

## CLINICAL STUDY

# Liver schwannoma incidentally discovered in a patient with breast cancer

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**Abstract:** *Background:* Benign schwannomas, also referred to as neurilemmomas, neurinomas, and perineural fibroblastomas, are encapsulated nerve sheath tumors. Primary schwannomas of the liver are extremely rare. We present a case of liver schwannoma, incidentally found in a patient with breast cancer.

*Case:* A 66-year-old female consulted her physician for a mass she palpated on her left breast. The abdominal ultrasonography (USG) revealed a 44x28 mm mass in the medial segment of the left lobe of her liver suspicious of a metastasis. An USG-guided biopsy was performed and the histo-pathological examination revealed a “peripheral nerve sheath tumor”. Positron emission tomography (PET-CT) revealed a pathologic FDG uptake in the lesion that was previously defined in the liver. The tumor resected from the liver was 5x4x3 cm, yellowish, soft, and capsulated tumor. Microscopic examination revealed that the mass consisted of bundles of spindle cells with hypercellular and hypocellular areas. In immunohistochemistry, there was a strong positive staining for S-100. The tumor was diagnosed as benign liver schwannoma.

*Conclusion:* Schwannomas are benign, encapsulated neoplasms. Symptoms and signs vary depending on the anatomical site and the size of the neoplasm; however, most schwannomas present as an asymptomatic or painless mass. Recurrence is unusual, despite of an incomplete removal, and malignant transformation is exceedingly rare (*Fig. 4, Ref. 8*). Full Text (Free, PDF) [www.bmj.sk](http://www.bmj.sk).

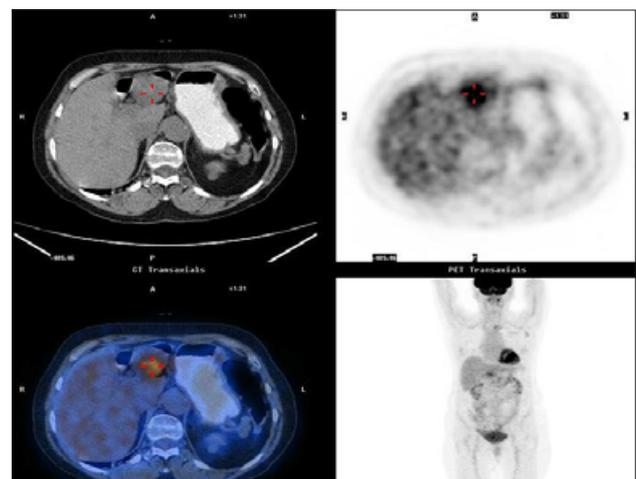
**Key words:** liver schwannoma, FDG, nerve sheath tumor, S-100.

Schwannomas are benign, encapsulated neoplasms. These tumors arise from the sheath of the Schwann cells in motor and sensory nerves. Primary schwannomas of the liver are extremely rare (1, 2). In this study, we report a case of a primary liver schwannoma incidentally discovered in patient with breast cancer.

## Case report

A 66-year-old female consulted her physician for the mass she palpated on her left breast. Radiological studies revealed a 2 cm mass in the upper lateral quadrant of her left breast with malignant criteria. Excision biopsy of this mass was performed in an outer center and the pathological examination revealed an invasive ductal carcinoma. The patient was referred to our center for further examination and treatment. The abdominal ultrasonography (USG) revealed a 44x28 mm mass in the medial segment of the left lobe of her liver suspicious of a metastasis. An

USG-guided biopsy was performed and the pathological examination revealed a “peripheral nerve sheath tumor”. Positron emission tomography (PET-CT) imaging was performed using a Discovery ST system (GE Medical Systems, Milwaukee, Wisconsin, USA) 60 minutes after the intravenous administration of 481 MBq (13.0 mCi) FDG. Before the PET-CT study, the patient fasted for



**Fig. 1.** The transaxial PET-CT images showed an increased FDG uptake (SUVmax = 5.1) in the mass lesion in the left lobe of liver.

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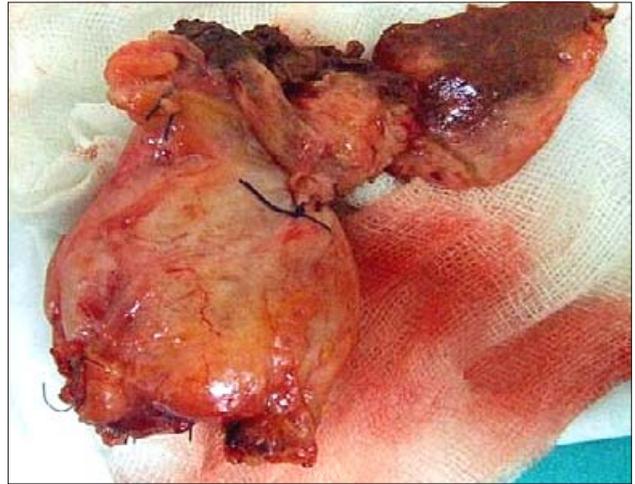
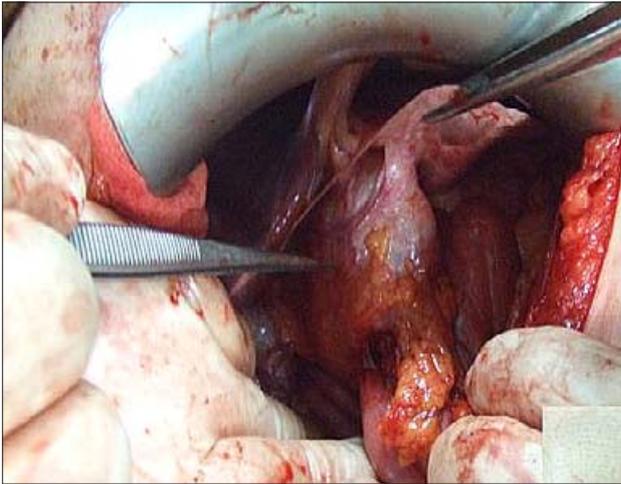


Fig. 2. Operative view and the view of the specimen after resection.

