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A splenic hemangiomatosis case manifested by Kasabach-Merritt syndrome in an adult

Erişkin bir hastada Kasabach-Merritt sendromu ile ortaya çıkan bir dalak hemanjiyomatozisi olgusu

Yıldırım KARSLIOĞLU[1], Ali Fuat ÇİÇEK[1], Mükerrem SAFALI[1], Ahmet İFRAN[2], Cengiz BEYAN[2]

Department of Pathology[1] and Department of Hematology[2], Gülhane Military Medical Academy and School of Medicine, ANKARA

ABSTRACT

Hemangiomas are the most common congenital lesions in childhood. They are generally superficial tumors and cause a red or violet color change on overlying skin. Most of them gradually regress by time, and become nearly imperceptible before puberty, but some bigger and deeper lesions tend to persist in adult life. Although some genetic disorders like von Hippel-Lindau syndrome are known to be closely associated with multiple hemangiomas (hemangiomatosis), most of them are sporadic and the etiologic factors have not been clearly elucidated. The liver and spleen are two internal organs which can be involved by hemangiomas. Although hemangiomas are generally harmless lesions, local or systemic unwanted effects can sometimes be seen. Rupture and bleeding caused by rapid enlargement, and hematological manifestations primarily appearing as thrombocytopenia, anemia, and coagulopathy may be cited as examples of serious complications. The latter clinicopathologic condition is manifested by hemorrhagic diathesis and is known as Kasabach-Merritt syndrome. The mortality rate is reported to reach one third of the affected patients.

Key words: Hemangioma, hemangiomatosis, spleen, Kasabach-Merritt Syndrome

ÖZET

Hemanjiyomlar çocukluk çağının en sık görülen doğumsal lezyonlarıdır. Genellikle yüzeyel yerleşimli tümörler olup, üzerlerindeki deride kırmızı-morumsu renk değişikliğine yol açarlar. Çoğunluğunun zaman içinde gerileyip pubertal gelişimden önce neredeyse silinmesine karşın, özellikle büyük ve derin yerleşimli olanlar erişkin dönemde de varlıklarını sürdürme eğilimindedir. von Hippel-Lindau sendromu gibi bazı genetik hastalıkların multipl hemanjiyomlar (hemanjiyomatozis) ile ilişkili olduğu bilinse de, çoğu hemanjiyom sporadiktir ve etiyolojik faktörler kesin olarak ortaya konamamıştır. Karaciğer ve dalak, hemanjiyomların görüldüğü iki büyük iç organdır. Hemanjiyomlar genel olarak zararsız lezyonlar olmalarına karşın, bazı komplikasyonlara neden olabilirler. Hızlı büyüme sonucu rüptür ve kanama dışında trombositopeni, anemi ve koagülopati ile öne çıkan bazı hematolojik anormallikler ciddi komplikasyonlar arasında sayılabilir. Kanama eğilimi ile seyreden bu ağır hematolojik tablo Kasabach-Merritt sendromu olarak bilinir ve mortalite oranı etkilenen vakaların üçte birine kadar ulaşabilir.

Anahtar sözcükler: Hemanjiyom, hemanjiyomatozis, dalak, Kasabach-Merritt Sendromu

INTRODUCTION

Benign vascular tumors are the most common congenital lesions in infancy and childhood. They are generally superficial subcutaneous tumors and most of them regress gradually during prepubertal period. Such tumors are histologically heterogeneous and may show different clinical outcomes. However historically, most of the benign-looking vascular lesions were simply categorized as capillary or cavernous hemangiomas. Today, they are categorized as distinguishable lesions both architecturally and immunophenotypically, such as congenital hemangiomas, non-involuting congenital hemangio-

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Corresponding Author: Dr. Yıldırım Karslıoğlu, Gülhane Askeri Tıp Akademisi Patoloji Anabilim Dalı, Ankara

mas, infantile hemangiomas, tufted angiomas and Kaposi-like infantile hemangioendotheliomas, in addition to their diverse clinical manifestations (1). Hemangiomas are generally harmless lesions, but some of them may cause serious medical and surgical consequences. Most frequently reported complications are bleeding, and symptoms related to compression of the surrounding structures by the growing mass(es). Liver and spleen are two internal organs which can be involved by hemangiomas. Liver hemangiomas are fairly common lesions while splenic involvement is rather infrequent (3). Among vascular tumors that can be encountered in spleen are hemangioma, littoral-cell angioma (LCA), multinodular hemangioma -a distinct splenic vascular neoplasm-, hemangioendothelioma and angiosarcoma can be enumerated. Hemangioma, in fact, is the most common primary neoplasm of the spleen, and generally tend to be under 2 cm in diameter. Rarely multiple hemangiomas involving entire spleen (angiomatosis or hemangiomatosis) can be seen. Splenic hemangiomas are mostly detected incidentally, and give rise to suspicion of metastasis. Although they are innocuous, life threatening complications like rupture caused by rapid enlargement or hematological manifestations primarily associated with thrombocytopenia, anemia, and consumption coagulopathy may emerge in some cases. This life-threatening clinico-pathologic condition is known as Kasabach-Merritt syndrome and can be associated with a mortality rate up to the one third of the affected patients (4,5).

