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Title: Clinical, immunohistochemical and genetic analysis of 50 thymic epithelial tumours managed in Rennes University Hospital between 2000 and 2011

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Body: Background. Thymic epithelial tumours (TET) are rare and characterized by different evolution depending on histology and invasion stage. The therapeutic management is a subject of increasing interest. Aims. To analyse the clinical features of patients with TET and assess their management. To identify tumours biomarkers with a prognostic or a predictive interest. Methods. Adults with TET managed in Rennes University Hospital between 2000 and 2011 were selected. Their clinical and pathological features were retrospectively analysed. The expression of ERCC1, VEGF, VEGFR1, VEGFR2 and HER2 proteins was assessed by immunohistochemistry (IHC). Oncogenic mutations in PIK3CA, BRAF, NRAS, HER2 genes were analysed by pyrosequencing. EGFR and ALK amplification, and ALK gene rearrangement were evaluated by fluorescence in situ hybridization (FISH). Results. 50 TET were included, 46 thymomas and 4 thymic carcinomas. Their clinical, histological features, and their invasion stages were concordant with published studies. Therapeutic management was in accordance with current guidelines. 46 tumours were analysed by IHC. The expression of VEGF and VEGFR1 was significantly higher in thymic carcinomas compared to thymomas, and in invasive tumours for VEGF. For the first time, a NRAS mutation was described in a patient with B1 thymoma. The analysis of ALK gene, performed for the first time in TET, was negative, without amplification or rearrangement. Conclusion. Management of TET in our Centre was in accordance with guidelines. The analysis of angiogenesis may be interesting for the prognosis of these tumours. ALK gene might not be involved in TET biology.