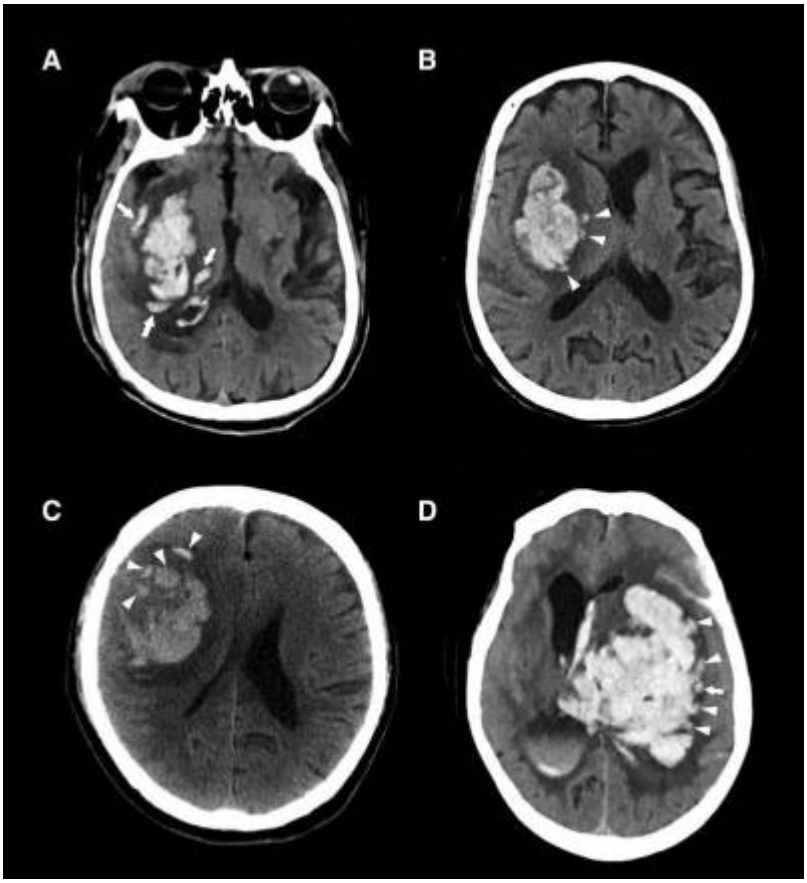
Island sign



Island sign (IS) is a hematoma expansion (HE) predictor based on non-contrast computed tomography (NCCT).

Island sign is not just a convenient and reliable predictor for short-term prognosis of ICH patients, but also could be used as an indicator for accurate diagnosis and aggressive treatment [1].

322 patients were involved in total and 126 of them presented with early hematoma expansions, whereas 81 exhibited island signs. 116 patients were dead over all 157 ICH patients with poor outcome at the first year after onset. The multivariate logistic regression analyses revealed that initial Glasgow Coma Scale (GCS) score, hematoma size, presence of IVH and island sign was strongly associated with long-term poor outcomes, respectively.

Island sign is an easy-to-use and novel imaging marker which predicts both early hematoma expansion and long-term poor prognosis [2].

A study aimed to confirm the accuracy of IS for predicting HE and compare it to the spot sign (SS) on computed tomography angiography (CTA).

sICH patients with initial CTA within 6 hours after onset and follow-up NCCT within 24 hours after initial CTA were included. IS and SS were screened by two independent readers. The sensitivity and specificity were evaluated for both signs. Receiver-operator analysis was conducted to assess the accuracy of both signs for predicting HE.

This study included 165 patients. IS was found in 33 (20.0%) patients and SS was identified in 42 (25.5%) patients. In the 41 patients with HE, 19 (46.3%) had IS and 26 (63.4%) had SS. The sensitivity and specificity of IS were 46.3% and 88.7%, respectively. In contrast, The sensitivity and specificity of SS were 63.4% and 87.1%, respectively. The areas under the curve of IS and SS were 0.675 and 0.753, respectively. (P=0.275)

IS is independently associated with HE. Although the accuracy of IS for predicting HE is lower than SS, it can be an alternative predictor if CTA cannot be performed [3].

Li et al.,included patients with spontaneous intracerebral hemorrhage (ICH) who had undergone baseline CT within 6 hours after ICH symptom onset in our hospital between July 2011 and September 2016. Two readers independently assessed the presence of the island sign on the admission noncontrast CT scan. Multivariable logistic regression analysis was used to analyze the association between the presence of the island sign on noncontrast admission CT and early hematoma growth and functional outcome.

RESULTS: A total of 252 patients who met the inclusion criteria were analyzed. Among them, 41 (16.3%) patients had the island sign on baseline noncontrast CT scans. In addition, the island sign was observed in 38 of 85 patients (44.7%) with hematoma growth. Multivariate logistic regression analysis demonstrated that the time to baseline CT scan, initial hematoma volume, and the presence of the island sign on baseline CT scan independently predicted early hematoma growth. The sensitivity of the island sign for predicting hematoma expansion was 44.7%, specificity 98.2%, positive predictive value 92.7%, and negative predictive value 77.7%. After adjusting for the patients' age, baseline Glasgow Coma Scale score, presence of intraventricular hemorrhage, presence of subarachnoid hemorrhage, admission systolic blood pressure, baseline ICH volume, and infratentorial location, the presence of the island sign (odds ratio, 3.51; 95% confidence interval, 1.26-9.81; P=0.017) remained an independent predictor of poor outcome in patients with ICH.

The island sign is a reliable CT imaging marker that independently predicts hematoma expansion and poor outcome in patients with ICH. The noncontrast CT island sign may serve as a potential marker for therapeutic intervention [4].

1)
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