CASE REPORT

A 60-year-old Caucasian woman referred to a local hospital for a history of abdominal pain, weight loss, fatigue, and gingival bleeding. Physical examination revealed some petechial bleeding especially on the pretibial areas. Complete blood count showed a hypochrome microcytic anemia attributed to iron deficiency, and thrombocytopenia. Bone marrow biopsy was performed at that time, but a specific diagnosis could not be made. Because of the intractably altered hematologic profile, a probable malignancy could not be ruled out, and the patient has been referred to our institution. After hospitalization in hematology department, physical examination showed splenomegaly, and generalized petechial and gingival bleeding. Abdominal ultrasonography revealed splenic parenchymal heterogeneity due to several nodular lesions with ill-defined borders. Computerized tomography was concordant with the ultrasound findings. The bone marrow was reported as hypercellular with mild dismorphic changes in erythroid and myeloid series and with prominent mature megakaryocytic proliferation. No sign of neoplastic infiltration, iron and extracellular material accumulation or fibrosis have been noted. The patient subsequently underwent a splenectomy.

In macroscopic examination, the spleen measured 18x15x6 cm, weighing 1200 g. and multiple nodularities were noted on its capsule. On cut surfaces, same nodularities with a reddish-violet color were detected throughout the splenic parenchyma (Figure 1). Microscopic examination revealed the typical anastomosing capillary network of endothelial cells with no sign of atypia (Figures 2 and 3). The endothelial cells showed strong reactivity with Factor-

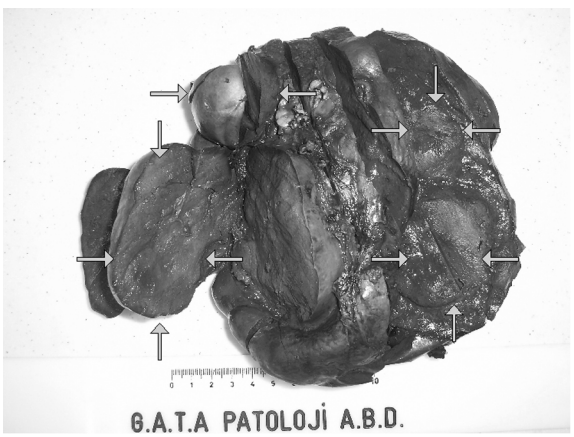

Figure 1. Numerous reddish-violet and relatively firm nodular lesions on the cut surfaces of the spleen were observed (arrows indicate some of the bigger nodules).

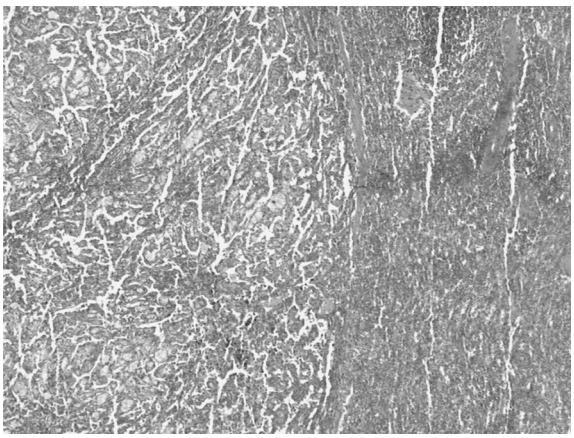

Figure 2. Histological sections revealed the vascular nature of the nodules. One of them is shown on the left half of the figure with an easily perceptible border from the splenic parenchyma (HE x25).

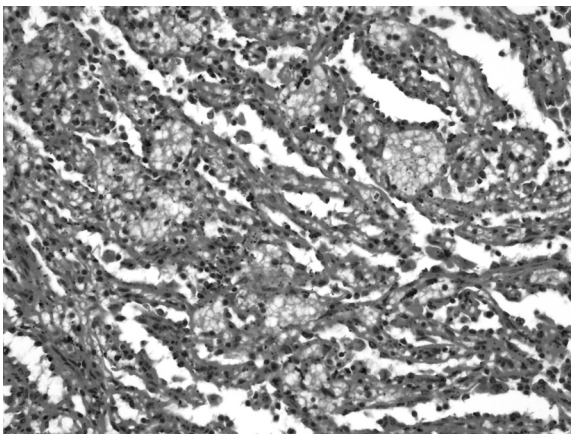

Figure 3. The lesions consist of innumerable anastomosing capillaries. No morphological evidence of malignancy has been detected (HE x100).

