

# AUTOMATED BLOOD VESSEL SEGMENTATION IN CD3-STAINED WHOLE SLIDE IMAGES (WSI)

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## INTRODUCTION

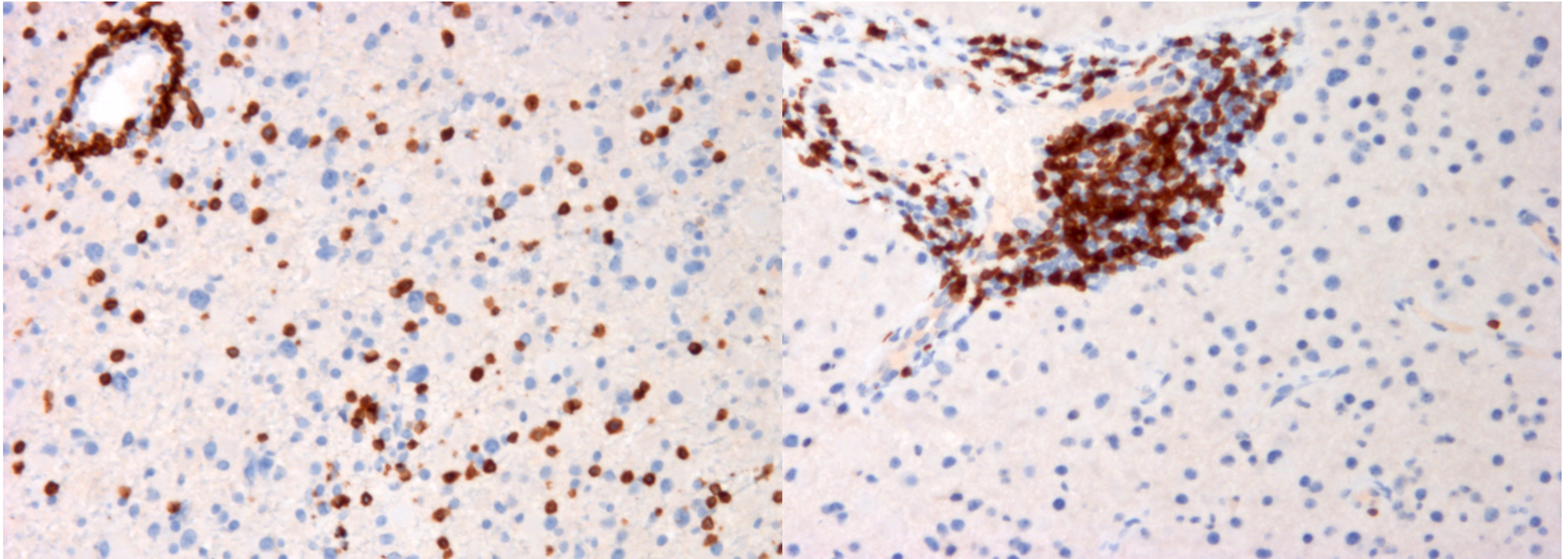


