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^{67}Ga citrate and ^{99m}Tc(v)-DMSA scintigraphy in a case of maxillary sinus liposarcoma

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Scintigraphic images with ^{67}Ga citrate and ^{99m}Tc(v)-dimercaptosuccinic acid and MR image of a 16-year-old male with maxillary sinus liposarcoma (predominantly myxoid type) are reported. The MR image clearly indicated the exact location, size and anatomical relationship of the tumor. Scintigraphic evaluation was useful in suggesting the malignant nature of the tumor and showed no distant metastasis. Both examinations were effective in treating this case.

Key words: liposarcoma, maxillary sinus, ^{67}Ga-citrate, ^{99m}Tc(v)-DMSA

INTRODUCTION

LIPOSARCOMA is one of the most common soft tissue sarcoma. It has a peak incidence of between 40 and 60 years. The two major sites of liposarcoma are the extremities and the retroperitoneum. The region of the head and neck is the least common.[1,2] We reported a maxillary sinus liposarcoma in a 16-year-old male with MR, ^{67}Ga-citrate (^{67}Ga) and ^{99m}Tc(V)-dimercaptosuccinic acid (^{99m}Tc(v)-DMSA) images.

CASE REPORT

A 16-year-old male presented with a one-month history of left exophthalmos. Laboratory data and CEA were normal. Sagittal Tl weighted MR images showed that the left maxillary sinus was full of a large tumor measuring 5×5 cm. The tumor was of heterogeneous intensity, and had a smooth surface. The left eyeball was clearly seen to be compressed by the tumor (Fig. 1). ^{67}Ga scintigraphy performed 72 hr after 74 MBq i.v. injection showed abnormal accumulation in the tumor (Fig. 2). ^{99m}Tc(V)-DMSA

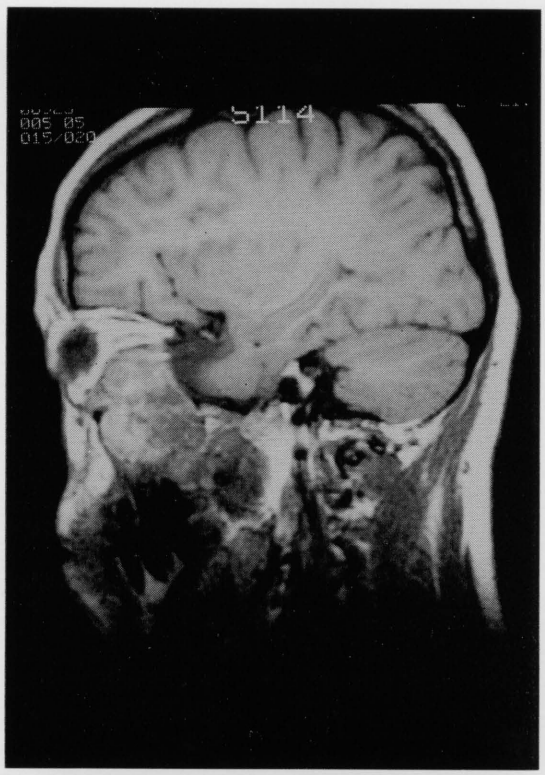

Fig. 1 Sagittal T1 weighted (500/20) MR image shows a heterogenous intensity tumor measuring 5×5 cm in the left sinus. Left eye ball compression due to the tumor is shown.

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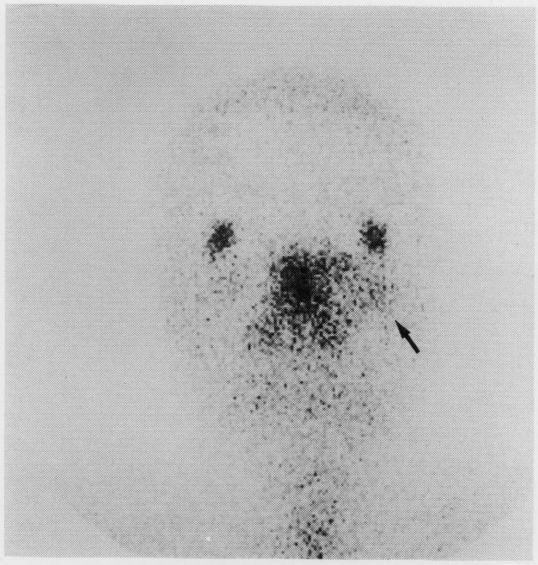

