

EXPRESSION OF A STEM CELL EARLY MARKER, OCT4, IN THE PRIMARY GERM CELL TUMORS AND THYMOMA IN THE MEDIASTINUM

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BACKGROUND/AIMS: Primary germ cell tumors (GCTs) and thymoma are both located in the anterior mediastinum. A previous study has postulated that OCT4 is a nuclear transcription factor that is expressed in pluripotent embryonic germ cells. This study examined OCT4 expression in GCTs and thymoma originating from the mediastinum.

METHODS: A retrospective study included 46 consecutive patients with GCTs conducted between 1983 and 2005, and 22 consecutive thymomas in the mediastinum whose tumors had been surgically excised. The very early stem cell marker, OCT4, would be used as an immunohistochemical stain.

RESULTS: The 46 primary mediastinal GCTs included teratoma (n=27; 58.7%), seminoma (n=10; 21.7%), yolk sac tumor (n=6; 13%), embryonal carcinoma (n=1; 2.1%), and mixed GCTs (n=2; 4%; one consisted of teratoma and yolk sac tumor, and the other teratoma, yolk sac tumor and seminoma); and 22 thymomas including WHO type A (n=3, 13.6%), type AB (n=4, 18.2%), type B1 (n=6, 27.3%), type B2 (n=4, 13.6%), and type B3 (n=5, 22.7%). Each tumor was examined with hematoxylin and eosin staining and antibodies to OCT4. All 10 seminoma cases, 1 embryonal carcinoma case, and 1 mixed GCT case containing seminoma were immunopositive for OCT4. On the other hand, the 22 thymomas, 6 yolk sac tumors, 27 teratomas and 1 case with mixed GCT without component of seminoma were immunonegative for OCT4.

DISCUSSION/CONCLUSION: We conclude that immunostaining with antibodies to OCT4 is a useful diagnostic tool in the identification of seminomas and primary embryonal carcinomas in GCTs originating from the mediastinum.

Key Words: Germ cell tumors, OCT4, thymoma.