Case Report Small Lymphocytic Lymphoma/Chronic Lymphocytic Leukemia in a Pelvic Myelolipoma

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Received 21 Jan 2008; Accepted and available online 31 Jan 2008

Abstract: Myelolipoma is a rare benign tumor composed of mature adipose tissue and normal hematopoietic elements. Extra-adrenal myelolipomas are extremely rare, with approximately 50% of cases occurring in the presacral region. We report a case of an 85 year old woman who presented with small bowel obstruction relating to a pelvic mass detected on computed tomography (CT) scan. At laparotomy, a 12-cm. pre-sacral mass was resected. Histologic examination showed a myelolipoma with dense lymphoid aggregates. On immunostains, the lymphoid aggregates showed positivity for CD20, CD5, and CD23, consistent with small lymphocytic lymphoma/chronic lymphocytic leukemia (SLL/CLL). Molecular evaluation confirmed the presence of a clonal B-cell lymphocytic proliferation that did not harbor BCL-2 or BCL-1 gene rearrangements. This case represents the first report of a myelolipoma involved by a non-Hodgkin lymphoma. The unique combination of these findings raises questions about the relationship between the two observed entities. The likeliest scenario is that an unusual benign tumor (myelolipoma) was colonized by a relatively common systemic hematopoietic neoplasm SLL/CLL, producing a collision tumor.

Key Words: Extra adrenal myelolipoma, lymphoma, small lymphocytic lymphoma, chronic lymphocytic leukemia, non-Hodgkin lymphoma

Introduction

Myelolipoma is a rare benign tumor originally described by Gierke [1] in 1906 as a tumor of mesenchymal origin composed of mature adipose tissue and normal hematopoietic elements including mature and immature cells of all three hematopoietic lines [2]. Myelolipomas are found most commonly in the adrenal glands, where they are typically nonfunctioning and asymptomatic. Extraadrenal myelolipomas (EAML) are rare, with approximately 50% of cases occurring in the presacral region and the rest in various anatomic sites including thorax, retroperitoneum, kidneys, liver, and stomach. Although these tumors are usually small (<5 cm), they can reach massive size and lead to symptoms [3].

We report a case of an 85 year old woman who presented with small bowel obstruction relating to a pelvic mass detected on computed tomography (CT) scan. Histological examination of the pelvic mass revealed a myelolipoma involved by small lymphocytic lymphoma/chronic lymphocytic leukemia (SLL/CLL). These findings represent the first reported case of a non-Hodgkin lymphoma occurring in a myelolipoma.

Materials and Methods

Case Presentation

An 85-year-old woman with atherosclerotic cardiovascular disease and hypertension presented with a one-week history of abdominal pain, progressive abdominal distention, nausea and vomiting. Physical examination was compatible with small intestinal obstruction. CT scan of the pelvis revealed a pelvic mass containing fat and solid components and producing extrinsic compression of the sigmoid colon and rectum. Laboratory studies revealed hemoglobin of 10.0 g/dL, hematocrit 29.8%, MCV 89 fL, platelet count 233,000/uL, WBC 7,600/uL

with 78% neutrophils, 11% lymphocytes, 8% monocytes, 2% eosinophils, 1% basophils. After stabilization with intravenous fluids and nasogastric suction for several days, the patient underwent hysterectomy, bilateral salpingo-oophorectomy and resection of the pelvic mass.

Morphological Evaluation

The resected mass was fixed in 10% buffered formalin, embedded in paraffin, and processed for routine histologic examination and for immunohistochemical and molecular evaluation.

Immunophenotypic Characterization

Immunohistochemical evaluation was performed on a Bio-Genex I-6000 (San Ramon, CA) or a Dako Cytomation Plus (Carpinteria, CA) autostainer with antibodies and dilutions as follows: CD3 (1:200; LabVision, Fermont, CA), CD5 (1:40:BioGenex), CD20 (1:75; BioGenex), CD23 (1:40; Dako, Carpinteria, CA), CD10 (1:40; Biocare, Walnut Creek, CA), CD43 (1:200, Dako), BCL-6 (1:40, Dako), BCL-1 (1:1000, NeoMarkers, Fermont, CA), BCL-2 (1:1600, BioGenex).

Molecular Studies

Genomic DNA was extracted from the submitted specimen. DNA was amplified by polymerase chain reaction (PCR) using oligonucleotide primers for detection of immunoglobulin heavy chain gene rearrangements (Framework regions III and II), BCL-2/IgH gene translocations and BCL-1/IgH gene translocations. Amplified DNA products were separated on a 5% polyacrylamide gel visualized by and ethidium bromide intercalation.

