Diffuse hemangiomatosis of the spleen associated with pregnancy: A case report

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ABSTRACT
We report a 21-year-old postpartum woman presenting with a very rare tumor of the spleen, diffuse hemangiomatosis. Gross and microscopic examination revealed that the whole spleen was permeated by neoplastic blood vessels. Immunohistochemical staining suggested an origin from vascular endothelium (CD 31+, CD 34+, FVIII+ and CD 8-). Although steroid hormone receptors are discovered in other vascular proliferations, we report the first case of a diffuse hemangiomatosis of the spleen showing strong and diffuse immunopositivity for estrogen receptor (ER). Hormonal changes associated with pregnancy might have induced or promoted the development of diffuse splenic hemangiomatosis. [Turk J Cancer 2004;34(2):85-87]

CASE REPORT
The patient was a 21-year-old postpartum woman who complained of fullness and discomfort in the left hypochondrium starting from the first trimester of pregnancy, which terminated in stillbirth when splenomegaly was detected. Ultrasonography revealed marked splenomegaly with a heterogeneous echo texture and an anechoic cystic lesion 8 mm in diameter in the lower pole. The complete blood count, coagulation and liver function tests were within normal limits. Bone marrow aspiration and biopsy revealed only minimal trilinear hyperplasia without associated dysplasia or fibrosis. The patient underwent splenectomy.

HISTOPATHOLOGIC FINDINGS
Macroscopically the splenectomy material measured 22x7x3 cm in size and the normal texture of the organ was replaced by a dark red spongy tissue. On microscopic examination the entire spleen was infiltrated by an angiomatosus tumor composed of large vessels, most of which were thin-walled and ectatic (Figure 1). The neoplastic vessels were lined by flat endothelial cells containing oval nuclei that showed no mitotic activity. Among the neoplastic vessels, scattered foci of normal red and white pulp were observed in a fibrous stroma. While most of the endothelial cells reacted strongly with anti-CD31 and less intensely with anti-CD34 and anti-Factor VIII related antigen (F-
VIII RA), there was no immunoreactivity with anti-CD8, which is regarded as a specific marker of sinus endothelial cells. The neoplastic cells decorating vessels also showed diffuse staining with ER (Fig. 2), but only focal immunopositivity with progesterone receptor (PR).

**DISCUSSION**

Diffuse hemangiomatosis of the spleen is a rare condition of which about 30 cases have been reported (1-4). Most patients have hepatosplenomegaly, thrombocytopenia and coagulation disorders (1, 2-4). Macroscopically, the spleen is diffusely enlarged without a nodular pattern, as was the case in this patient (2). Microscopically, neoplastic vessels of various sizes are scattered among remnants of the red pulp. The lining cells of these vessels show positivity for the vascular markers including FVIII RA, CD34 and CD31 (1,2,5,6). In our case, we observed diffuse marked CD31 reactivity and less intense but diffuse staining with CD34 and FVIII RA.

The differential diagnosis of diffuse splenic hemangiomatosis must take into account other vascular lesions of the spleen such as lymphangiomatosis, sinusoidal hemangiomatosis, peliosis, littoral cell angioma (LCA), and splenic hamartoma. Differentiation from peliosis, LCA, and splenic hamartoma is usually straightforward by morphologic criteria. Our case was, CD34 +, CD8 -, and this was not consistent with either lymphangiomatosis or sinusoidal hemangiomatosis both of which may look quite similar to diffuse hemangiomatosis on histologic grounds alone.

Peliosis of the spleen is a very rare lesion in which angiomatous-like ectasia occurs in splenic sinuses (7,8). Histologically, blood-filled cystic spaces are observed but these cavities are not lined completely by endothelium and the ring fibers surrounding the cavities are often destroyed (7,8). However, in our case the cystic cavities were lined by a continuous layer of endothelium which expressed vascular endothelial markers.

Splenic hamartoma is a hamartomatous malformation of the red pulp. Typical histological features include irregular and tortuous vascular formations lined by endothelium which exhibits immunohistochemical characteristics of splenic sinus endothelium (CD34 +/-, CD8 +, CD 68 -) (5, 8-10). In splenic hamartomas vascular channels are usually narrow and embedded in a spindle cell stroma containing inflammatory cells. Finally, a vascular proliferation of splenic sinus lining cells (11,12). LCA, unlike the tumor we describe, usually exhibits not only flat but also tall endothelial cells featuring papillary projections, that sometimes slough off into the lumina. Immunohistochemical findings of this case were not consistent with this lesion either (FVIII +, CD34 -, CD21 +, CD68 + and CD8 -).

There is controversy about the origin of diffuse splenic hemangiomatosis (4). Some vascular tumors, particularly granuloma gravidum which is a specialized form of hemangioma that occurs on the gingiva, are common during pregnancy and regress dramatically after parturition (12). As has been suggested for these tumors, diffuse hemangiomatosis of the spleen, may also have some association with hormonal factors. Strong and diffuse ER positivity that we observed in the neoplastic cells was also in favor of this hypothesis.