

Mesenteric desmoid with uptake on gallium-67 citrate scintigraphy

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A 72-year-old man was hospitalized for further evaluation of a space-occupying lesion in the abdomen. Magnetic resonance imaging revealed a tumor 40 mm in diameter in the abdomen. Anterior Ga-67 citrate scintigraphy revealed a region of accumulation of radioactivity in the abdomen corresponding to the tumor. Mesenteric desmoid was diagnosed on the basis of histological findings for the excised tumor. These findings suggested that mesenteric desmoid may be one of the tumors which show high uptake of Ga-67.

Key words: gallium-67 citrate, desmoid, mesenteric desmoid

INTRODUCTION

DESMOID TUMORS are uncommon fibromatous tumors arising from musculoaponeurotic tissue characterized by spindle-shaped fibroblast and myoblast proliferation.¹ Although histologically benign, they usually feature an infiltrative growth pattern on both gross and microscopic examination,² and local recurrence is common even after a successful operation.³ The incidence of desmoid is 2 to 4 per 1,000,000 population, and mesenteric desmoid accounts for 8% of such lesions.¹ We report here a patient with mesenteric desmoid which had high Ga-67 uptake.

CASE REPORT

A 72-year-old man was referred to our hospital because of left upper abdominal pain. Abdominal ultrasonography revealed a space-occupying lesion with a mosaic pattern and an obscure boundary in the left upper abdomen (Fig. 1). A solid movable mass 3 cm in diameter was palpated in the left upper abdominal region.

On admission, the patient was of medium build and

well-nourished. The white blood cell count was 5,500/mm³, red blood cell count 428 × 10⁴/mm³, platelet count 27.0 × 10⁴/mm³, serum total protein 7.4 g/dl, serum albumin 3.2 g/dl, lactate dehydrogenase activity 285 IU/l, C-reactive protein concentration 0.4 mg/dl, erythrocyte sedimentation rate 34 mm/hr, and carcinoembryonic antigen concentration 2.1 ng/ml.

T1-weighted magnetic resonance imaging (MRI) revealed a tumor with a heterogeneous internal signal 40 mm in diameter with an intensity similar to that of muscle. T2-weighted imaging revealed a tumor with a heterogeneous internal signal of slightly high intensity including a low-intensity area and an obscure boundary with the surrounding adipose tissue (Fig. 2). Anterior Ga-67 scintigraphy revealed a region of accumulation of radioactivity in the abdomen corresponding to the tumor (Fig. 3). On gastroscopy, colonoscopy, imaging of the small intestine and barium enema, no abnormalities were found in the mucosa of the digestive tract, and no obvious compressive lesion was detected.

Because malignant tumor could not be ruled out, surgical extraction of the tumor was performed. The tumor originated in the mesentery of the transverse colon and the surrounding omentum was involved. The extracted tumor was a grayish-white elastic solid tumor with an obscure boundary. Histologically, fibroblasts were spindle-shaped and well-differentiated. No heteromorphism was found, and nuclear division was only rarely observed (Fig. 4). The tumor was diagnosed as desmoid primarily derived

Received November 13, 2000, revision accepted February 2, 2001.

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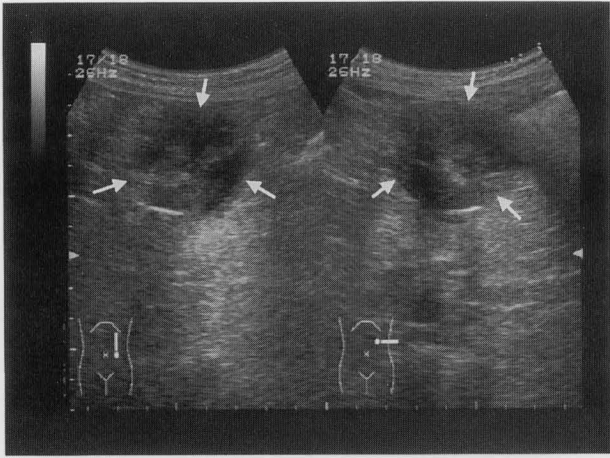


Fig. 1 Abdominal ultrasonography revealed a space-occupying lesion with mosaic pattern and an obscure boundary in the left upper abdomen (arrow).

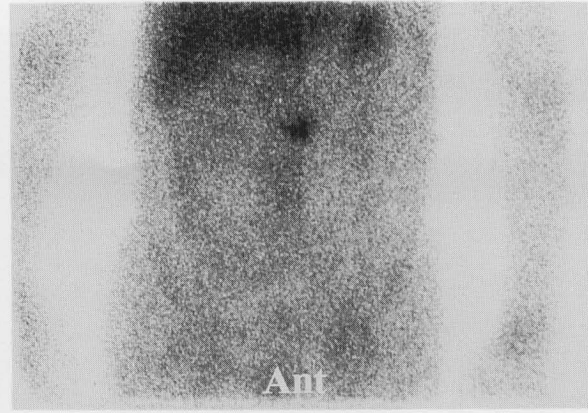


Fig. 3 Anterior Ga-67 scintigraphy revealed a region of accumulation of radioactivity in the abdomen corresponding to the tumor.

