short period, and progressively spread to the liver, bone, adrenal gland, and pancreas. To our knowledge our case is the first known report of bone metastases in leiomyosarcoma in the world literature.

In order to alleviate the high risk of recurrence and subsequent metastases, chemotherapy, TNF therapy, and radiation therapy were introduced, but unfortunately these were unsatisfactory in this case. Treatment options for leiomyosarcomas which show aggressive malignant behavior are limited at present. Therefore, new modalities of postoperative treatment for this type of tumor are urgently needed.

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5-FLUOROURACIL/LEVAMISOLE INDUCED INTRAHEPATIC FAT INFILTRATION IMITATING LIVER METASTASIS

Colorectal carcinoma is the most frequent cancer in Norway where more than 2 700 cases are diagnosed each year. Sixty-five percent of the patients are in Duke stage B or C. Postoperative chemotherapy has been met with a great interest during the last decade. Several studies have reported a possible advantage of 5-fluorouracil (5-FU) and levamisole in this setting (1–3). Since January 1992, patients, 75 years old, with radically resected colorectal carcinoma Duke stage B and C have been admitted to the Department of Oncology, University Hospital of Tromsø for adjuvant chemotherapy consisting of 5-FU and levamisole. The 5-FU/levamisole treatment was in accordance with the recommendations from the National Institute of Health (4). Several side effects of levamisole have been reported (5, 6), such as fever, agranulocytosis, skin eruption, insomnia, weakness, emesis and vomitus. Combined with alcohol, levamisole may have a 'disulfiram-like' effect. To my knowledge there is no report on fat infiltration imitating liver metastasis caused by levamisole.

Case report. A previously healthy 38 year old man was hospitalized in January 1992 because of rectal bleeding. Examinations revealed a rectal carcinoma. A low anterior resection was performed which showed that two of three lymphatic nodes examined were infiltrated (Duke stage C). CT scan of the entire abdomen and pelvis revealed no sign of metastasis. Postoperative radiotherapy to a total dose of 46 Gy (2 Gy fraction) was given. A standard 3-field technique, using a 6 MV linear accelerator was employed (7). When finishing radiotherapy, adjuvant chemotherapy using 5-FU and levamisole was started in April 1992. Initially 5-FU (450 mg/m^2 i.v.) was administered for 5 days and levamisole (50 mg × 3 orally) for 3 days respectively. Three weeks later therapy was continued by weekly 5-FU (450 mg/m^2) and every

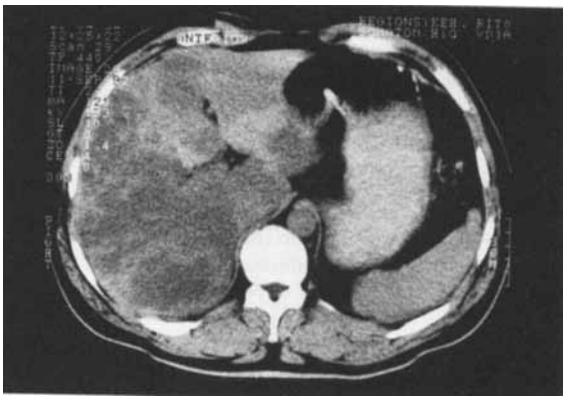

Fig. 1. CT scan after 6 months of adjuvant chemotherapy (5-FU/levamisole) revealing fat infiltration imitating liver metastases.

