

Hemangiopericytoma with immunohistochemical examination: *An autopsy case*

Satoshi Furukawa^{1*}, Lisa Wingenfeld¹, Akari Takaya¹, Tokiko Nakagawa¹, Ikuo Sakaguchi¹, Satomu Morita¹, Shigeru Yamasaki¹, Katsuji Nishi¹

Abstract: Hemangiopericytoma is a rare vascular soft-tissue tumor arising from the pericytes adjacent to capillaries. In this case report a semi-solid mass (5.5×5.0×3.5cm) originating from the greater omentum was detected at autopsy. Histopathologically, the tumor had a number of capillaries and dense spindle-shaped tumor cells that proliferated around the blood vessels. Histological and immunohistochemical findings confirmed a diagnosis of hemangiopericytoma. We report a case of hemangiopericytoma arising in the greater omentum and review the literature.

Key Words: hemangiopericytoma, greater omentum, autopsy, histological and immunohistochemical findings.

Hemangiopericytoma is rare mesenchymal neoplasms, accounting for about 1% of vascular tumors [1]. Hemangiopericytoma is known to be derived from vascular pericytes and the first report was by Stout and Murray in 1942 [2]. Pericytes are rudimentary cells that have contractile properties and regulate the blood flow through capillaries. Although hemangiopericytoma can arise anywhere, the musculature of the lower extremities, the pelvic fossa, and the retroperitoneum are the predominant sites of origin [3-6]. Histopathologically, the tumor consists of a large number of capillaries and small vessels, dense spindle shaped tumor cells, and reticular fibers [3].

Immunohistochemically, hemangiopericytoma is known to show a positive response to antibodies against vimentin and type IV collagen, and a negative response to S-100 protein and cytokeratins [7]. We report an autopsy case with hemangiopericytoma originating in the greater omentum.

Case report

A 69-year-old man was found lying dead on the floor by the police after being alarmed by the brother after not having been seen for several days.

Autopsy findings

At autopsy the victim weighed 56.4kg and the

medical history was unremarkable. An anomalous semi-solid tissue mass with a pyramidal form was present in the greater omentum (Figure 1). The pyramidal mass with dimensions of 5.5 cm×5.0 cm×3.5 cm, was not connected but adhered to the stomach (Figures 2 and 3). The cut surface was smooth, elastic and pale brown in color (Figure 4). There were no other abdominal findings and the thorax was clear. Death was found to be due to hypothermia.

Histological and immunohistochemical findings

The histological examination with hematoxylin-eosin staining demonstrated that spindle cells grew around the vascular endothelial cells and no mitoses were found under high -power magnification (Figure 5). Immunohistochemical examination showed that the tumor was positive for CD34, anti-smooth muscle actin, type IV collagen and vimentin and negative for S-100 protein and cytokeratins (Figures 6-11). These findings confirmed the diagnosis of hemangiopericytoma.

Discussion

Hemangiopericytoma usually develops in deep soft tissues and mostly affect middle aged patients [3,8]. There is no sex predilection and no evidence of increased familial incidence. It is a rare type of primary vascular

1) Department of Legal Medicine, Shiga University of Medical Science, Shiga, Japan

*Corresponding author: MD, Department of Legal Medicine, Shiga University of Medical Science, Setatsukinowa, Otsu City, Shiga 520-2192, Japan, Tel & Fax: +81-77-548-2202, E-mail: 31041220@belle.shiga-med.ac.jp