Fig 1. CD3-stained WSI, lymphocytes in brown, other cells in blue



## PREVIOUS WORK

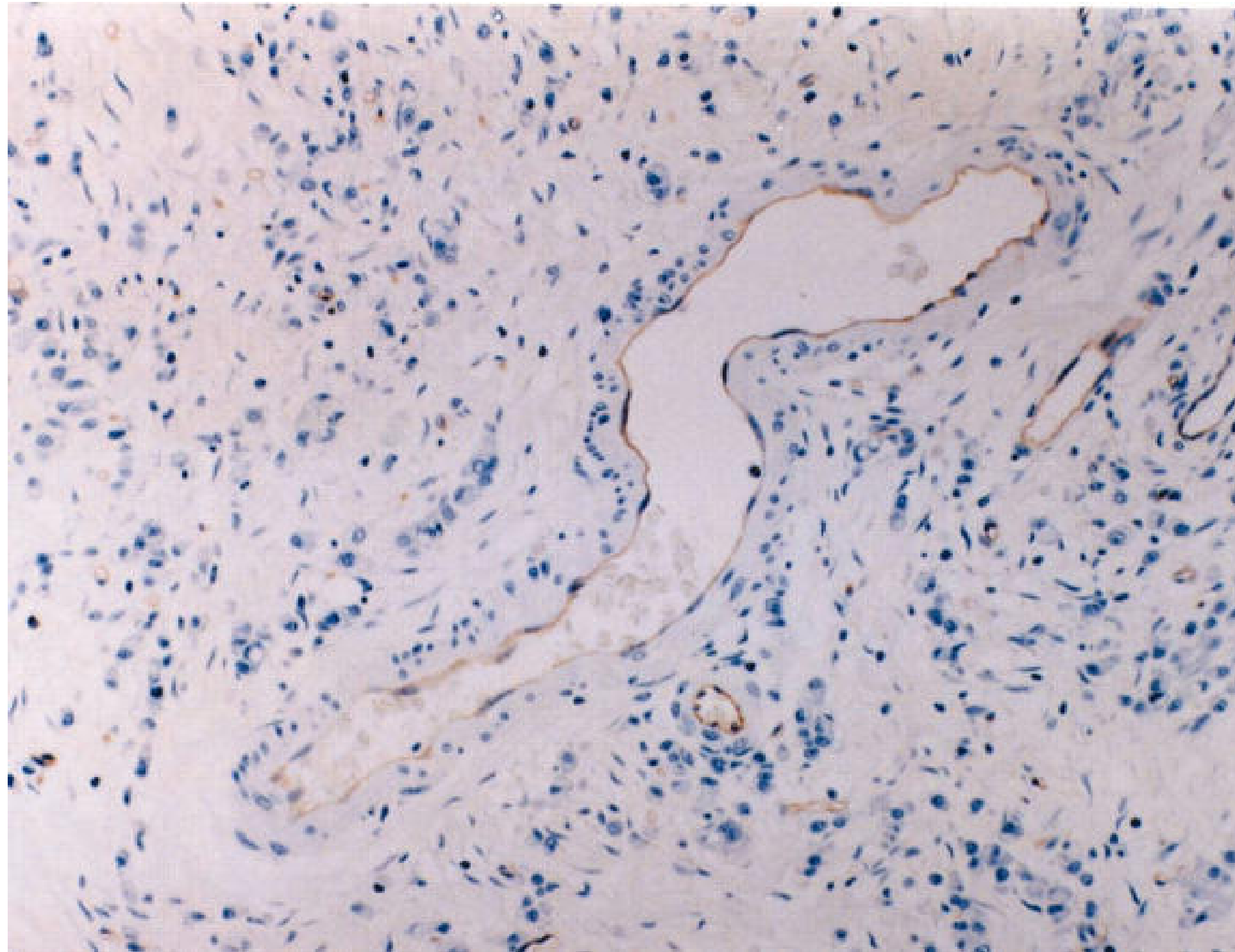
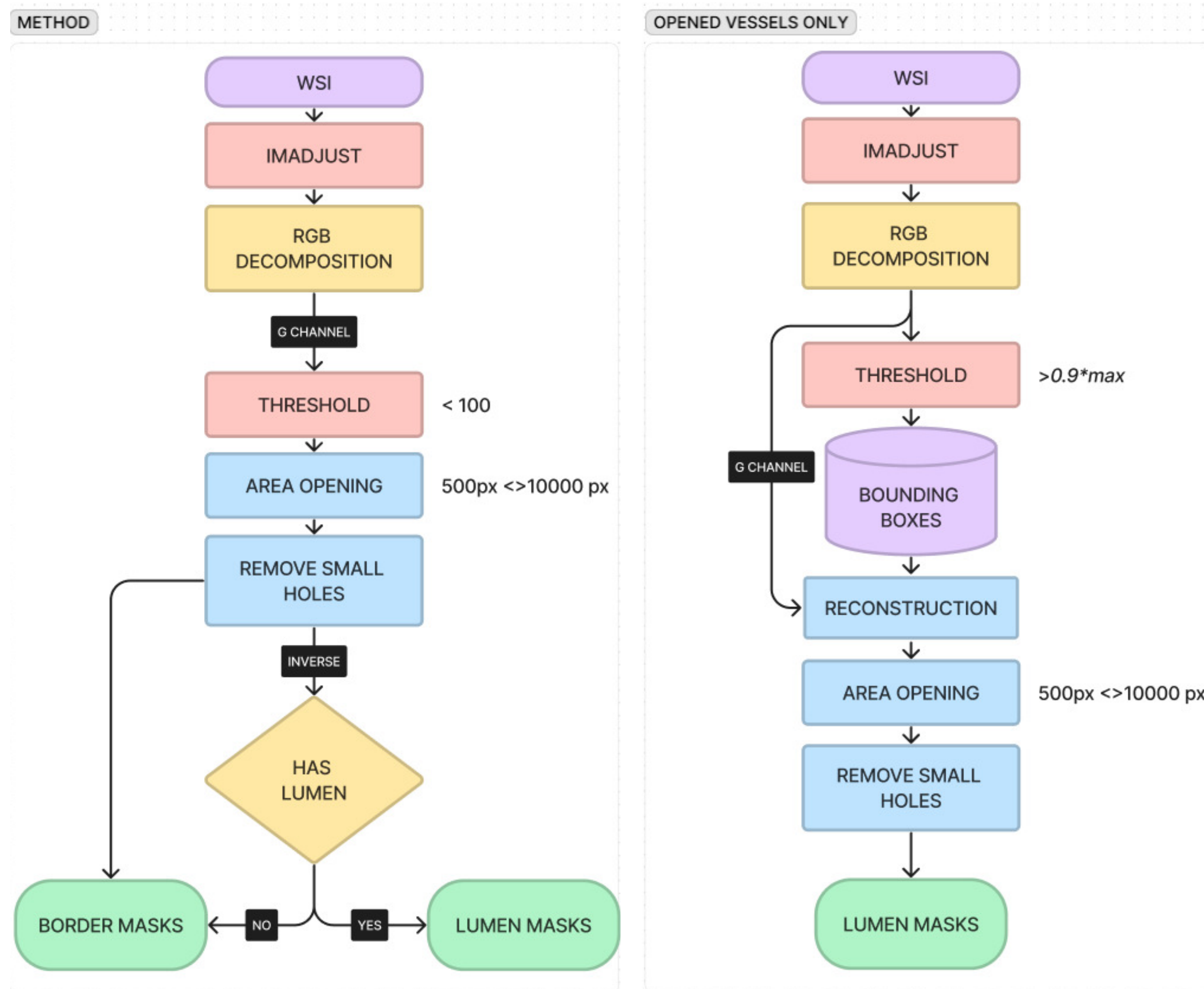


