

Mesothelial Cells Within Vascular Transformation of Mediastinal Lymph Node Sinuses: An Unusual Benign Collision Mimicking Colliding Malignancies

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Abstract

Vascular transformation of lymph node sinuses represents a rare benign entity mimicking malignant counterparts such as nodal Kaposi sarcoma. The presence of mildly atypical benign mesothelial cells within nodal sinuses raises the possibility of metastatic malignancy. Herein, a rare case of vascular transformation of lymph node sinuses with reactive sinusoidal mesothelial cells is outlined as a unique benign pathology and a potential mimicker of a malignant collision tumor.

Keywords

vascular transformation, lymph node, mesothelial cells, benign collision

We report a case highlighting an incidentally discovered internal mammary lymph node in a 64-year-old male patient undergoing open-heart surgery. The patient had no known history of malignancy. Microscopic examination revealed a lymph node effaced by a diffuse vasoproliferative process composed of plexiform vascular channels, and epithelioid and spindle endothelial cells with mild expansion of the subcapsular sinus, compatible with vascular transformation of lymph node sinuses (Figure 1A-C). Also noted within the vascular channels were scattered floating epithelioid cells with binucleation and occasional mitoses (Figure 2A and B). Immunohistochemistry revealed positive vascular marker staining for CD31 and CD34 (Figure 1D) within the vascular proliferation. SMA highlighted the pericytic spindle cells surrounding the endothelial-lined vascular spaces. The epithelioid cells within the vascular lumens stained positively for CK5/6 and calretinin (Figure 2C and D). HHV-8, CD3, CD20, S-100 protein, CD68, CD23, CK-AE1/AE3, CK7, CK20, and estrogen receptor were negative; Ki-67 proliferative index was less than 1%. These findings were compatible with the unusual occurrence of benign transport of mesothelial cells within a mediastinal lymph node concomitantly showing vascular transformation of the sinuses.

Mesothelial cells and/or inclusions have been previously described in mediastinal and intraabdominal lymph nodes, but only once within presumably vascularly transformed peripheral sinuses, though the illustration in that report hardly supports this diagnosis.¹ Mesothelial cells within mediastinal lymph nodes are usually associated

with inflammatory conditions and effusions involving the pleural and pericardial surfaces.²⁻⁵ Moreover, benign mesothelial cell inclusions may be observed within lymph nodes associated with primary malignancies, thus readily mimicking metastatic carcinomas.⁶⁻⁸ The postulated mechanism of dislodgement is the result of intralymphatic mesothelial cell spread, usually derived from the pericardial and/or pleural surfaces, toward the plexiform endothelial-cell lined nodal vascular channels. The differential diagnosis in this setting is wide and includes metastatic melanoma, metastatic carcinoma, and/or mesothelioma.^{9,10} Vascular transformation of lymph node sinuses, on the other hand, represents a benign vasoproliferative process initially described by Haferkamp et al¹¹ in 1971 with associated venous obstruction and subsequent vascular proliferation of lymphatic sinuses and red blood cell extravasation. The characteristic morphologic features are plexiform capillaries with endothelial proliferation in epithelioid or spindle cell sheets. A pericytic layer surrounds the vessels with rare encounters of lymph node expansion and subcapsular sinus involvement. The differential diagnosis, particularly in more florid examples, includes Kaposi's sarcoma, a vascular tumor that can originate in