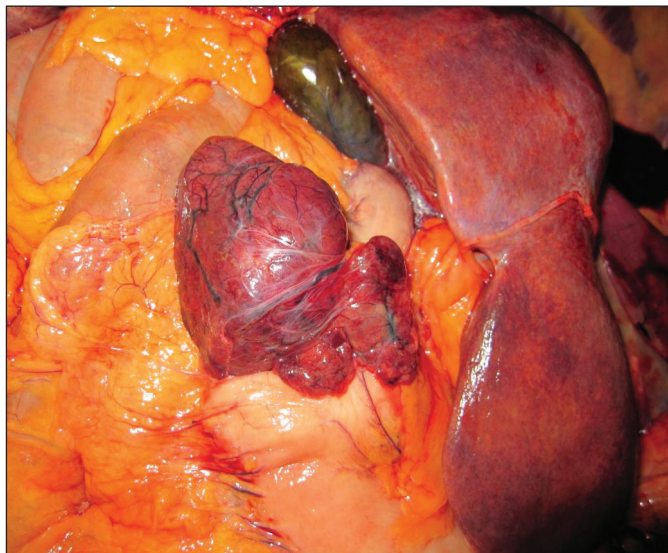


Figure 1: A solitary mass arose in the greater omentum



Figure 2: The mass was not connected but adhered to the stomach

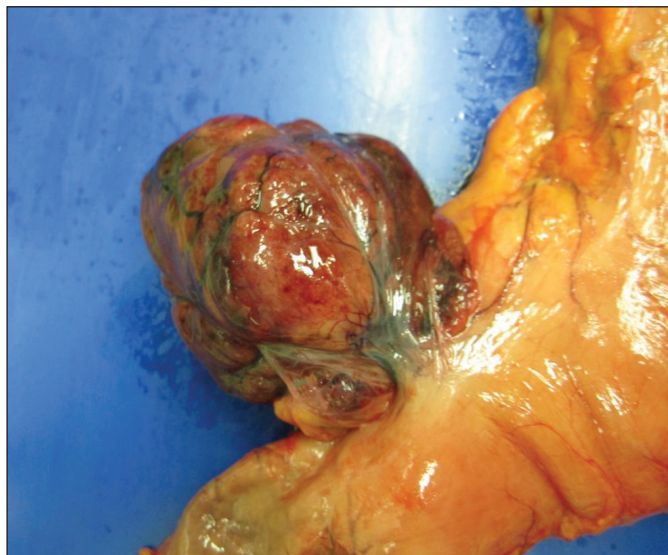


Figure 3: Macroscopic appearance of the mass

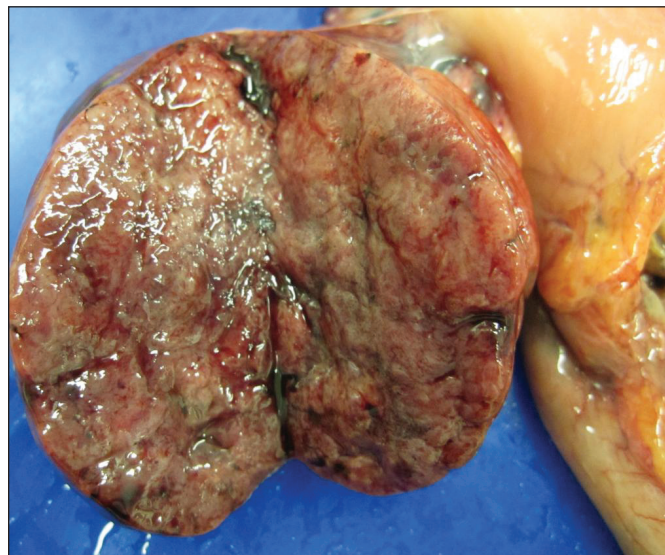


Figure 4: The resected mass measured 5.5×5.0×3.5 cm, and was semi-solid and encapsulated without necrosis or hemorrhage

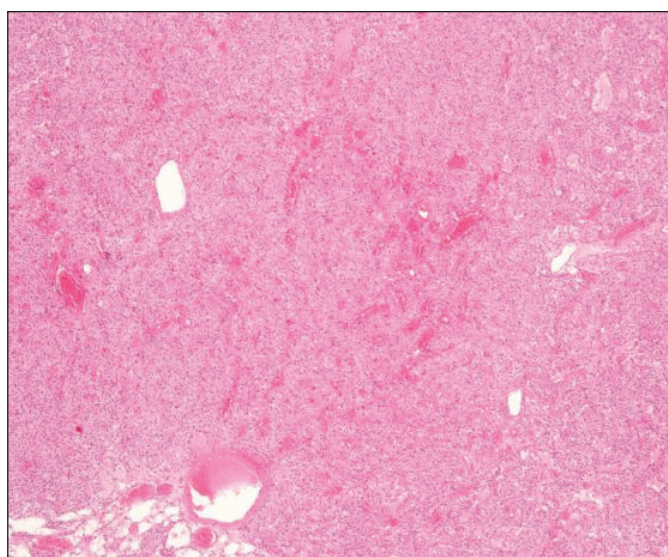
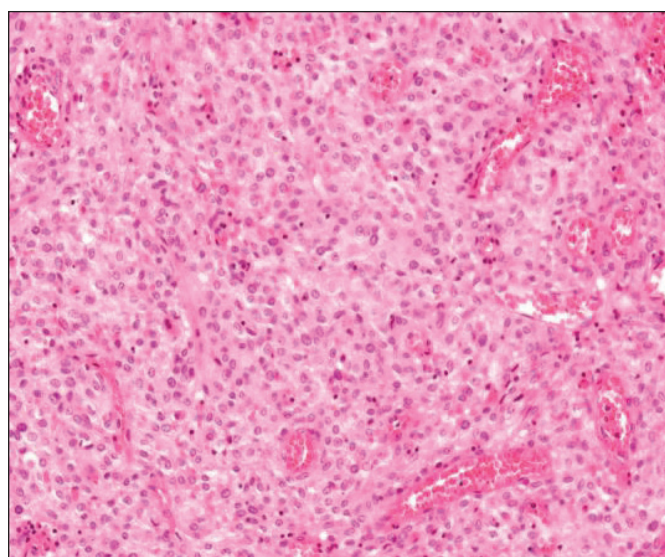