Fig 2. CD31-stained WSI (Nakayama & al., 2004)

- HSV + RGB decomposition
- Morphological operators
- Contour retrieval

# METHOD



## STAINING INCONSISTENCY :

- Only RGB decomposition
- Two methods

Fig 3. Methods flow charts



## RESULTS (1)

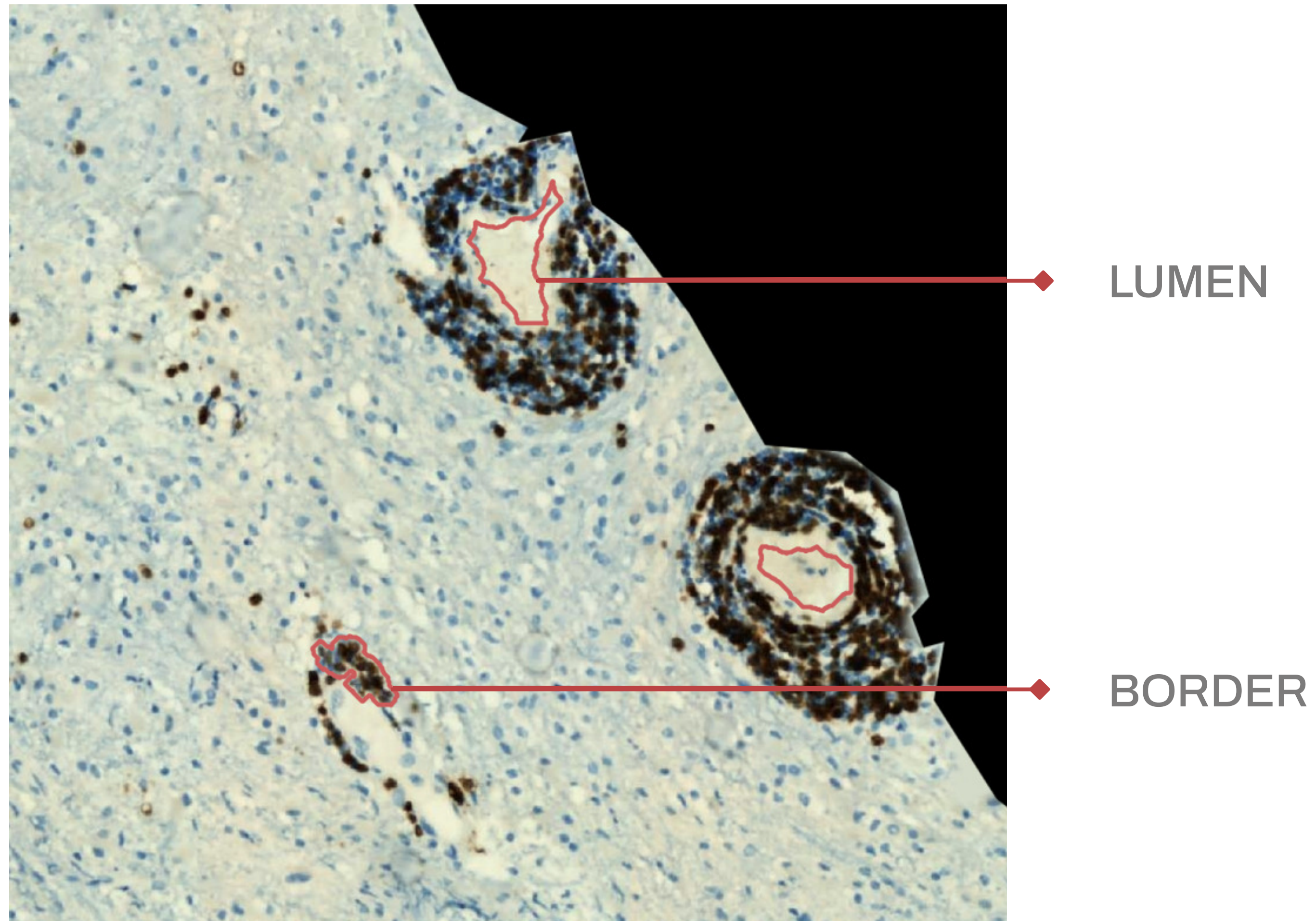


Fig 4. Third slide, default method

