

Lymphology 23 (1990) 183-186

## CHYLOUS ASCITES AS A PRESENTING SIGN OF PROSTATIC ADENOCARCINOMA

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### ABSTRACT

*Chylous ascites is usually associated with either primary disorders of the lymphatic system or malignancies of the lymph nodes such as Hodgkin and non-Hodgkin lymphoma. We describe, however, a young man in whom chylous ascites was a presenting sign of disseminated adenocarcinoma of the prostate gland. Most likely retroperitoneal lymph nodal replacement and tumor blockade of lymphatic collectors by metastatic adenocarcinoma was responsible for the development of chylous ascites.*

Chylous ascites is comparatively rare with an estimated 1:20,000 to 1:190,000 of in-hospital admissions (1). In childhood, chylous ascites is usually due to primary disorders of the lymphatic drainage system, whereas in adulthood it is often secondary to neoplasia, hepatic dysfunction, pericarditis, or is idiopathic (1-3). The most common neoplasm associated with chylous ascites is malignant lymphoma but the phenomenon has also been described with epithelial tumors, including carcinoma of the pancreas, stomach, breast, and carcinoid (1). We describe a young man with massive ascites as a presenting sign of disseminated adenocarcinoma of the prostate.

### Case History

A previously healthy 29-year-old Arab man was first hospitalized in February 1989 because of progressive swelling of the abdomen, scrotum, and legs that had developed over a three month interval. He denied constitutional symptoms such as fever or pain, and he had not been in an endemic area of filariasis. Physical examination disclosed mild ascites and lymphedema of both legs and the scrotum. Laboratory studies including chemical tests of liver, kidney, and thyroid function, serum proteins, albumin, alkaline phosphatase, and urinalysis were normal as were eosinophil count and blood tests for filariasis. Computer tomography of the lower abdomen and pelvis showed no masses, a normal-sized prostate and normal venous system except for mild engorgement of the periprostatic and perivesical veins. Inferior cavography was normal. Lymphangiography (lipiodol ultrafluide) of the lower limbs showed delayed lymphatic flow with dermal backflow after 24 hours consistent with disturbed lymphatic drainage. Similar results were observed using radionuclide lymphography ( $^{99m}\text{Tc}$ -rhenium sulfide). The patient was initially diagnosed as having idiopathic lymphedema and was discharged with elastic stocking and adjuvant diuretic therapy.

During the following months ascites increased. Repeat computed tomography of the abdomen showed intraperitoneal fluid, intense edema of the mesentery and subcutaneous tissue, bilateral pleural effusion with normal lung architecture, and mild lymphadenopathy in the upper mediastinum. Echocardiography and bronchoscopy were unremarkable.

Five months after the first admission, the patient was rehospitalized because of worsening ascites and shortness of breath. Physical examination disclosed massive ascites and generalized lymphedema (Fig. 1). Rectal examination was



Fig. 1. The patient as he appeared on the final admission.

normal. Abdominal puncture yielded a milky fluid containing 2590mg/dl triglyceride and 205mg/dl total cholesterol, mostly in the chylomicron fraction. Total protein in the ascitic fluid was 3.2g/dl; no malignant cells were seen. Pleural puncture revealed a straw-colored fluid containing 24mg/dl triglyceride, 99mg/dl cholesterol, 3.4g/dl protein, and no malig-

nant cells. Blood tests showed a markedly elevated level of alkaline phosphatase (543 IU; normal < 115 IU) mostly of bone origin, and acid phosphatase 24.4 IU (normal < 11 IU) with an elevated prostatic fraction. Bone scan ( $^{99m}\text{Tc}$ -methylene diphosphonic acid) showed multiple pathologic concentrations in the thoracolumbar spine and pelvis consistent with metastatic prostatic carcinoma (Fig. 2). Liver scintiscan ( $^{99m}\text{Tc}$ -phytate colloid)