Figure 5: Microscopic appearance of the mass (H-E × 40, ×200). There were rich in capillaries and small vessels with a single layer of endothelium and dense spindle-shaped tumor cells that proliferated around blood vessels



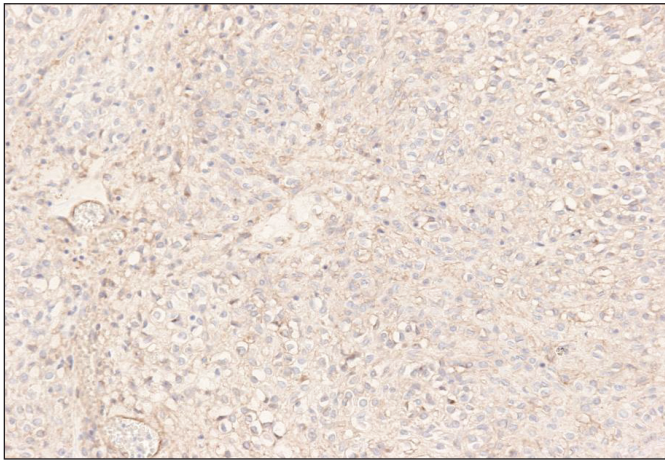


Figure 6: Staining for CD 34 was positive in the endothelial cells of the capillaries. ($\times 200$)