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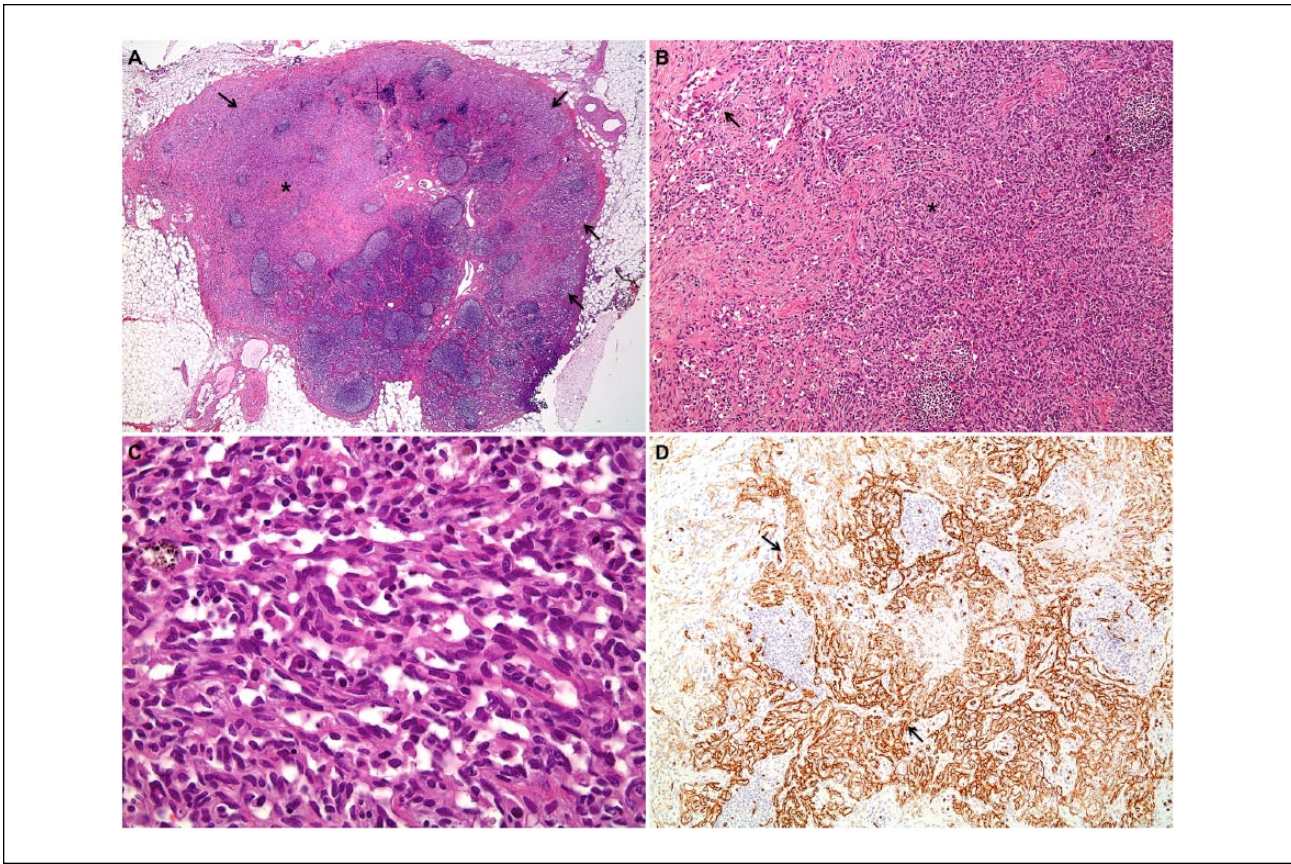


Figure 1. (A) Vascular transformation of lymph node sinuses characterized by a spindle and epithelioid vascular proliferation effacing the lymph node with focal involvement of the subcapsular sinus (*arrow and asterisk*, 20 \times). (B) The vascular lesion occupies the lymph node cortex and medulla (*arrow and asterisk*, 100 \times). (C) The vascular lumens are composed of plump spindle and epithelioid endothelial cells with minimal atypia, pleomorphism, and mitosis (400 \times). (D) CD34 reveals the lesional vascular immunophenotype (100 \times).

the lymph node and is commonly associated with lymph node effacement and subcapsular invasion. Alternative differential considerations include hemangiomas, epithelioid and spindle cell hemangioendotheliomas, and lymphangiomas.¹²⁻¹⁴ How these independent benign/reactive processes came to coexist in this patient is unclear, but an underlying resolved inflammatory process with serosal inflammation and possibly vascular congestion is one likely scenario.

Although careful examination of each process should lead to the correct benign diagnosis, the combined presence of 2 mimickers of malignancy may prompt the pathologist to render at least one falsely malignant verdict. In addition, the presence of occasional reactive atypia may render differentiating benign from malignant processes particularly difficult. Clinical and radiological assessment are therefore important, but awareness of these changes by the pathologist, particularly in an incidental setting, is equally, if not more, important. Once the

suspicion present, immunohistochemical tools should serve as a definitive diagnostic modality. When it comes to differentiating reactive and malignant mesothelial proliferations, markers expressed in variable proportion in mesotheliomas versus benign mesothelial cells include EMA (80% to 90% vs 9% to 20%), p53 (37% to 47% vs 0% to 2%), and desmin (6% to 10% vs 84% to 85%).¹ We believe resorting to this panel should rarely be deemed necessary, as clinical evidence of mesothelioma is usually apparent enough to make the distinction possible on clinical grounds.