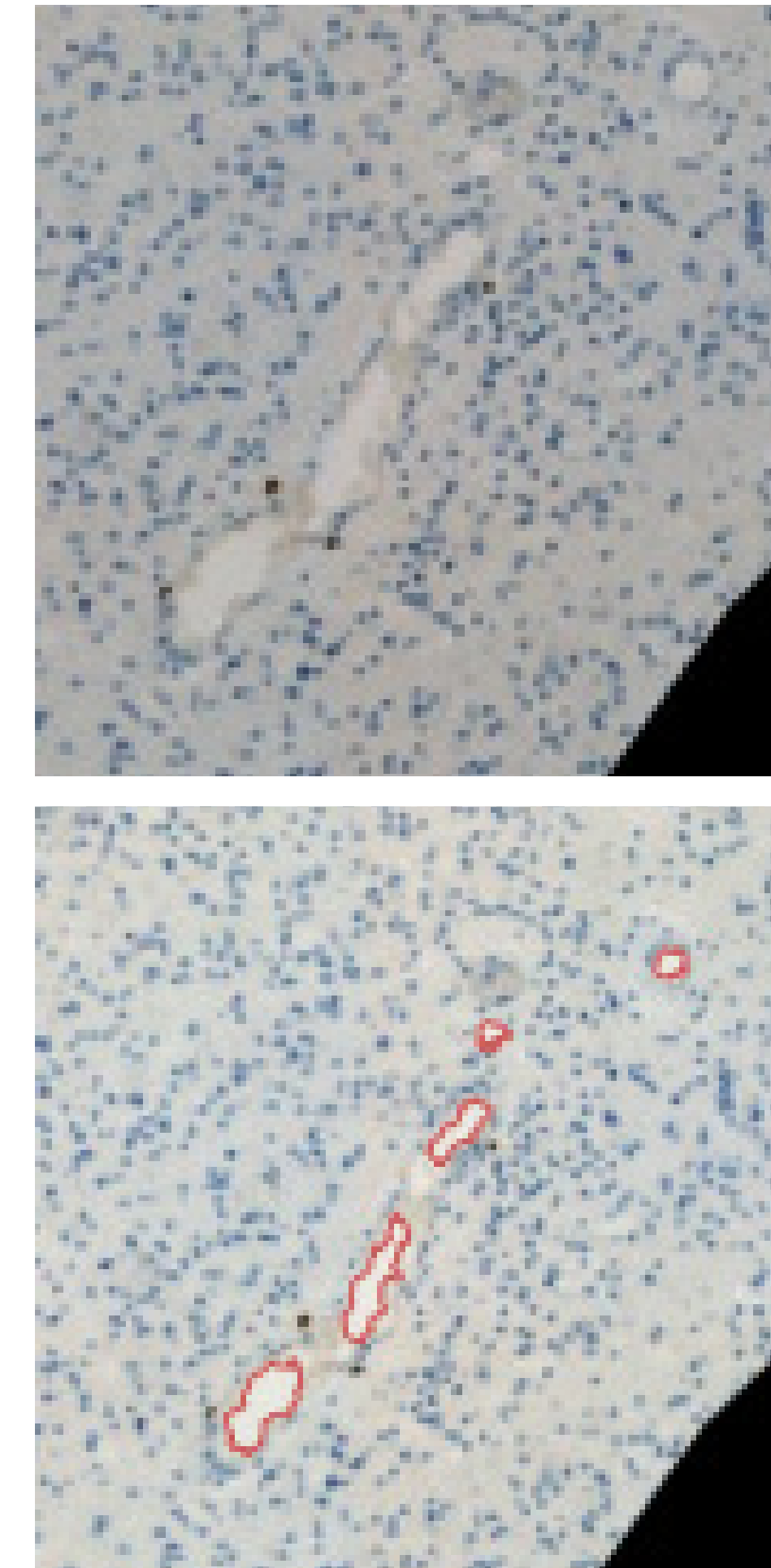


Fig 5. Second slide, second method



## RESULTS (2)

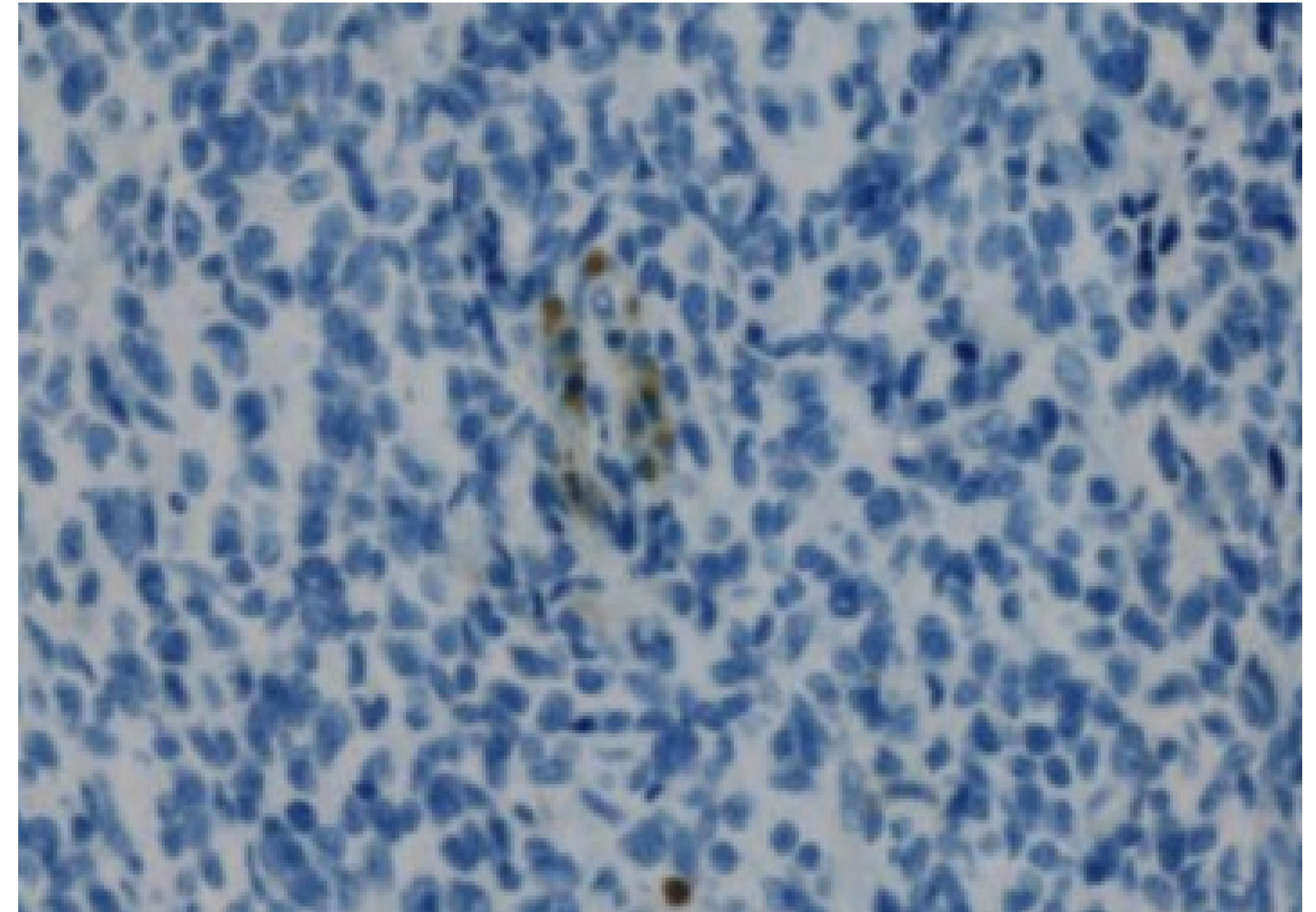
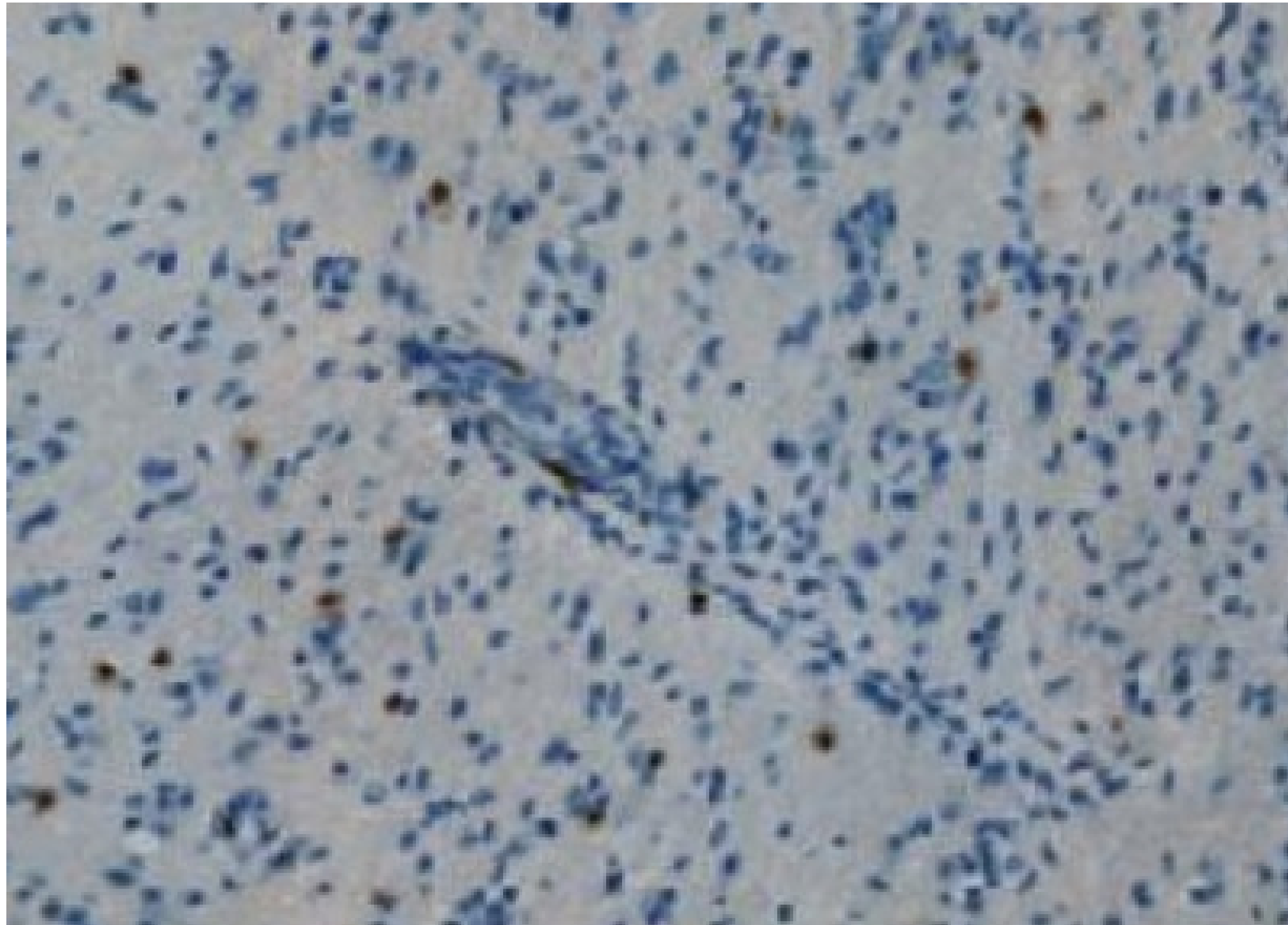