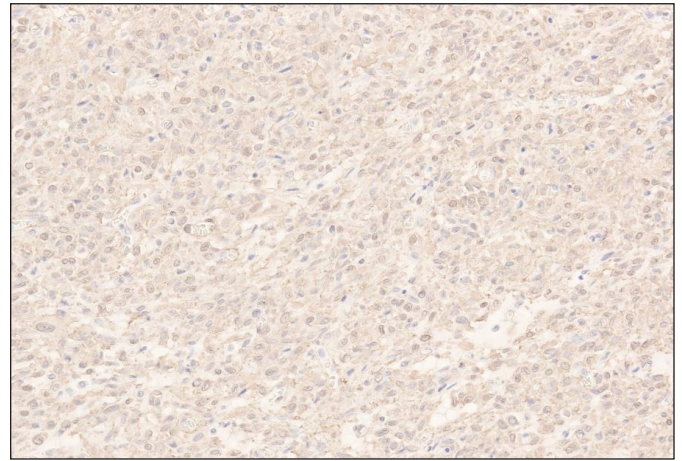


Figure 7

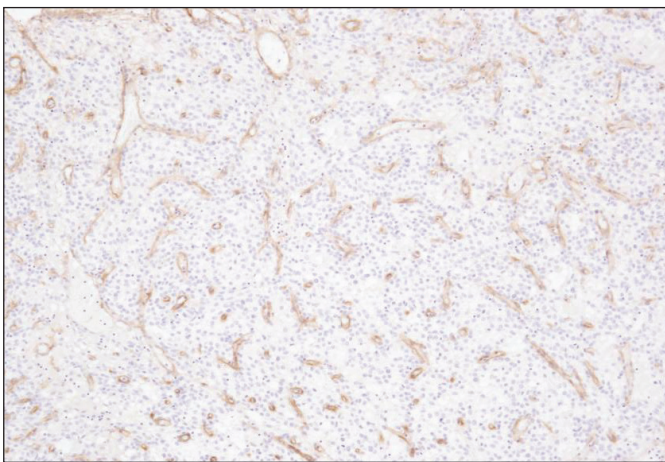


Figure 8

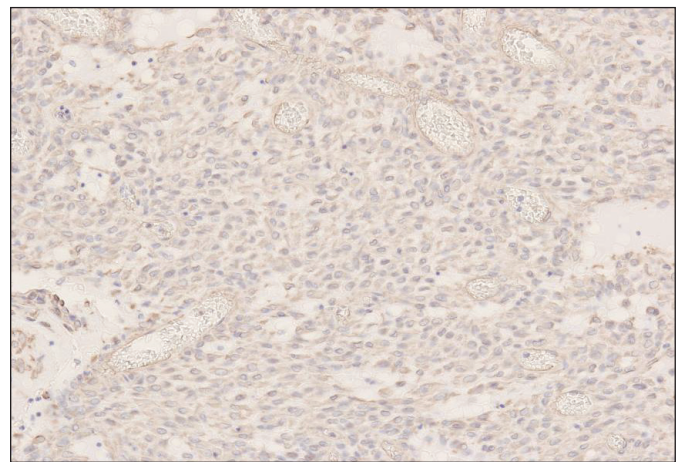


Figure 9

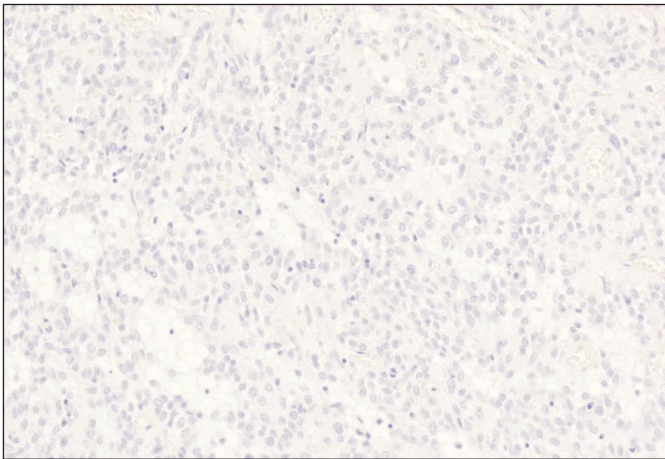


Figure 10

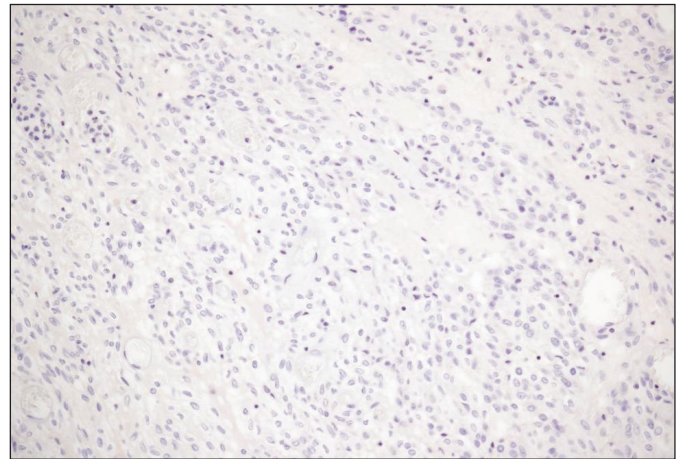


Figure 11

Tumor cells clearly positive for (**Figure 7**) anti-smooth-actin protein, (**Figure 8**) type IV collagen, and (**Figure 9**) vimentin (all stains, original magnification $\times 200$). Tumor cells negative reaction for (**Figure 10**) S-100 protein and (**Figure 11**) cytokeratins (all stains, original magnification $\times 200$).

tumor with mesenchymal origin that accounts for 1% of all vascular neoplasms [9].

Hemangiopericytoma is usually present as a solitary mass covered by a thin vascular pseudocapsule and the median size of excised tumors was reported to be 6.5cm [3]. Histologically, hemangiopericytoma proliferation of spindle shaped cells around branching capillary vessels.

The tumor cells originate from the pericytes found around capillaries and postcapillary venules in almost every tissue of the body.

Immunohistochemically, hemangiopericytomas stain positive for CD34 [10] and are known to show a positive response to antibodies against vimentin and type IV collagen and a negative response to S-100 protein and

cytokeratins [11]. The specimen in the case reported here fulfilled these specifications and confirmed the diagnosis of hemangiopericytoma.

Conclusion

We reported an autopsy case with an anomalous semi-solid tissue mass which presented in the greater omentum. We showed immunohistochemical

examination: CD34, anti-smooth muscle actin, type IV collagen, vimentin, S-100 protein and cytokeratins.

We diagnosed hemangiopericytoma from the result of these stains.

Acknowledgements

We thank Shiga University of Medical Science for supporting this project and permission to publish the article.

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