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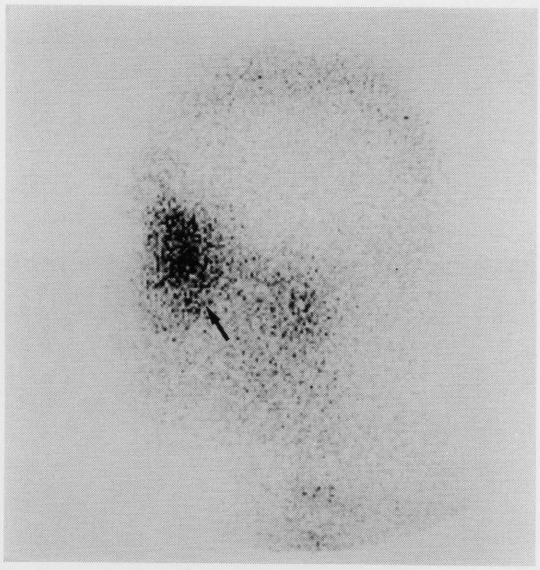
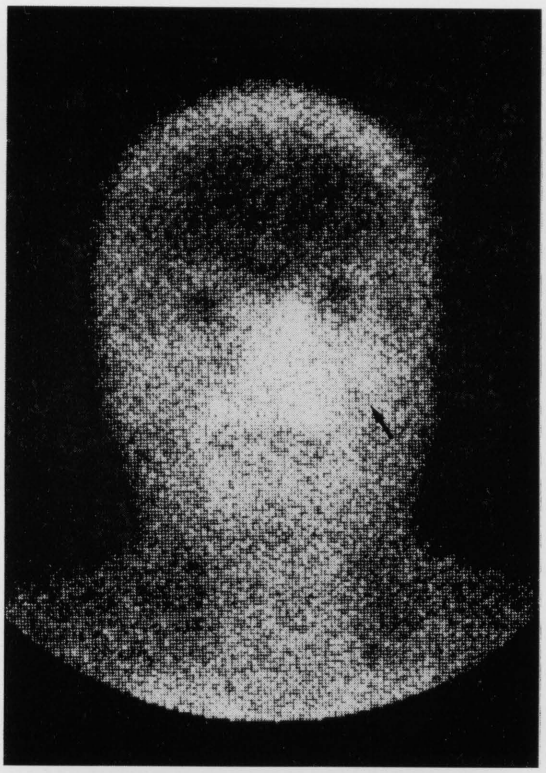


B

Fig. 2 ^{67}Ga scintigraphy shows accumulation in the tumor (arrow) (A: anterior view, B: Left lateral view).

scintigraphy performed 2 hr after 740 MBq i.v. injection also showed abnormal accumulation in the tumor (Fig. 3). ^{99m}Tc(V)-DMSA sagittal SPECT performed 64 different views over 360° and 10 seconds, each view for a 5.6° rotation also showed accumulation in the tumor (Fig. 4). No distant metastasis was detected by either ^{67}Ga or ^{99m}Tc(V)-DMSA scintigraphy (figures not shown). Operation was performed and histopathology revealed that the tumor was a liposarcoma (predominantly myxoid type) (Fig. 5).



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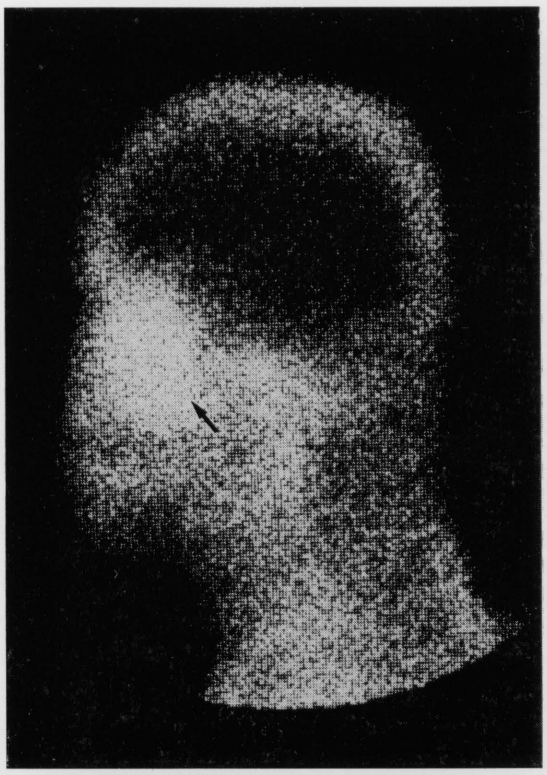


B

Fig. 3 ^{99m}Tc(v)-DMSA scintigraphy shows accumulation in the tumor (arrow) (A: anterior view, B: left lateral view).