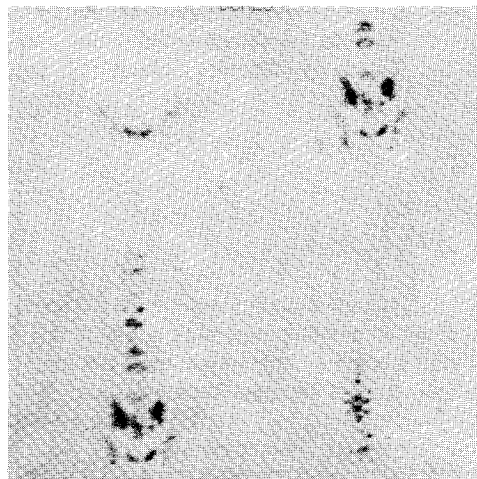
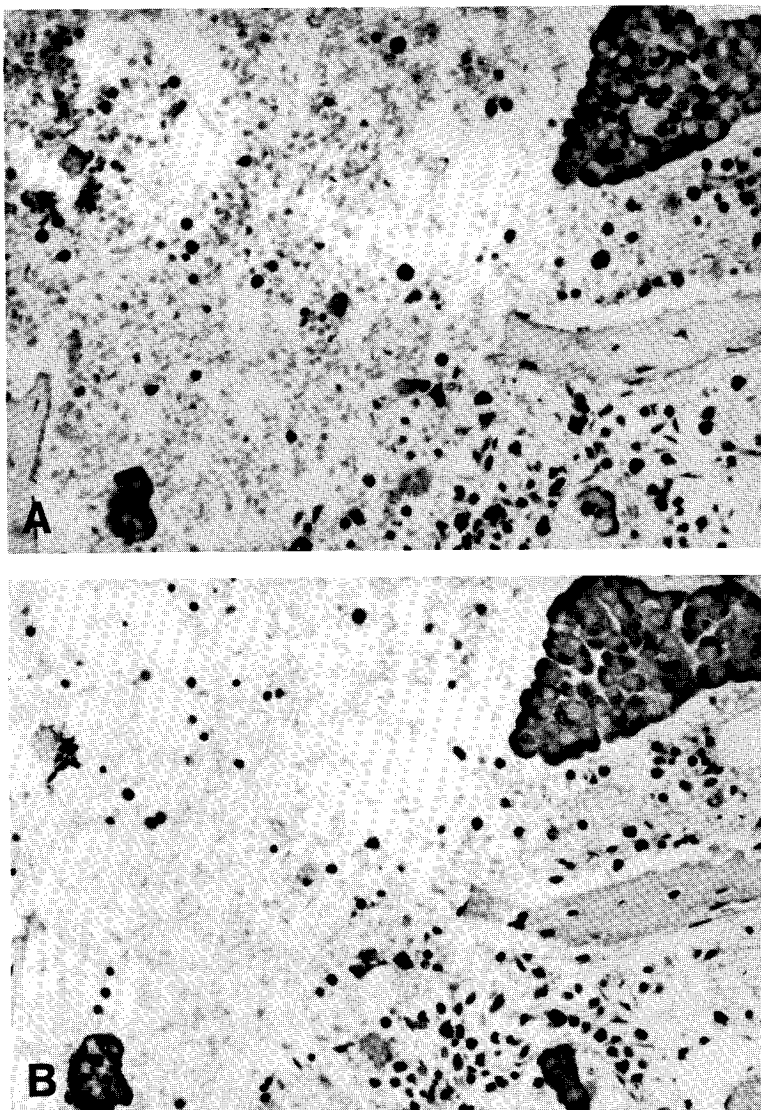


Fig. 2. Scintiscans of bone demonstrating osteoblastic lesions of the thoracic (right) and lumbar spine and pelvis (left) consistent with metastatic prostatic carcinoma.

and ultrasonography of the testis were normal. Bone marrow biopsy and smear revealed an osteoblastic response with metastatic adenocarcinoma which stained positively for acid phosphatase (Fig. 3A) and specific prostatic antigen (Fig. 3B). The patient was initially treated with repeated abdominal paracenteses and diuretics; he refused chemotherapy or other treatment and died one month later. Permission for autopsy was refused.

#### COMMENT

Chylous ascites secondary to malignancy is usually associated with lymphoproliferative disorders (1). Among the nonlymphoproliferative neoplasms, chylous ascites has been described with advanced carcinoma of the pancreas (4),



*Fig. 3. (A) Bone marrow aspirate showing tumor cells stained positive for acid phosphatase, and (B) similar smear stained positive for prostatic specific antigen.*

uterus (5), stomach (6), and carcinoid tumors (7). The prognosis in these patients is usually dismal and most patients die several months after diagnosis. Chylous ascites as a presenting sign of adenocarcinoma of the prostate has, to the best of our knowledge, never been reported.

Chylous ascites results from impedance or interruption of mesenteric lym-

phatic drainage in the abdomen or thorax and may be a sequela of malignant infiltration of lymph nodes (lymphomatous or epithelial) or from treatment of cancer as, for example, following retroperitoneal nodal dissection or irradiation (8,9). Alternatively, huge retroperitoneal masses (including benign tumors) may obstruct lymphatic drainage by direct lymphatic

compression. Serotonin secreting tumors such as carcinoid may also obliterate lymphatic collectors by retroperitoneal fibrosis with subsequent chylous ascites (7). On the basis of the enlarged retroperitoneal lymph nodes (abdominal CT) and the wide dissemination of the prostatic carcinoma, it is likely that the chylous ascites in the reported patient was secondary to diffuse metastases to paraortic lymph nodes and regional lymphatic collectors from intraabdominal prostatic carcinomatosis.

In summary, chylous ascites may be a rare presenting sign of prostatic carcinoma.

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