Abstract:

Objective: To study Thy1 as a fibroblast marker, SSEA1 as a marker of intermediate pluripotency and Oct4 as a marker of established pluripotency in rat model of endometriosis

Design: In vivo animal study

Materials and Methods: Endometriosis was induced in 20 albino female rats through autologous transplantation of one uterine horn to mesentery of intestine. Other 20 rats had their horn removed without transplantation (controls). Rats were sacrificed 4 weeks after induction surgery. Ectopic, eutopic and control endometria were harvested from endometriosis and control animals respectively. Quantitative syber green based RT-PCR was used to detect expression of Thy-1 (CD90), FUT4 (SSEA1), POU5F1 (Oct4) genes in tissues. Relative expression was normalized to that of β actin. In addition, Thy1, SSEA1 and Oct4 protein expression were detected by immunohistochemistry. Immunoscores were calculated by averaging number of positive cells in 10 non-overlapping high power fields in each section. Results: Ectopic endometrium expressed significantly higher mRNA of Oct4 and SSEA1 as compared to control endometrium. Expression levels of OCT4 and SSEA1 were comparable between ectopic and eutopic endometria and between eutopic and control endometria. Thy1 (CD90) gene expression level was comparable among ectopic, eutopic and control endometria (table 1). Oct4 immunoscore were significantly higher in ectopic (6.6±0.91) than eutopic (2.5±0.78) or control endometrium (3.7±0.1) (P value 0.02). Thy1 and SSEA1 immunoscores were comparable among all three types of endometria

Conclusions: Using rat model of endometriosis, ectopic endometrium showed significantly higher Oct4, SSEA1, but similar Thy1 gene expression to that of control endometrium. This indicates increased transition from somatic to pluripotent cell states in ectopic endometrium which may play a role in endometriosis pathogenesis.