In conclusion, this is a rather unique case of incidentally discovered reactive mesothelial cells within the sinuses of a vascularly transformed mediastinal lymph node. Such rare entities pose, if hastily examined, a diagnostic challenge and a significant pitfall to the unwary pathologist. Proper evaluation (clinical, morphologic, and immunohistochemical) should ensure reaching the correct diagnosis.

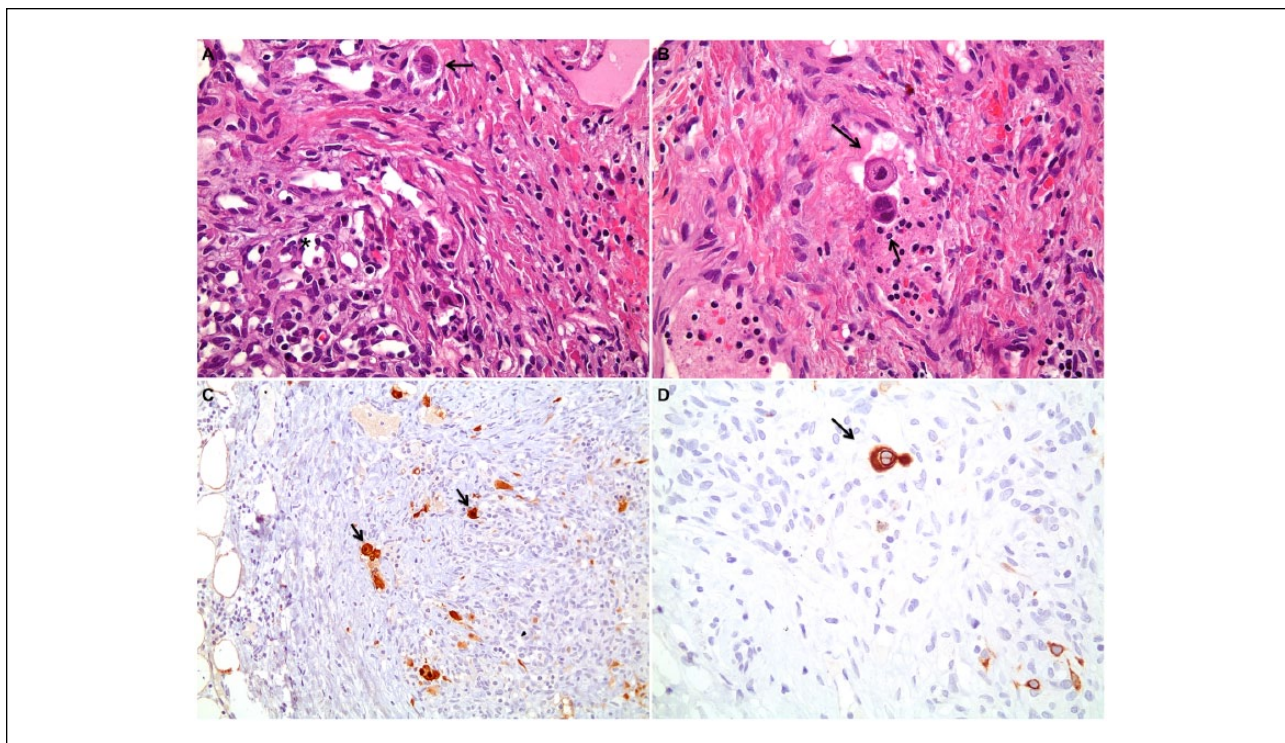


Figure 2. (A) Mesothelial cells within vasculature transformed lymph node sinuses with occasional binucleation (arrow and asterisk, 400 \times), and mitosis (B, arrows, 400 \times). (C) Calretinin immunohistochemistry outlining the mesothelial cells (arrow, 200 \times). (D) CK5/6 sharply staining the binucleated mesothelial cells within vascular lumens (arrow, 400 \times).

Declaration of Conflicting Interests

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