



# Analysis of risk factors related to the invasiveness of cN0 single papillary thyroid microcarcinoma

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Recently, we had the honor of reading the article titled “A nomogram based on ultrasound radiomics for predicting the invasiveness of cN0 single papillary thyroid microcarcinoma” (1). This study included 317 cases of cN0 single papillary thyroid microcarcinoma (PTMC) patients, randomly divided into training and testing groups in an 8:2 ratio. Ultrasound (US) images of all patients were segmented, and radiomic features were extracted. In the training dataset, US features with minimal redundancy-maximal relevance (mRMR) and least absolute shrinkage and selection operator (LASSO) were selected. Radiomic features were then established based on their respective weighted coefficients. Single-factor and multiple-factor logistic regression analyses were conducted to identify risk factors for potentially invasive PTMC. A nomogram was created by combining three risk factors (lesion diameter, lesion location, and gender) and seven radiomic features. The area under the curve (AUC), accuracy, sensitivity, and specificity in the training set were 0.76, 0.811, 0.914, and 0.727, respectively, while in the testing set, the results were 0.71, 0.841, 0.533, and 0.868, respectively. Additionally, decision curve analysis (DCA) curves demonstrated that the nomogram could provide a higher net benefit. Calibration curves also indicated its good performance. The model holds value in predicting the invasiveness of cN0 PTMC without clinical lymph node metastasis.

We sincerely appreciate the contributions made by the authors. However, there are issues in this study that require

further exploration.

Firstly, the clinical factors included in this study lack statistical analysis of the thyroglobulin antibody (TgAb) and thyroid peroxidase antibody (TPOAb) test indicators. These indicators can reflect the thyroid’s functional status. Studies have shown a positive correlation between low TPOAb levels and central lymph node metastasis (CLNM) in patients with papillary thyroid carcinoma (PTC) (2). TgAb (positive) is an independent predictor of CLNM in PTC (3). Since these indicators are routinely tested preoperatively, they are easily obtainable. If these indicators show statistical differences, incorporating them into the nomogram may further enhance the model’s efficacy.

Secondly, the discussion section lacks an explanation of the radiomic features of the Rad score. For example, the equation includes features such as `original_shape_SurfaceVolumeRatio`, which represents the surface area-to-volume ratio. A larger value of this feature suggests a tumor morphology less inclined towards a spherical shape, indicating increased irregularity. A study has shown that more irregular tumor morphology is associated with higher malignancy and invasiveness (4), aligning with the meaning and weight of this feature in the model.

Finally, we express our gratitude once again for the authors’ contributions to this study. We hope our insights would be valuable for their further research, and we look forward to hearing their opinions.

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## References

1. Zhang M, Lyu S, Yang L, et al. A nomogram based on ultrasound radiomics for predicting the invasiveness of cN0 single papillary thyroid microcarcinoma. *Gland Surg* 2023;12:1735-45.
2. Li X, Zhang H, Zhou Y, et al. Risk factors for central lymph node metastasis in the cervical region in papillary thyroid carcinoma: a retrospective study. *World J Surg Oncol* 2021;19:138.
3. Gao X, Luo W, He L, et al. Predictors and a Prediction Model for Central Cervical Lymph Node Metastasis in Papillary Thyroid Carcinoma (cN0). *Front Endocrinol (Lausanne)* 2021;12:789310.
4. Matsuo K, Akiba J, Kusakawa J, et al. Squamous cell carcinoma of the tongue: subtypes and morphological features affecting prognosis. *Am J Physiol Cell Physiol* 2022;323:C1611-23.

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