Moreover, other factors should be considered such as the typical location of the tumor and the fact that bilateral presentations are rather common (and, by the way, rule out malignancy)[5-7]. If the radiologist and the trauma surgeon are aware of this useful information they will avoid unnecessary biopsies and surgical excisions, which can be risky for the patient.

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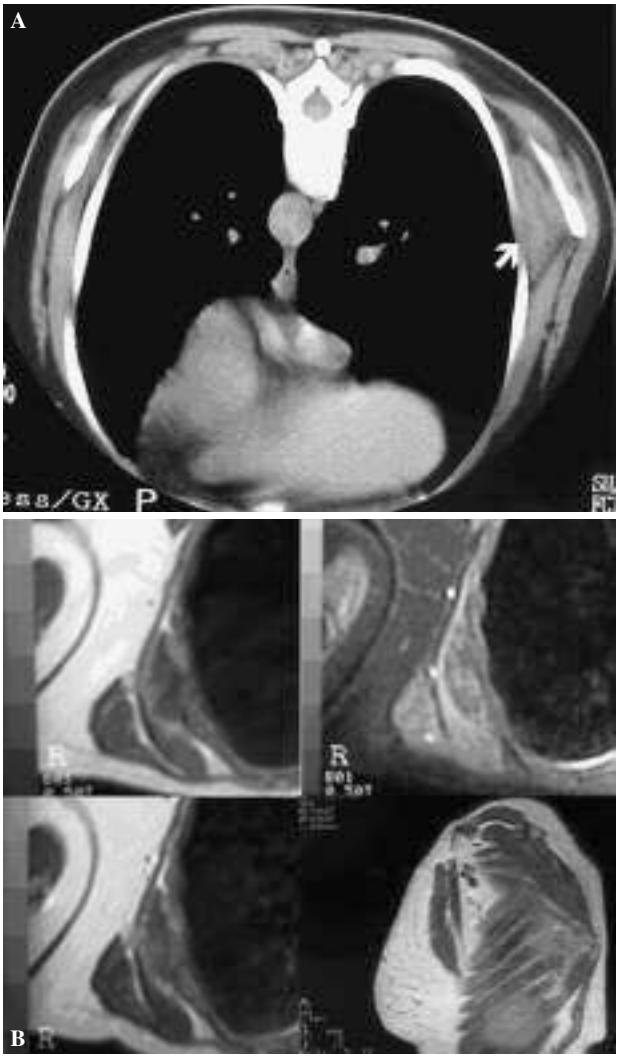


***Figure 2.*** *(A) Computerized Axial Tomography with no contrast medium enhancement of the subscapular region of our patient. Performed in the prone position in order to avoid soft tissue compression. The image shows an unencapsulated well-delimited lenticular-shaped thoracic wall mass (arrow) that displaces the serratus major muscle anteriorly and the lower scapular border laterally; the mass is characterized by lower attenuation than the muscles and higher attenuation than the subcutaneous fat. Note the small less dense linear areas within the mass that reveal the presence of fat. Although well defined by the fat laterally, the lesion cannot be separated from the intercostal muscles. (B) Magnetic Resonance sequences. a) T1-weighted echo spin sequence: a relatively well-defined mass can be seen of intensity similar to that of skeletal muscle, with intermingled high-intensity small curved areas; b) T2-weighted images: homogeneous relatively well-defined mass located between the thoracic wall and the scapular girdle that presents with intensity similar to skeletal muscle with intermingled high-intensity linear areas suggesting the presence of fat, whose distribution is similar to that of those in T1-weighted images; c) and d) T1-weighted qxial and sagittal views showing a heterogeneous intensity increase following administration of gadolinium; a slight enhancement is seen mainly on the periphery.*

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# Intramuscular cavernous hemangioma of the thigh

Hemangiomas are relatively frequent benign vascular soft tissue neoplasms that appear chiefly during childhood; they account for 7% of benign tumors. Intramuscular cavernous hemangiomas are infrequent in the limbs (0.8% of all hemangiomas); they are mainly found in young adults who have suffered some kind of trauma[1]. Nuiclear magnetic resonance is the ancillary test of choice[2] and biopsies permit a final diagnosis. Surgical excision is the most effective treatment[3]. Relapse of the tumor tends to be due to an incomplete resection[4]. There is no conclusive evidence about its metastatic capacity[1].

