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Lack of RBM Expression as a Marker for Carcinoma In Situ of Prepubertal Dysgenetic Testis

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Individuals with various intersex states who carry Y-chromosome material bear a high risk of developing testicular neoplasia. In order to gain more insight into the pathogenesis of this neoplasia, the current study evaluates the differentiation of the seminiferous epithelium in 46,XY dysgenetic male pseudohermaphroditism. Immunohistochemical evaluation was performed using the germ cell-specific RNA-binding motif (RBM) protein (encoded by the Y-chromosome) to identify normal germ cells, whereas placental alkaline phosphatase (PLAP) was used to detect neoplastic germ cells. Differentiation of somatic Sertoli cells was assessed using cytokeratin-18 (CK-18) and anti-Müllerian hormone (AMH) as markers for immature Sertoli cells. Specimens were taken from surgically removed dysgenetic gonads of five children (46XY karyotype). Intratubular germ cell neoplasia (carcinoma in situ [CIS] of the testis) was detected in all of them. Normal germ cells revealed immunoreactivity for RBM, whereas the PLAP-positive neoplastic germ cells were negative for RBM expression. Sertoli cells revealed an immature phenotype indicated by AMH expression in their cytoplasm. The design of the current study is unique in its assessment of the state of germ cell differentiation in dysgenetic gonads by the use of the RBM protein, which was expressed only in normal germ cells but not in those of CIS. Testicular dysgenesis interrupted the normal differentiation of the germ line and had no effect on the immature phenotype of the prepubertal Sertoli cells. This points toward the germinal component of CIS as the precursor for the promotion of testis cancer.

Key words: male pseudohermaphroditism, testicular carcinoma in situ, germ cell differentiation, Sertoli cell differentiation, immunohistochemistry

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