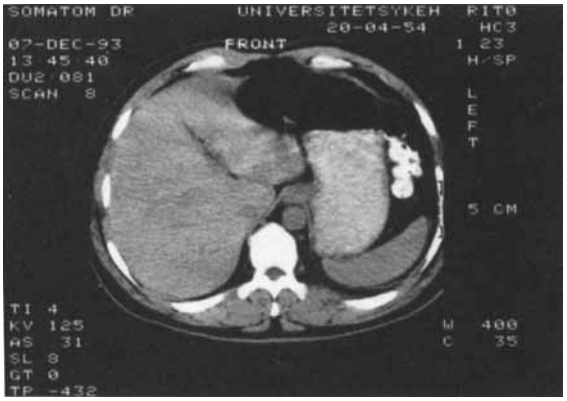

Fig. 2. CT scan 14 months later (see Fig. 1) revealing complete regression of intrahepatic fat infiltration.

second week levamisole (50 mg × 3 for 3 days) (3, 8). CT scan of abdomen and pelvis after 3 months' therapy was normal but another 3 months later CT scan revealed diffuse intrahepatic changes diagnosed as liver metastasis (Fig. 1). The liver changes were confirmed by ultrasound. Adjuvant 5-FU/levamisole therapy was stopped and the MFL (methotrexate, 5-FU, leucovorin) regimen (9) was started. After a further 2 1/2-month therapy CT scan revealed progressive liver changes. Increasing values of serum alkaline phosphate, ALAT and ASAT were in accordance with the radiological findings and the MFL regimen was stopped. In April 1993 partial remission of the liver changes was documented. Liver biopsy revealed no sign of malignancy. The liver changes were diagnosed to be fatty infiltration. In December 1993, a complete regression (Fig. 2) was documented, but recurrent disease in the left superior clavicular region was revealed and local radiotherapy was given. In February 1994, retroperitoneal adenopathies and liver metastases were found at CT and the 5-FU leucovorin (FLv) regimen was employed (10). At a control 2 1/2-month later partial remission (PR) was documented on CT scan. The liver and retroperitoneal lymph node metastases had undergone a more than 50% regression. This was also supported by clinical chemical blood tests. However, after 6 months' therapy progressive disease with progressive liver metastases were verified by liver biopsy and CT scan.

Discussion. Significant drug toxicity has been observed in 5-FU/levamisole treatment. Windle et al. (2) reported neutropenia, sepsis, nausea, and alopecia in a study of 141 patients. Adverse effects by levamisole on the cardiorespiratory system have been observed (11). Even multifocal leukencephalopathy has been revealed in a 5-FU/levamisole treatment (12). To my knowledge there is no report of intrahepatic fat infiltration caused by the 5-FU/levamisole combination. In the case presented one may argue that 5-FU is the culprit alone. However, when the patient was treated with the FLv regimen there was no sign of fat infiltration. Intrahepatic fat infiltration could be caused by elevated alcohol consumption, but the patient denied elevated consumption and was informed about the possible 'disulfiram-like' effect of levamisole. The hepatic changes occurred during 5-FU/levamisole treatment and remission occurred only when the chemotherapeutic regimen was stopped. I therefore conclude that the combination of 5-FU/levamisole could be the cause of fat infiltration imitating liver metastasis. This differential diagnosis should be kept in mind when 'liver metastasis' are revealed during adjuvant chemotherapy, containing the combination of 5-FU/levamisole. A liver biopsy should be considered to ascertain the diagnosis before hepatic metastases are concluded.

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PRIMARY FIBROSARCOMA OF THE RIGHT VENTRICLE—A CASE REPORT

Primary sarcomas of the heart are exceptionally rare tumours, with an incidence of 0.001% to 0.28% in collected autopsy series (1). Angiosarcomas are the most common (33%); others are rhabdomyosarcoma (20%), mesothelioma (15%) and fibrosarcoma (10%) (2). Anatomically, 80-90% of primary tumours occur in the left atrium; ventricular tumours are rare, accounting for less than 5% of cases (3).

Two-dimensional echocardiography is a reliable method of preoperative diagnosis (4). Surgery is the primary approach, for diagnosis and resection of tumour (5). Adjuvant radiotherapy and chemotherapy are of doubtful benefit, and the overall prognosis is extremely poor (5, 6).

We present a report of the clinical presentation and management of a case of primary fibrosarcoma of the right ventricle. The therapeutic challenge posed by this rare tumour is discussed.