Fig 6. Illustration of missed vessels.

## RESULTS (3)

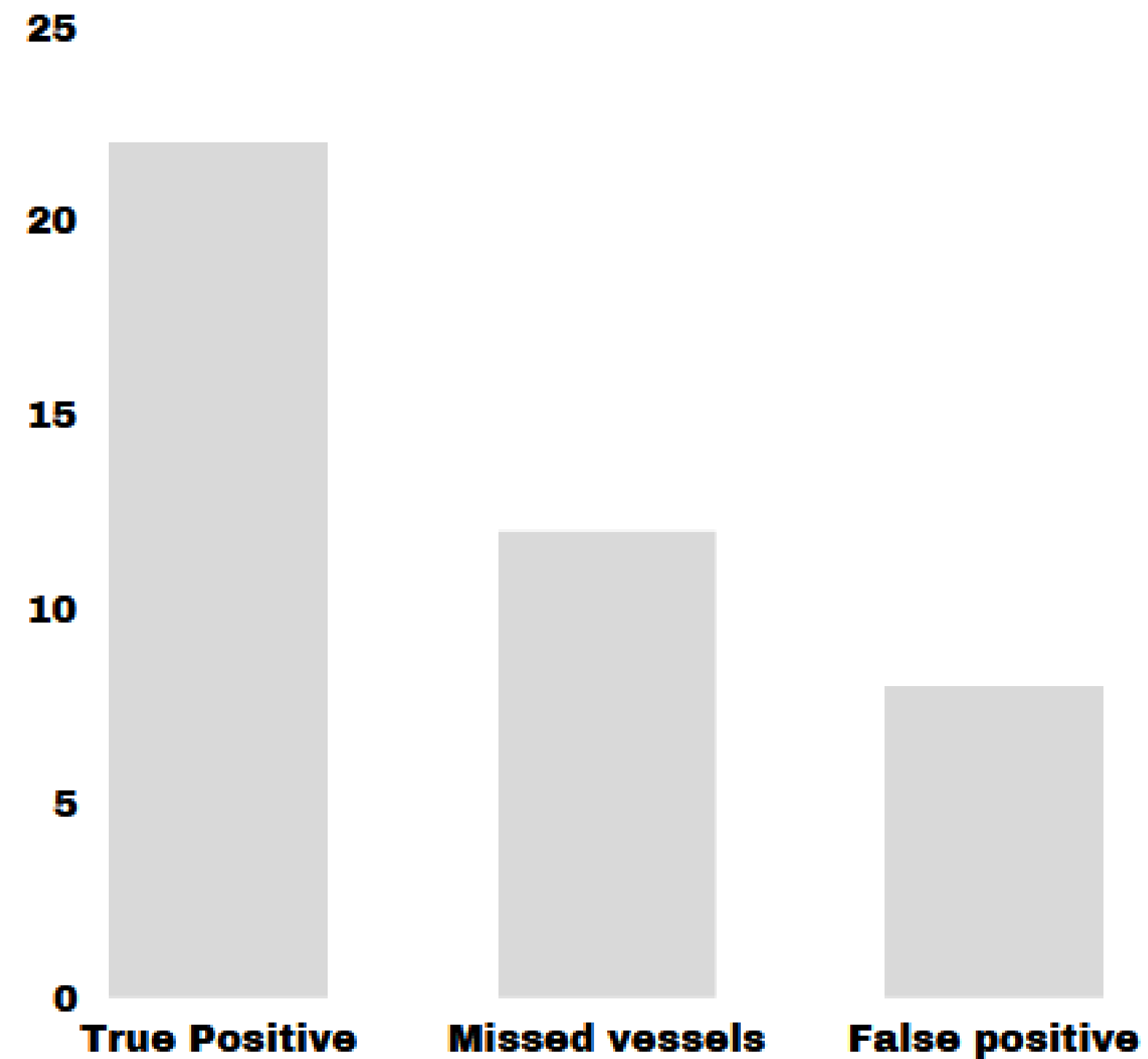
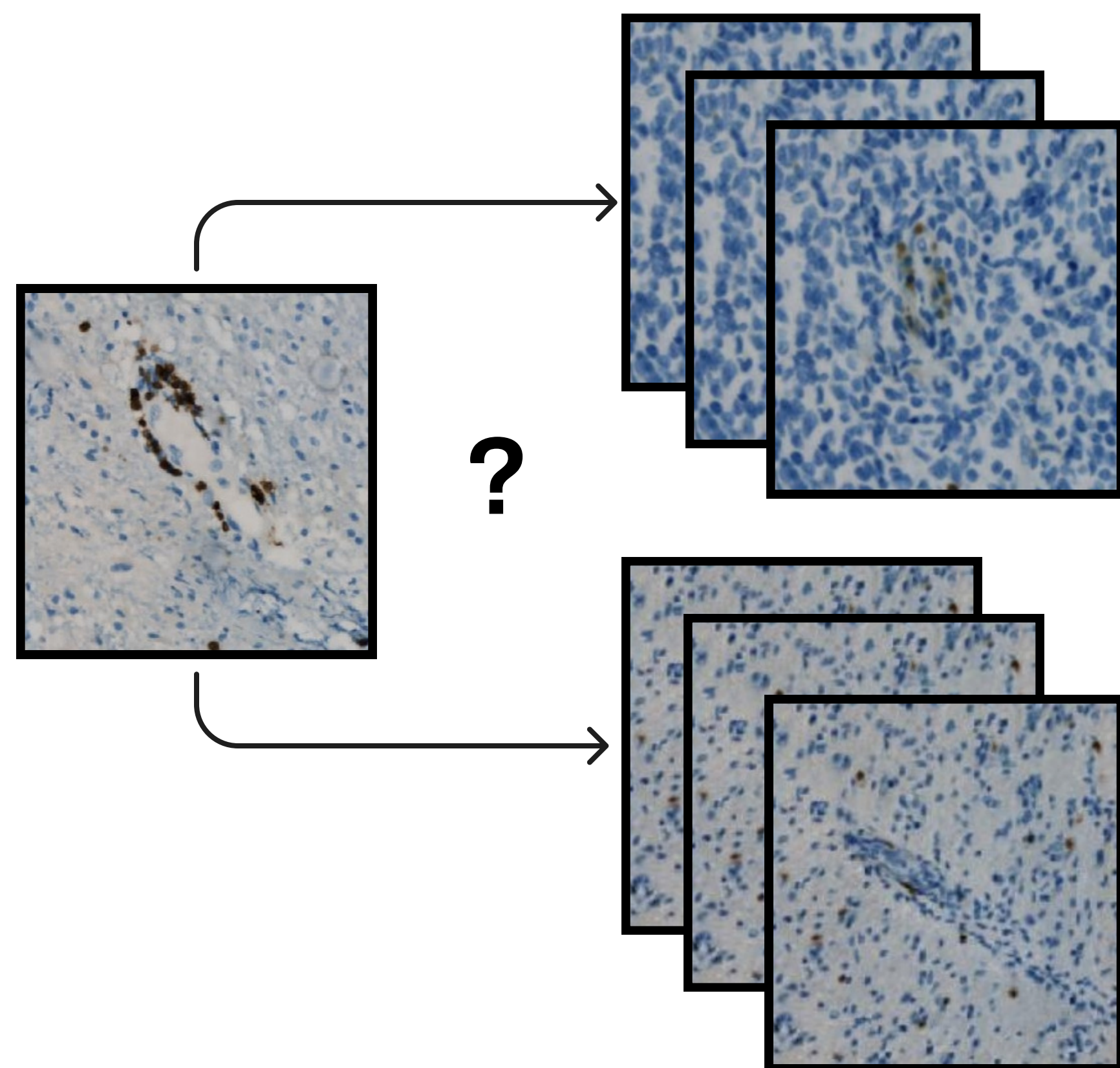


