

PITUITARY

Nuclear translocation of E-cadherin in invasive pituitary adenomas

Loss of E-cadherin expression at the cell surface occurs in many malignancies and might correlate with metastatic potential. Redistribution of E-cadherin from the cell membrane to the nucleus could predict local invasion of pituitary adenomas, reports a team from the University of Sydney.

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Marianne Elston and her coworkers decided to investigate E-cadherin in pituitary adenomas as an extension of their previous work on the Wnt signal-transduction pathway. The etiology of reduced membrane staining of E-cadherin in pituitary tumors had not been fully explained. “We, therefore, postulated that aberrant nuclear staining of E-cadherin may be a reflection of as

yet undescribed abnormalities in the Wnt pathway,” states Elston. Furthermore, “...aberrant staining of E-cadherin may reflect [an] aggressive course in pituitary adenomas.”

The researchers collected 44 pituitary adenoma specimens from patients who underwent surgery at one of two hospitals in Sydney. Formalin-fixed, paraffin-embedded sections were subjected to immunohistochemistry to assess the cellular localization of E-cadherin. This assay was performed using two different antibodies: one specific to the extracellular domain of E-cadherin and the other specific to the cytoplasmic domain.

Membrane staining of E-cadherin was weak in 11 tumors and absent in another 21; by contrast, nuclear staining was detected in 38 tumor samples. Of note, the presence of nuclear E-cadherin strongly correlated with local tumor invasion. Nuclear E-cadherin inversely correlated with loss of staining at the cell membrane, which suggests that

nuclear translocation of the protein had occurred. Movement of the protein to the nucleus—rather than loss of expression at the membrane—was confirmed by analysis of E-cadherin mRNA.

Elston *et al.*'s study is the first to report nuclear translocation of E-cadherin in pituitary adenomas. Further investigation of the mechanism for redistribution of E-cadherin is required; however, these findings suggest that nuclear E-cadherin might represent a potential marker of pituitary-tumor invasion. “This work has important implications in understanding the etiology of invasion in pituitary adenomas,” Elston concludes.

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