

CLINICAL IMAGE

Extrafollicular proliferation of B-blasts: Morphologic correlate to Spikevax-induced lymphadenopathy

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Botnar Research Centre for Child
Health: BRCCCH**Abstract**

A 30-year-old male developed a PET-positive left-sided cervical lymphadenopathy that was suspected representing metastasis of a known right-sided papillary thyroid cancer. First-dose-application of Spikevax three weeks ago was neither reflected, nor reported to the pathologists. Diagnostic lymphadenectomy was performed showing extrafollicular proliferation of B-blasts, likely attributable to the vaccine application.

KEYWORDS

COVID-19, extrafollicular proliferation of B-blasts, lymphadenopathy, mRNA vaccine, Spikevax

A 30-year-old man developed a left-sided level-III cervical lymphadenopathy that was suspected representing metastasis of a known right-sided papillary thyroid cancer (PTC). First-dose application of Spikevax three weeks ago and PET findings of an as similar FDG avidity of the respective lymph node (LN) as of a vaccination site draining left axillary LN were neither reflected, nor reported to the pathologists, but later on considered highly relevant. A lymphadenectomy showed the pattern of extrafollicular proliferation of B-blasts: expanded paracortex with immuno- and plasmablastoid cells (Figure 1; $\times 400$). Mirroring the morphological blasts diversity, their immunophenotype varied, displaying partial positivity for CD20, CD30, CD79a, CD138, IRF4, OCT2, and PAX5, but invariant for BOB1, and polytypic light-chain

expression (insert to Figure 1: κ/λ -double-staining, $\times 630$). Regarding all available information (and the PET negativity of a LN subsequently removed along thyroidectomy and involved by PTC), the diagnosis of reactive lymphadenopathy, likely attributable to Spikevax application, was established.

Lymphadenopathies are common side effects of mRNA COVID-19 vaccines,¹ but their histopathological correlate is insufficiently documented. The reported lymphadenopathy pattern seems recurrent, being observed by us in three additional cases. Extrafollicular proliferation of B-blasts reflects rapid B-cell expansion as primary antigen reaction that bypasses the germinal center. It may represent a diagnostic pitfall to Hodgkin- or T-cell- and histiocyte-rich B-cell lymphoma.²

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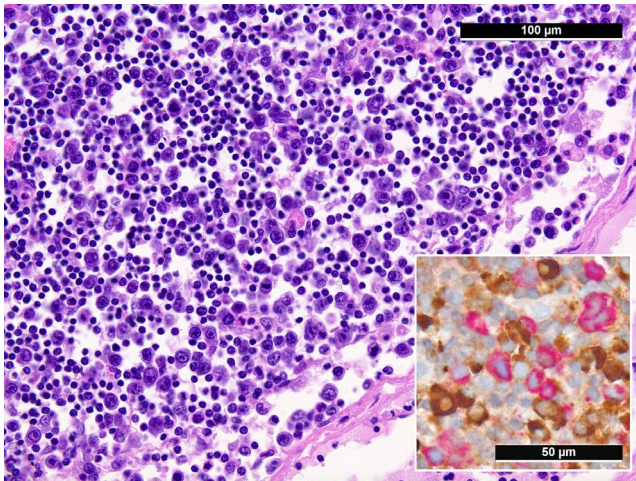


FIGURE 1 Extrafollicular proliferation of B-blasts within the expanded paracortical zone with immuno- and plasmablastoid cells ($\times 400$). Mirroring the morphological variation of blasts, their immunophenotypic characteristics vary (see text), and they display polytypic light-chain expression (insert: κ/λ -double-staining, $\times 630$)

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None.

CONFLICTS OF INTEREST

The authors have no conflicting interests regarding this paper.

AUTHORS' CONTRIBUTIONS

MR: was involved in primary diagnosis, obtained written consent, and collected clinical data; AT: established the diagnosis in consultation, wrote the paper, and prepared the figure; both authors approved the final version of the paper.

ETHICAL APPROVAL

This observational case study has been conducted according to the Declaration of Helsinki, and respective research activities were covered by the ethics committee permission 2020-00969 of the Ethics Committee of Northwestern and Central Switzerland.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

DATA AVAILABILITY STATEMENT

Not applicable.

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REFERENCES

1. Adin ME, Isufi E, Kulon M, Pucar D. Association of COVID-19 mRNA vaccine with ipsilateral axillary lymph node reactivity on imaging. *JAMA Oncol.* 2021;7:1241-1242.
2. Tzankov A, Dirnhofner S. A pattern-based approach to reactive lymphadenopathies. *Semin Diagn Pathol.* 2018;35:4-19.

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