## CLINICAL CASE

48-year old male with a history of vertebral artery hypoplasia, vertebrobasilar stroke and colonoscopic polypec-

tomy. Five months ago he reported a palpable lump of variable size on his right thigh. On examination, a soft 6 x 3 cm mass was detected on the vastus laterales muscle that could be displaced transversally but not longitudinally in the right thigh. No popliteal or inguinal adenopathies were observed; a constitutional syndrome was also ruled out.

Plain films were inconclusive. An initial nuclear magnetic resonance (NMR) revealed a "4 cm-thick rounded intramuscular mass in the lower third of the right vastus medialis that could be presumed to be a cystic tumor". A biopsy of the lesion was recommended. After marginal resection, the lesion was pathologically diagnosed as a "benign intramuscular vascular malformation". At 17 months of the marginal resection a relapse occurred. A new NMR (figs. 1A, 1B and 1C) showed a lesion that was isointense with respect to the surrounding muscle in T1-weighted images, and hyperintense in T2-weighted images, with diameters of 9 x 4 x 3 cm. A radical resection was decided, which made it possible to macroscopically detect a 14 x 6 cm dark-brown mass inside the striated muscular tissue. On sectioning the mass, an ill-defined eccentric angiomatose area was identified, 2,5 x 1,5 cm in size, which could be classed as an ectasic congestive hemangioma of cavernous appearance (figs. 2A y 2B). Microscopically, parietal vessels of variable caliber and thickness could be seen between the muscular and fibroadipose tissues (figs. 2C y 2D). This last biopsy made it possible to reach the final diagnosis of right vastus lateralis intramuscular cavernous hemangioma. Evolution was satisfactory and so far, after 4 years' outpatient follow-up, has not presented with signs of relapse.


***Figure 1.*** *Nuclear Magnetic Resonance views of the lower third of the right thigh. (A) T2-weighted axial slice showing a hyperintense tumoral mass in the vastus lateralis muscle. (B) and (C) T1-weighted coronal slices showing a tumoral mass that is virtually isointense with respect to the surrounding muscles; there is hyperintense reinforcement in the tumoral periphery.*

## DISCUSSION

Hemangioma is a classical term that covers benign vascular tumors characterized by an increased number of vessels and roughly normal appearance[5]. Intramuscular hemangiomas are relatively rare (0.8% of all hemangiomas), showing cell proliferation of hyperplastic endothelium. Their origin could be attributed to the growth of a latent hemangiomatose lesion resulting from trauma[1].

Hemangiomas are proliferative lesions characterized by an increase in endothelial cell turnover. They are frequent after Barth and tend to grow fast and spontaneously involute with time. Hemangiomas are more frequent in women than in men, with ratios ranging between 3:1 and 5:1[6].

Cavernous hemangiomas stand out because they present with a large number of dilated and congestive vessels with a flattened endothelium. They are generally larger and generally affect deeper structures (mainly muscles) and older individuals than capillary hemangiomas. Calcification is frequent and they may contain non-vascular tissue such as fat, fibrotic tissue, thrombi, hemosiderin and smooth muscle. They do not involute spontaneously and tend to require surgical resection[7].

They can be associated with chronic pain or numbness in the soft tissues. According to some authors, pain may be related with the possible compression of nerve fibers at the tumoral level[13].

NMR is the best complementary imaging test currently available for diagnosing and studying the size of these lesions. T1-weighted images show isointense areas with respect to the surrounding muscle; T2-weighted images show hyperintense areas. Pheboliths are devoid of signal[2,8]. There is no specific image for hemangioma.

Although these lesions do not turn malignant, treatment is preferably surgical given the risk of complications[6]. A resection with a wide safety Windows is required given the high chances of relapse in the event of an incomplete excision.

