

The enhancement pattern of arterial phase on MRI potentially predicts pancreatic neuroendocrine tumours with somatostatin receptor-2 expression

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Aims and objectives

To evaluate the value of MR imaging features

in predicting pancreatic neuroendocrine tumors (PNETs) with somatostatin receptor-2(SSTR2) expression.

Methods and materials

Between January 2010 and September 2018, 65 patients of PNETs with preoperative MR imaging were included. Tumor grading was based on the new 2017 World Health Organization classification of PNETs. MR imaging features included size, shape, consistency, contrast enhancement pattern, and Contrast-to-noise ratios (CNRs) of enhancement. SSTR2 expression of all the resected specimens were assessed by immunocytochemistry.

Results

13 tumors with negative SSTR2 and 52 tumors with positive SSTR2 were evaluated. The positive SSTR2 group showed male (48.1% vs 84.6%, $P < 0.05$), hypointense signal on arterial phase (23.1% vs 76.9%, $P < 0.05$), portal venous phase (13.5% vs 61.5%, $P < 0.05$), and delayed phase (9.6% vs 46.2%, $P < 0.05$) less frequently than the negative SSTR2 group, as opposed to the G1 (34.6% vs 7.7%, $P < 0.05$). However, The CNRs of arterial phase of the positive SSTR2 group were larger than the negative SSTR2 group (-0.0097 vs -0.7953, $P < 0.05$). Using binary logistic regression analysis, the contrast enhancement on arterial phase was an independent significant differentiator of the positive SSTR2 group from the negative SSTR2 group. The optimal cut-off value for the identification of the positive SSTR2 group was hyper/isointense signal on arterial phase (sensitivity 75.47%, specificity 76.92%).

Images for this section:

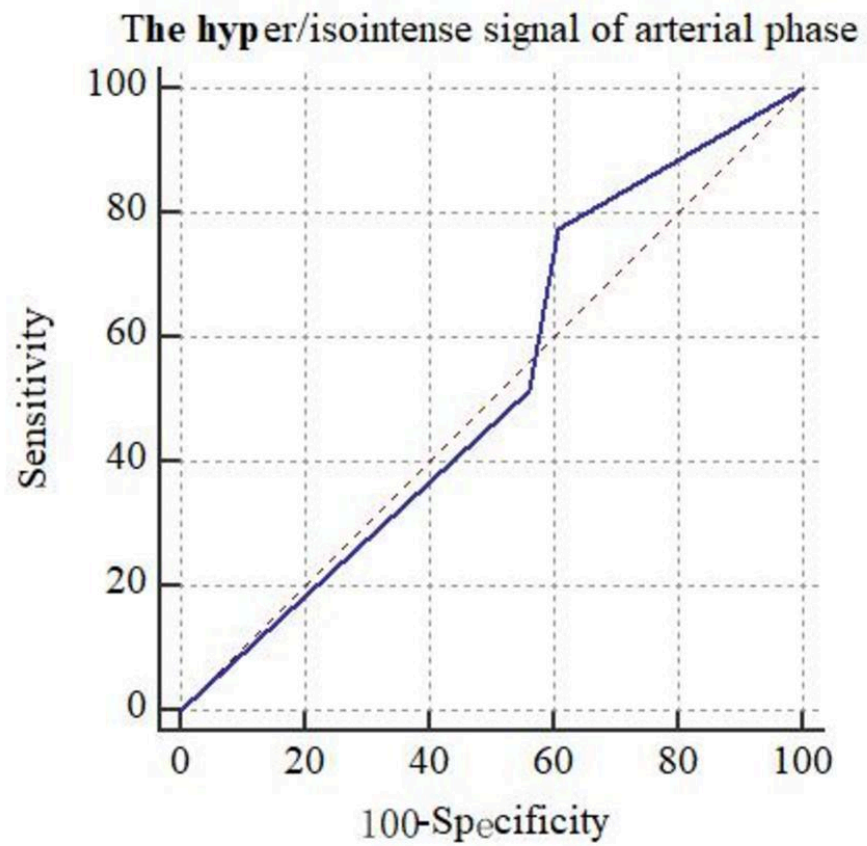


Fig. 1

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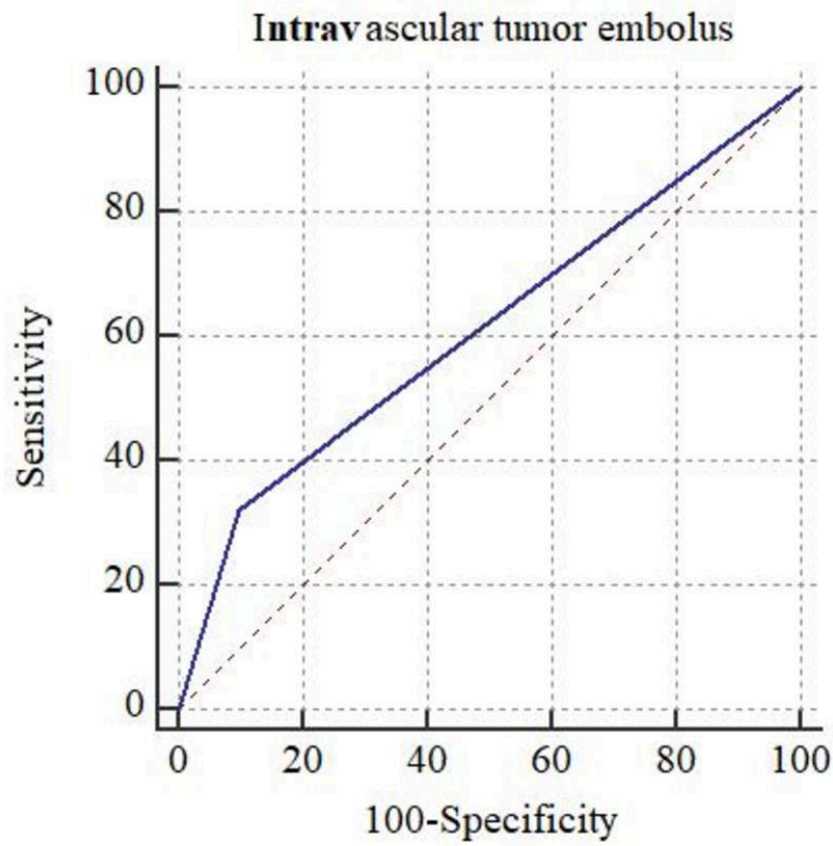


Fig. 2

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Fig. 3

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Conclusion

The hyper/isointense signal of arterial phase may help to predict PNETs with SSTR2 expression.

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