LETTER TO THE EDITOR

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Epithelial Cells or Vascular Smooth Muscle Cells in a Peripheral Blood Smear?

Periferik Kan Yaymasında Epitel Hücresi mi Vasküler Düz Kas Hücresi mi?

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To the Editor,

We read the paper submitted to this journal by Lee et al. [1] with great interest. They reported rare epithelial cells in the peripheral blood smear of a 56-year-old male patient. In this blood smear, a few clusters of medium-to-large cells containing elongated oval-grooved nuclei with pale blue frayed cytoplasm at both ends were found at the tail-end of the blood smear. The authors reasoned that these cells were likely epithelial cells, reported as non-hematopoietic cells. The authors then stated that the presence of these abnormal cells could be due to improper mixing before aspiration, to a blunted-tip needle being used, or to repeated unsuccessful venipuncture attempts, and these abnormal cells can also be rarely seen from finger or heel pricks due to transference of skin into the blood tube.

However, confirmation of epithelial cells should be validated by immunohistochemistry, and Lee et al. [1] did not mention the venipuncture status of this patient. As we know, alcohol disinfection is mandatory before venipuncture. Thus, the transference of skin into the blood tube is rare. For this reason, we propose other possible causes of the abnormal cells reported by Lee et al. [1], including vascular smooth muscle cells, subcutaneous fibroblasts, or even the synoviocytes around the elbow joint, from venipuncture of the synovium of the elbow joint. However, whether these cells had the cluster feature is unclear, and other immunohistochemistry methods are needed for corroboration.

Additionally, these abnormal cells reported by Lee et al. [1] also resemble vascular endothelial cells. Vascular endothelial cells have a highly irregular cell morphology, mostly in the shape of long tails or spindles with intact cell membranes and irregular nuclei, often lacking nucleoli. However, vascular endothelial cells could be excluded in this case from our perspective because vascular endothelial cells are often arranged in a single layer and are sparse, regardless of whether they are brought out by vein or bone marrow puncture. Single or several endothelial cells have a certain trend of arrangement, which is inconsistent with the cell cluster feature in the study discussed here.

In conclusion, we appreciate the report offered by Lee et al. [1] for giving us an excellent opportunity to discuss these rare abnormal cells that are seldom seen in hematological examinations.

Keywords: Epithelial cells, Vascular smooth muscle cells, Peripheral blood smear

Anahtar Sözcükler: Epitelial hücreler, Vasküler düz kas hücreleri, Periferik kan yayması

Ethics

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Authorship Contributions

Concept: W.Y., Y.W., W.P.; Data Collection or Processing: W.Y., Y.W., W.P.; Analysis or Interpretation: W.Y., Y.W., W.P.; Literature Search: W.Y., Y.W., W.P.; Writing: W.Y., Y.W., W.P.

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Reference

1. Lee PEN, Chen GY, Yap ES. Epithelial cells in peripheral blood smear. Turk J Hematol 2023;40:269-270.

Reply from the Authors:

To the Editor,

We would like to thank Yang et al. [1] for their insights and comments on our article and we would like to offer some additional points for consideration.

First, Yang et al. [1] proposed that the abnormal cells observed in our study could be vascular smooth muscle cells, subcutaneous fibroblasts, or synoviocytes from around the elbow joint, suggesting that these cells might have been the source of the observed anomalies. While these suggestions are valid and should be considered, the presence of these cell types in a peripheral blood smear is extremely rare. To confirm their identity, as Yang et al. [1] rightly pointed out, further immunohistochemistry methods should be employed to corroborate their origin. However, it is crucial to acknowledge that in our paper, we did not definitively identify these cells as epithelial cells but rather suggested that as a possibility. The suggestions made by Yang et al. [1] offer alternative avenues for investigation but do not definitively rule out the possibility of epithelial cells.

Furthermore, it is noteworthy that Yang et al. [1] raised the issue of venipuncture status and alcohol disinfection as important factors that can influence the presence of foreign cells in a blood smear. Proper venipuncture technique and disinfection are essential aspects of the procedure that significantly reduce the risk of contamination. Nevertheless, it is not entirely inconceivable that, despite following correct procedures, rare instances of contamination might occur. While the chances of transference of skin into the blood tube are indeed minimal, it is not entirely impossible, and we acknowledge this possibility.

In conclusion, the comments made by Yang et al. [1] offer highly valid alternative hypotheses and facilitate further discussion on the presence of abnormal cells in blood smears.

Sincerely,

Phebe En Ni Lee, Gloria Yuquan Chen, Eng Soo Yap

Reference

1. Yang W, Wang Y, Pan W. Epithelial cells or vascular smooth muscle cells in a peripheral bood smear? Turk J Hematol 2024;41:47.

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