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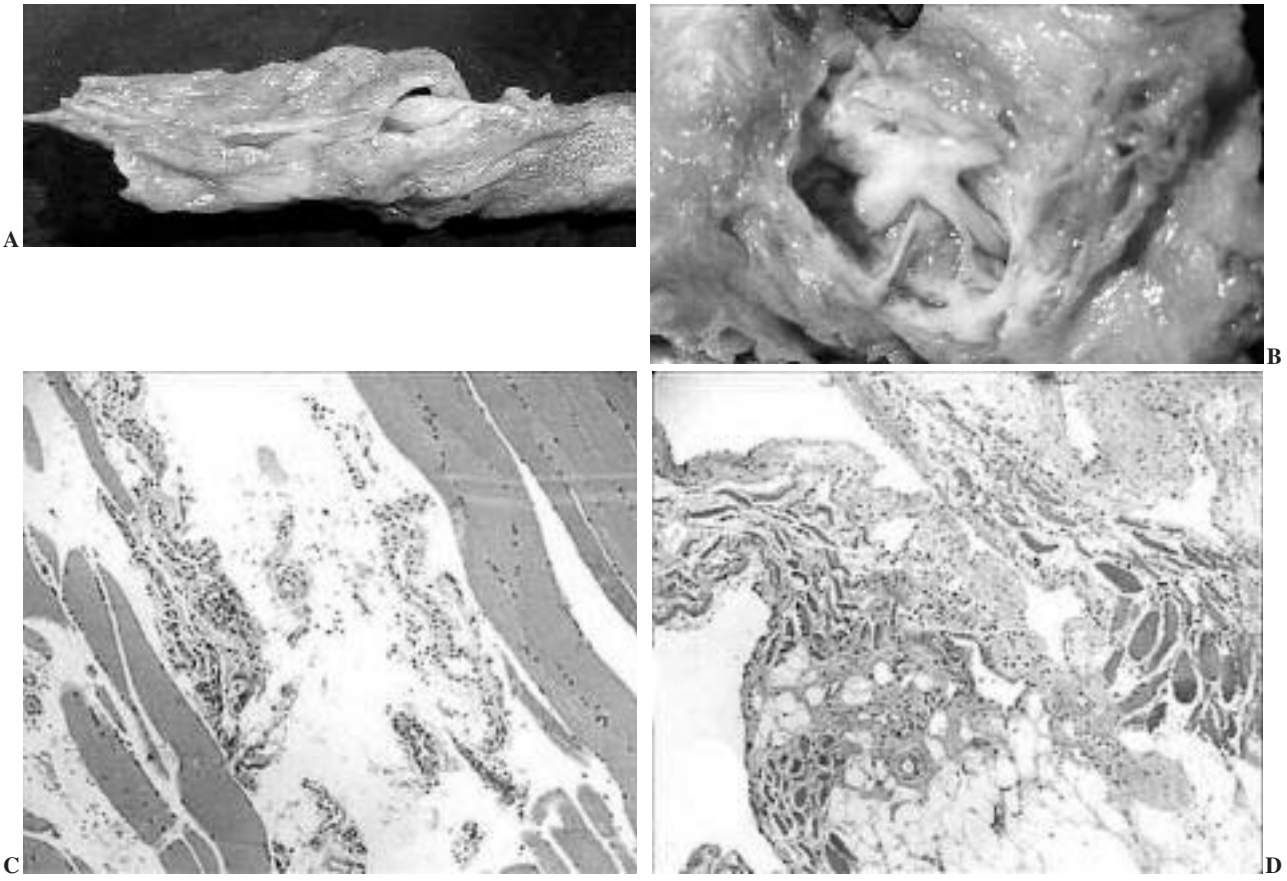


***Figure 2.*** *(A) Resected tumoral mass; macroscopic specimen. (B) Detailed view of the macroscopic specimen: stellate image of the tumor area. (C) Microscopic image (hematoxylin-eosin x 20): interfascicular plane with fibrotic tissue, arteriovenous channels enmeshed within the fibers of striated muscular tissue. (D) Microscopic image (hematoxylin-eosin x 20): tortuous vessels of variable caliber; endothelium with no signs of atypia.*

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