SUPPLEMENTAL DATA

Pituitary stalk texture analysis in a subgroup of patients with histologically confirmed non-neoplastic lesions

Comparing neoplastic lesions and subgroup of patients with histologically-confirmed non-neoplastic lesions, texture analysis revealed a significantly higher degree of heterogeneity expressed as the standard deviation of the PST in patients with neoplastic lesions compared to histologically-confirmed non-neoplastic lesions (coronal pre-gadolinium, p=0.04; sagittal post-gadolinium, p=0.005; coronal post-gadolinium, p=0.002, Supplemental Table 5). These findings were confirmed when corrected for the SD of white and grey neural tissue.

We performed ROC curve analysis to identify a possible criterion of textural heterogeneity to differentiate neoplastic from histologically-confirmed non-neoplastic stalk lesions. We found criteria for differentiating these two lesion categories for coronal pre-gadolinium images of 6.8 SD with a sensitivity of 66.7% and a specificity of 83.3% (AUC: 0.722, CI 95% 0.388-1), for sagittal post-gadolinium images of 10.9 SD with a sensitivity of 83.3% and a specificity of 83.3% (AUC 0.917, CI 95% 0.742-1; Fig 1) and for coronal post-gadolinium images of 11.5 SD with a sensitivity of 83.3% and a specificity of 83.3% (AUC 0.972, CI 95% 0.889-1).

These findings showed that results obtained when considering only histologically confirmed lesions are comparable to those obtained from the total group.

Inflammatory pituitary disease texture analysis

Assuming that inflammatory pituitary lesions may lead to less homogeneity in terms of intensity of the pituitary gland compared to a non-inflammatory lesion, we performed the same texture analysis comparing those groups of lesions.

Comparing inflammatory and non-inflammatory pituitary lesions, texture analysis revealed a significantly higher degree of heterogeneity expressed as standard deviation of the pituitary gland in patients with inflammatory lesions compared to non-inflammatory lesions (sagittal pre-gadolinium, p=0.037; coronal pre-gadolinium, p=0.09; sagittal post-gadolinium, p=0.015; coronal post-gadolinium, p=0.001, Supplemental Table 5). These findings were confirmed when corrected for the SD of white and grey neural tissue.
We therefore performed a subgroup analysis comparing texture heterogeneity of the pituitary gland in inflammatory pituitary stalk lesions and neoplastic pituitary stalk lesions, noting that the difference in texture was not significantly different. This finding might be explained by the fact that neoplastic lesions of the pituitary stalk in our population did not usually involve the pituitary gland, different to inflammatory lesions.