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CLINICAL IMAGE

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Signet-ring cell large B-cell lymphoma: A potential diagnostic pitfall with signet-ring cell carcinoma

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Key Clinical Message

This study reveals the importance of recognizing uncommon histologic variants in diffuse large B-cell lymphoma, such as the signet-ring cell variant, which may result in an erroneous or delayed diagnosis with potential impact in patient treatment.

KEYWORDS

differential diagnosis, lymphoma, morphology, pitfall, signet-ring, variant

Dear Editor

A 56-year-old man presented with a 4-cm left inguinal lymphadenopathy. Lymph node excision showed effacement of the architecture by an atypical infiltrate with few residual lymphoid follicles (Figure 1A). The infiltrate consisted of signet-ring cells and cells with multivacuolated cytoplasm (Figure 1B). The lymphoid follicles lacked polarization and contained signet-ring cells and >15 centroblasts per follicle (Figure 1C). By immunohistochemistry, the signet-ring cells were positive for CD20 (Figure 1D) and negative for pan-cytokeratin (Figure 1D, inset). CD21 highlighted follicular dendritic cell meshworks in lymphoid follicles but lack of them in diffuse areas (Figure 1E). The signet-ring cells were also positive for bcl-6 (Figure 1E, inset), bcl-2, CD10, and MUM1, and negative for T-cell markers. Ki-67 was 40%. Flow cytometry detected a CD10+ B-cell population with variable forward scatter and lack of surface light chains. Fluorescence in situ hybridization showed rearrangement of the *BCL6* gene. A diagnosis of diffuse large B-cell lymphoma (DLBCL) with a minor component of follicular lymphoma was established. Signet-ring cell DLBCL is rare, with <100 reported cases to date.[1,2] Although this morphology has no prognostic impact, its recognition is crucial to avoid a misdiagnosis of metastatic signet-ring cell carcinoma to lymph node, leading to inappropriate management.[1,2]

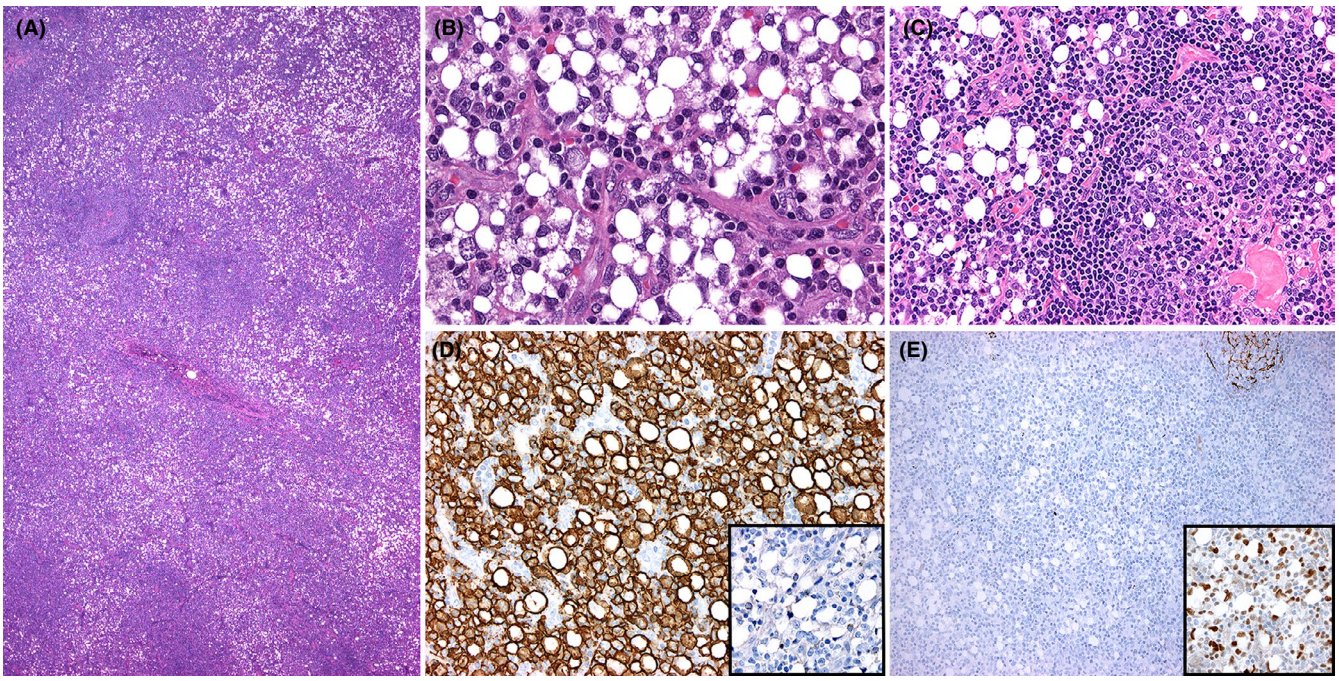

FIGURE 1 A, Effacement of the lymph node architecture by an atypical clear cellular infiltrate with few residual lymphoid follicles. B, The diffuse areas are composed of sheets of signet-ring cells. C) Neoplastic lymphoid follicle with >15 centroblasts, few centrocytes, and occasional signet-ring cells. D, Immunohistochemical stains show that the signet-ring cells are positive for CD20 and negative for pan-cytokeratin (D, inset). E, CD21 demonstrates lack of follicular dendritic cell meshworks in diffuse areas and few residual lymphoid follicles (top, right). The signet-ring cells are positive for bcl-6 (E, inset)

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

VP and SPO: contributed equally to the preparation of this work.

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REFERENCES

1. Kim H, Dorfman RF, Rappaport H. Signet ring cell lymphoma. A rare morphologic and functional expression of nodular (follicular) lymphoma. *Am J Surg Pathol*. 1978;2:119-132.
2. Zhang S, Sun J, Fang Y, et al, Signet-ring cell lymphoma: clinicopathologic, immunohistochemical, and fluorescence in situ hybridization studies of 7 cases. *Ann Diagn Pathol*. 2017;26:38-42.

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