Results

Grossly, the mass measured 12 x 10 x 6.5 cm and consisted of soft fatty yellow tissue covered by a smooth gray-pink fibrous membrane. The cut surface showed diffuse areas of violaceous discoloration. Microscopically, hematoxylin- and eosin (H and E)stained sections demonstrated adipose tissue in which active and orderly trilineage (myeloid, erythroid and megakaryocytic) hematopoiesis was present (**Figures 1A and 1B**). Numerous



Figure 1 H&E sections of the pelvic mass show mature adipose tissue intermixed with marrow elements and patches of lymphoid aggregates (**A**, original magnification X 200; **B**, original magnification X 400).

dense patches of small to mildly enlarged lymphocytes with round nuclei and clumped nuclear chromatin were noted within the hematopoietic tissue (Figure 2). Occasional proliferation centers (pseudofollicles) were present within these lymphoid islands. Paraffin immunohistochemistry demonstrated the patches of lymphocytes to be positive for CD20, CD5 (dim), CD23 (Figures 3A, 3B and 3C), BCL2, and CD43. CD10, BCL1 and BCL6 were negative, and CD3 outlined few scattered small T cells. Additional molecular studies demonstrate a clonal B-cell population with positive Framework regions III and II. There was no BCL-2/IgH, t(14;18) or BCL-1/IgH, t(11;14) translocation.

The combined morphologic, immunophenotypic and molecular features were consistent with a myelolipoma infiltrated by small lymphocytic lymphoma (WHO Classification, small lymphocytic lymphoma/chronic lymphocytic leukemia) [4].



Figure 2 Lymphoid aggregates are composed of small to mildly enlarged lymphocytes with round nuclei and clumped chromatin (H+E, original magnification X 400).

Discussion

Myelolipoma most often occurs in the adrenal glands and is discovered as an incidental finding on abdominal imaging performed for other indications [5]. The nature and pathogenesis of myelolipoma have not been determined. Adrenocortical clearly cell metaplasia in response to stimuli such as necrosis, infection, or stress has been postulated as an etiologic factor in the development of adrenal myelolipoma [6]. While some authors consider myelolipoma to be a hamartoma with metaplasia of mesenchymal cells and hyperplasia of misplaced myeloid cells, others believe it to be a true neoplasm [7]. In support of the latter consideration, Chang et al [8] reported a clonal chromosome abnormality in one case of adrenal myelolipoma without other adrenal lesions. The nonrandom alteration observed was a balanced translocation between chromosomes 3 and 21, t(3;21)(q25;p11). The authors noted that a nearly similar translocation, t(3;21)(q26;q22), has been described in patients with therapy-related acute myeloid leukemia and myelodysplastic syndromes and in chronic myeloid leukemia in blast crisis. They raised the hypothesis that adrenal myelolipoma may be a myeloid tumor arising from misplaced hematopoietic cells.

Extra-adrenal myelolipoma (EAML) is infrequent, with an incidence of 0.4% at autopsy and fewer than 40 cases reported to date. The typical lesion is a solitary, welldefined mass within the abdomen or pelvis.



Figure 3 Immunoperoxidase stains of a lymphoid aggregate show positivity for CD20 (**A**), dim CD5 (**B**) and CD23 (**C**) (all original magnifications X 400).

Lesions in the retroperitoneal presacral area account for approximately half of the reported cases. The sizes of EAML have been reported to range from 4 to 15 cm, with a mean diameter of 8.2 cm. EAML occurs more commonly in women, with a male: female ratio of 1:2. The median age at diagnosis is 66.5 years [9]. EAML is distinct from true bone marrow in that no reticular sinusoids or bone spicules are present. It must also be differentiated from extramedullary hematopoiesis (EMH), which typically occurs as either a compensatory phenomenon in response to chronic hemolysis, e.g. in hemoglobinopathies, or as a manifestation of a myeloproliferative disorder. EMH is often multifocal and tends to occur in a younger age group, with a median age quoted as 43.7 years [6]. Histologically, EMH usually demonstrates a prominence of hematopoietic elements rather than fat, with erythroid hyperplasia and an absence of lymphoid aggregates [10].

To our knowledge, this is the first reported case of myelolipoma involved by a non-Hodgkin lymphoma. One case of Hodgkin lymphoma within an adrenal myelolipoma has been reported [11]. That case occurred in the renal transplant setting and was felt to represent the unusual collision of a posttransplant lymphoproliferative disorder and a myelolipoma.

Although the presence of increased lymphoid aggregates has been previously reported by Fowler and other investigators [6, 12], the nature of these lymphoid cells was never well established. Moreover, Saboorian *et al* [13], performed flow cytometric analysis on a presacral extra-adrenal myelolipoma with increased lymphoid aggregates. Their results demonstrated unremarkable T cells, polyclonal B cells, and a small fraction of NK cells. The authors concluded that these lymphoid aggregates are a benign finding, without phenotypic aberrations or B-cell monoclonality.

The unique combination of findings in our case raises questions about the relationship between the two observed entities. The likeliest scenario is that an unusual benign tumor (myelolipoma) is being colonized by a relatively common systemic hematopoietic malignancy (SLL/CLL), producing a collision tumor. A more intriguing possibility is that one of the intrinsic elements (lymphoid) of a neoplasm hamartoma benign or has undergone malignant transformation. However, because of the high frequency of SLL/CLL in the elderly population and the lack of any prior reports of non-Hodgkin lymphoma in myelolipoma, we consider this latter explanation to be unlikely.

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