Fig. 4 ^{99m}Tc(v)-DMSA sagittal SPECT shows accumulation in the tumor (arrow).

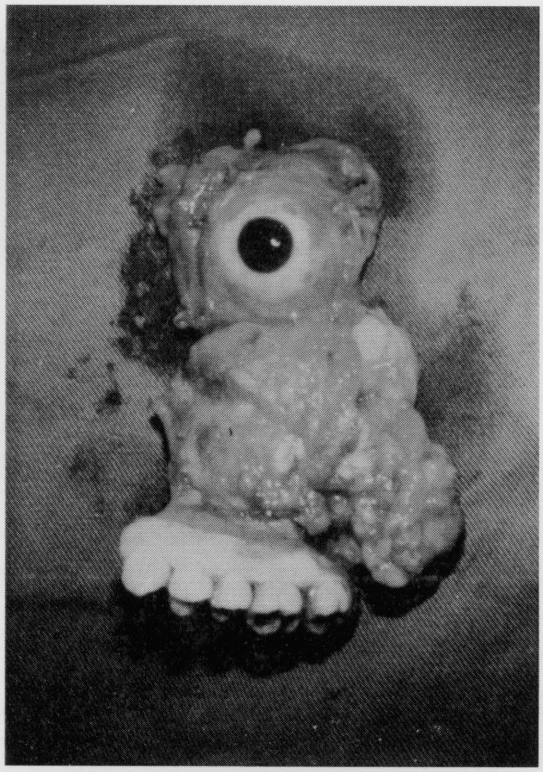
DISCUSSION

The present case was rare since the patient was young and the location was the head and neck region.[1,2]

In patients with head and neck tumors, physical examinations and tumor biopsy are rather easy and effective. It is therefore considered that the most important role of MR or CT is to show the exact extention and location of the tumor. In this case, MR images could show the exact location, size and anatomical relationship of the tumor and were useful in planning effective surgical management.

Unfortunately the clinical utility of scintigraphy is thought to be limited due to poor space resolution. However, the development of instruments such as the three detector SPECT system equipped with fan-beam collimators provides very clear tomographic images.[3] Scintigraphy can also sometimes readily provide information about distant metastasis, the evaluation of the effectiveness of chemotherapy or radiation therapy and recurrence after treatment.[4] The role of scintigraphy is therefore thought to be considerable.

In scintigraphic evaluation of liposarcoma, the usefulness of ^{67}Ga and ^{99m}Tc(V)-DMSA was mentioned previously.[5,6] ^{99m}Tc(V)-DMSA is superior to ^{67}Ga, and the degree of ^{67}Ga accumulation in the tumor varies.[6] This difference might depend on the histological subtype and degree of differentiation of the tumor. The clinical behavior of a liposarcoma is closely reflected by its histological subtype: the pleomorphic and round cell type have much less favorable 5-year survival rate than myxoid and well-differentiated liposarcomata.[1] The present case was ^{67}Ga positive but the degree of accumulation was not so strong as in the nasal cavity. This case was a more favorable histological subtype and surgery could be carried out.



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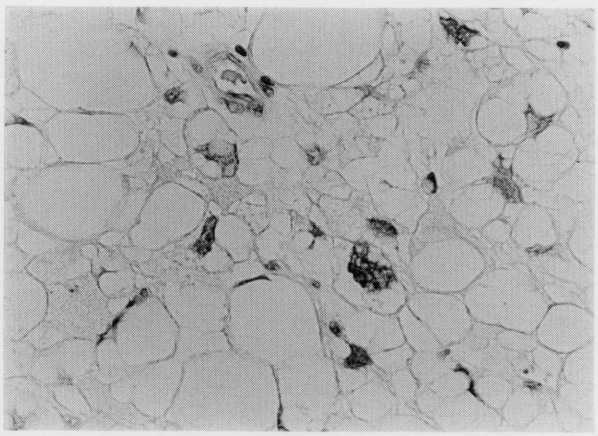

B

Fig. 5 Surgery was performed and the tumor was found to be a liposarcoma (predominantly myxoid type). (A: Surgical specimen, B: H-E stain).

To conclude, we reported a rare case of maxillary sinus liposarcoma in a 16-year-old male. MR images showed the location and extension of the tumor and scintigraphic images showed the malignant nature of the tumor and no distant metastasis. Both examination procedures were useful and played complementary roles in treating this case.

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