7,8]. In this case, however, morphological evidence suggesting Kaposi's sarcoma described above could not be observed.

This rare lesion of the lymph node is reported because of the recent epidemic of acquired immunodeficiency syndrome (AIDS) which often complicates Kaposi's sarcoma[5]. Vascular transformation of lymph node sinuses is an important lesion for the histopathological differential diagnosis of Kaposi's sarcoma in the future.

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