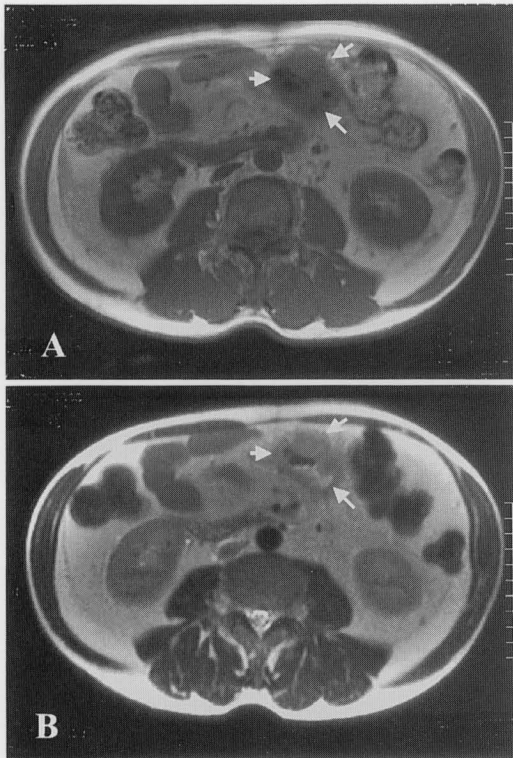


Fig. 2 T1-weighted MR imaging revealed a tumor of heterogeneous internal signal 40 mm in diameter with an intensity similar to that of muscle (arrow) (A). T2-weighted imaging revealed a tumor of heterogeneous internal signal with slightly high intensity including a low-intensity area and an obscure boundary with the surrounding adipose tissue (arrow) (B).



Fig. 4 Hematoxylin-Eosin staining of the resected tissue. Fibroblasts were spindle-shaped and well-differentiated, no heteromorphism was found, and nuclear division was only rarely observed. The tumor was diagnosed as mesenteric desmoid.

from the mesentery of the transverse colon. No recurrence was observed 1 year after the operation.

DISCUSSION

Desmoid tumors are classified as abdominal desmoid, extra-abdominal desmoid and mesenteric desmoid, which have incidences of 49, 43 and 8%, respectively, with mesenteric desmoid being the least common.¹ Many patients with desmoid tumors have familial adenomatous polyposis (Gardner's syndrome),² a history of abdominal surgery² or of administration of estrogen,⁴ and patients like ours without such a history are rare.

Desmoid refers to a family of soft-tissue lesions characterized by the proliferation of benign fibrous tissue.¹ These lesions exhibit biological behavior intermediate between those of benign fibrous lesion and fibrosarcoma. This tumor has a slow course of growth including such

features as gradual increase in size, induction of passage failure in the digestive tract or urinary tract, and in many cases uncertain types of celiopathy, but there is a report starting that a desmoid tumor derived from the mesentery spread in the abdominal cavity after a successful operation.³

MRI is the best method for determining the precise extension of soft-tissue lesions. Previous reports suggested that low signal intensity on T1-weighted MRIs and high signal intensity on T2-weighted MRIs might be characteristic of extra-abdominal desmoid,⁵ but the accurate diagnosis of desmoid is difficult with MRI alone, and a combined approach with both scintigraphy and MRI appears to be of greater value in diagnosing extra-abdominal desmoid.⁶ Tc-99m dimercaptosuccinic acid (DMSA) scintigraphy has been reported to be useful for detecting soft-tissue tumors.⁷ Kobayashi et al.⁶ reported that Tc-99m DMSA showed marked accumulation in 24 out of 27 patients with extra-abdominal desmoid.

There are several reports of extra-abdominal desmoid exhibiting accumulation on Ga-67 scintigraphy. Imaeda et al.⁸ reported that abnormally increased uptake of Ga-67 was observed in 5 of 9 patients with extra-abdominal desmoid. Furthermore, Kobayashi et al.⁶ reported that uptake of Ga-67 was observed in 6 of 18 patients with extra-abdominal desmoid. On the other hand, Hardoff et al.⁹ performed Ga-67 scintigraphy in 7 patients with Gardner's syndrome. Mesenteric desmoid was found in 2 of the 7 patients, and accumulation was detected in one of them.

Ga-67 has been reported to accumulate noticeably in tumors associated with severe inflammation¹⁰ or malignant lymphoma.¹¹ In our case, high accumulation of Ga-67 was found to correspond to the desmoid. It is suggested that mesenteric desmoid may be one of the tumors which show high uptake of Ga-67. Abdominal activity in Ga-67 scintigrams may present a problem, due to the difficulty in differentiating colonic activity from abdominal lesions. Nevertheless, Ga-67 scintigraphy may provide information helpful in the diagnosis of mesenteric desmoid.

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