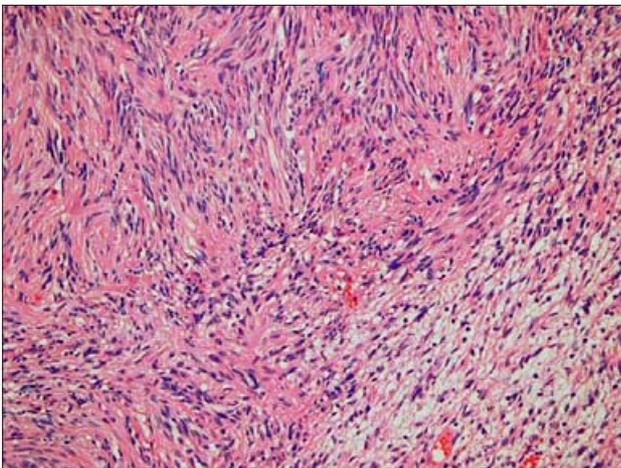


Fig. 3. Microscopically, the mass consisted of bundles of spindle cells with hypercellular and hypocellular areas (H/E staining).

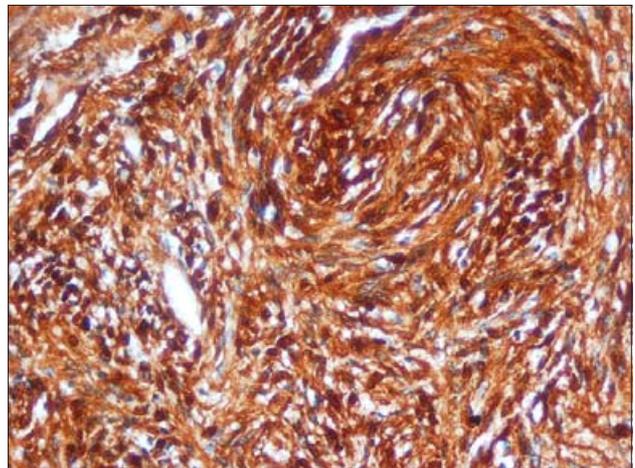


Fig. 4. Strong positive staining for S-100.

6 hours, and blood glucose level was 103 mg/dl before 18F-fluorodeoxyglucose (FDG) injection. PET-CT revealed a pathologic FDG uptake in the lesion that was previously defined in the liver and in the left axillary lymphatic nodes of the patients (Fig. 1).

The patient was discussed in the multidiscipline oncology council of our faculty and a modified radical mastectomy (MRM) together with a resection of the tumor in the liver was performed at the same operation. The tumor resected from the liver was 5x4x3 cm, yellowish, soft, and capsulated (Fig. 2). Microscopically, the mass consisted of bundles of spindle cells with hypercellular and hypocellular areas (Fig. 3). There was no evidence of malignancy like mitosis, necrosis, and cellular atypical or secondary components. In immunohistochemistry, there was a strong positive staining for S-100 (Fig. 4). The tumor was diagnosed as benign liver schwannoma. In the MRM material, there was no tumor residue in the breast; however, there were 9 metastatic lymph nodes. The patient was referred to Medical Oncology Department after the operation.

## Discussion

Benign schwannomas, also referred to as neurilemmomas, neurofibromas, and perineural fibroblastomas, are encapsulated nerve sheath tumors. They are usually slow-growing. Schwannomas are most commonly detected in patients between 20 and 50 years of age and occur with equal frequency in men and women. The common locations of benign schwannomas are the head and the neck, the flexor surfaces of the extremities, the posterior mediastinum, the retroperitoneum, and the mesentery (3, 4). Symptoms and signs vary depending on the anatomical site and the size of the neoplasm; however, most schwannomas present as an asymptomatic or painless mass (4). Similarly, our patient did not have any symptoms or signs. There are only a few cases of primary liver schwannomas reported in the English literature. The nerves of the liver derive from the left vagus and the sympathetic nerves that enter the porta hepatis and accompany the portal vein, and the hepatic artery (1, 3, 5). In our case, schwannoma may have arisen from porta hepatis.

Due to the increased metabolic needs of malignant tissues, PET-CT examination is commonly used in the differential diagnosis of malignant versus benign lesions. Previously, various degrees of FDG uptake were described in schwannomas. However, FDG PET has limited value for identifying benign versus malignant schwannomas (6, 7).

Histopathologically, schwannomas are encapsulated tumors. The well-demarcated tumors are yellowish in color, elastic-hard in consistency and consist predominantly of short spindle-shaped cells proliferating in an interlacing fashion. The tumor lesions are separated by fibrous bands and surrounded by a lymphoid cuff. Immunohistochemically, the tumor cells are positive for S-100 protein (1, 2). In our case, in immunohistochemistry there was strong positive staining for S-100 (Fig. 4).

Liver schwannomas can be found together with von Reckling Hausen's disease or they can be the primary disease (8). Our patient showed no signs of von Reckling Hausen's disease. The treatment of benign schwannomas is simple excision (1, 3). Recurrence is unusual, even after an incomplete removal, and malignant transformation is exceedingly rare.

## References

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