Fig 7. Total of '*True positive*', '*False negative*' and '*False positive*'.

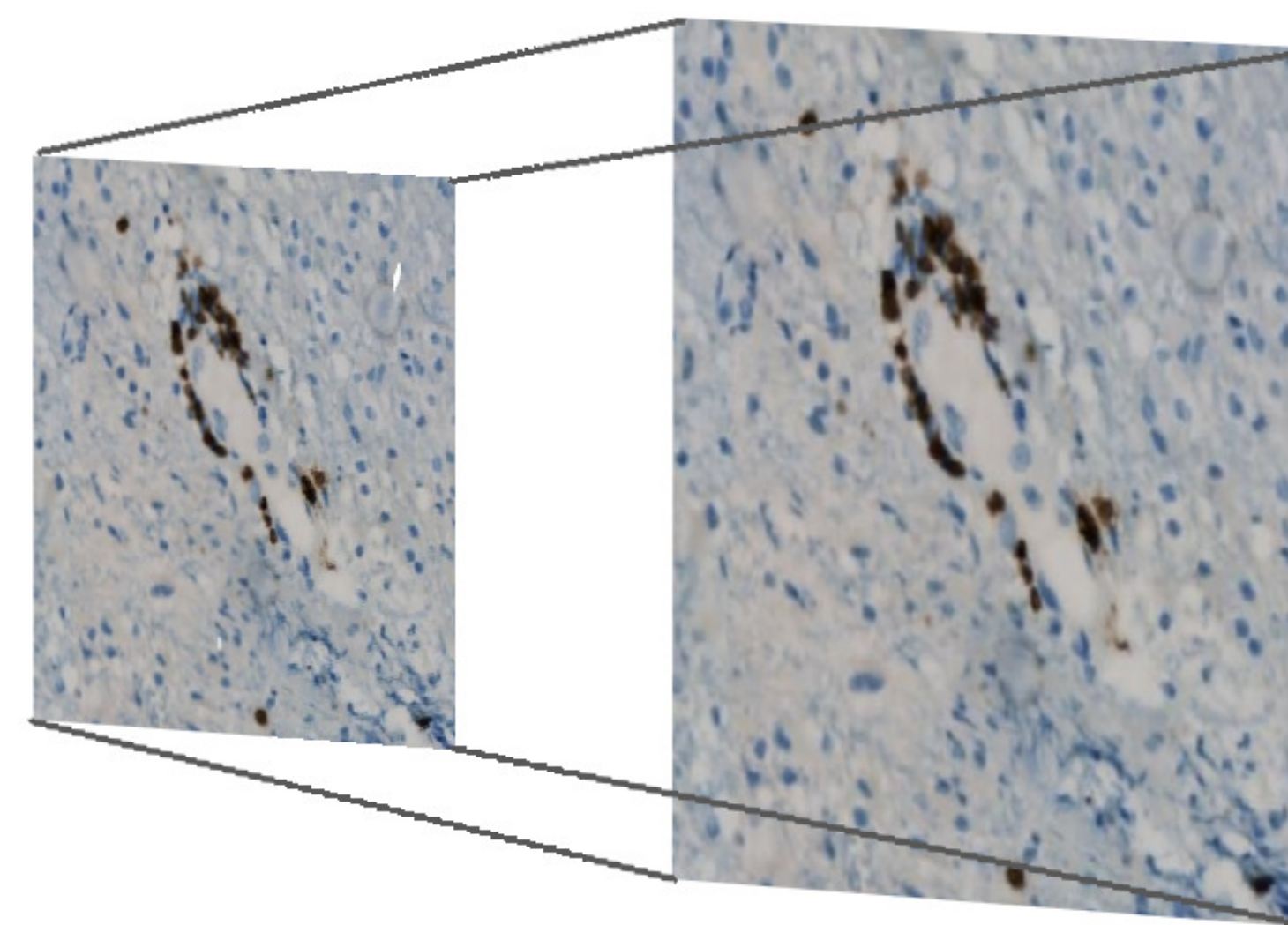
## CONCLUSION:

- Sensitive to data variability : not a single method with a single set of parameters
- Would require more annotated data

## FUTURE WORKS



Clustering



Multi resolution