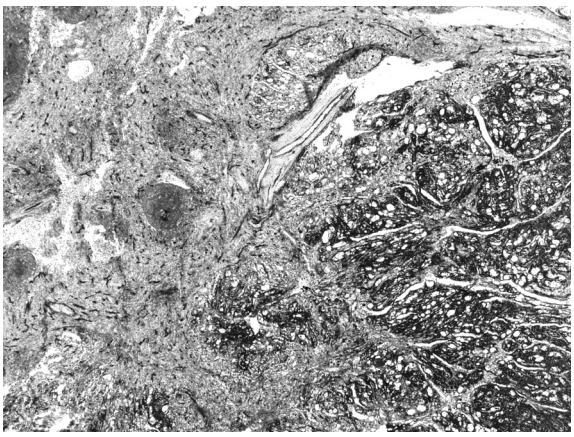

Figure 4. Diffuse and strong endothelial immunoreactivity with Factor-VIII related antigen is seen on the right half of the picture (Avidin-Biotin, DAB chromogen x25).

VIII related antigen (Figure 4) and other vascular endothelial cell markers, such as CD34 and CD31 but not for CD8. We diagnosed the case as a splenic hemangiomatosis manifested by Kasabach-Merritt syndrome. After splenectomy symptoms rapidly disappeared. During follow-up, no major complications developed. Her last hematological profile was reported as normal.

DISCUSSION

Hemangiomas are congenital benign vascular lesions and affect approximately 2-6% of the population (5). They have been reported in every organ and region. They are generally considered as a cosmetic problem rather than a medical or surgical threat (1,3). Hemangiomas can be seen in solid internal organs, like liver and spleen. Sometimes, these two organs may be affected by hemangiomas in a diffuse way, and this condition is known as hemangiomatosis. Despite the innocent nature of small lesions, giant or diffuse hemangiomas (hemangiomatosis) may trigger a high-output cardiac failure or a potentially lethal Kasabach-Merritt syndrome (5).

Kasabach-Merritt syndrome was first reported in 1940 as thrombocytopenia and consumption coagulopathy associated with a large hemangioma in lower extremity. In this condition, continuous entrapment and accumulation of thrombocytes throughout the tumor cause not only thrombocytopenia, but also activation of coagulation cascade. These two phenomena result in a rapid consumption of coagulation factors, and this may lead to an intractable hemorrhagic diathesis. There is no universally applicable treatment guideline for Kasabach-Merritt syndrome. Platelet transfusions and general supportive measures concerning coagulation problems are empirical treatment approaches. Embolization of the tumor may provide some temporary benefits. Definitive treatment option is surgical removal of the tumor or the involved organ. Unfortunately, surgical intervention is not

always possible in patients with giant hemangiomatous lesions. Therefore, treatment of Kasabach-Merritt syndrome requires a collaborative multidisciplinary teamwork. Despite accurate and proper treatment, mortality rate is high (4,5). Clinical observations suggest that the Kasabach-Merritt syndrome tend to accompany locally aggressive vascular neoplasms, such as Kaposiform hemangioendothelioma (KHE) and tufted angioma (TA) (5). Hence, a thorough pathological assessment of entire lesion(s) is needed in deciding whether or not any additional treatment procedure might be required.

Splenic hemangiomas and hemangiomatosis have been reported more frequently in children than in adults (1,3,6). They are thought to be present at birth, but because of their silent nature, most of them may not come to attention and are detected incidentally during ultrasonography or autopsy (3). There is a debate whether it represents a developmental malformation or a true neoplasm. Despite their rare occurrence, splenic hemangiomas may be life-threatening by rupture or triggering Kasabach-Merritt syndrome (4,6).

In the differential diagnosis, other vascular tumors and tumor-like lesions such as lymphangioma/lymphangiomatosis, LCA (littoral-cell angioma), peliosis, hemangioendothelioma, and angiosarcoma must be considered. In general, it is relatively easy to recognize the locally aggressive and malignant vascular tumors by their cellular appearance and evident cytological atypia. LCA is also distinctive by its papillary growth pattern of conspicuous endothelial cells with hyperchromatic nuclei and plump cytoplasm. Immunohistochemistry can also be helpful in diagnosing LCA: The cells of LCA expected to be highlighted by factor-VIII related antigen, CD21, and CD68. They are typically negative for CD34 and CD8 (4).

The presented case is noteworthy for both extensive splenic involvement and the late onset of symptoms in adulthood. While evaluating disorders manifesting by bleeding and coagulopathy, Kasabach-Merritt syndrome must be kept in mind and the spleen should also be screened carefully in case of absence of an easily identifiable superficial vascular lesion.

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