Abstract

Objectives
Carcinosarcomas are high-grade tumors of the female genital tract with both malignant epithelial and mesenchymal components with few good treatment options. Tumor-infiltrating regulatory Foxp3-positive T cells have been shown to be associated with poor prognosis in various cancers. Foxp3 expression by tumor cells also modulates the immune response to the tumor with poor prognostic implications. Here we enumerated...
Foxp3-positive tumor-infiltrating lymphocytes (TILs) in uterine carcinosarcoma (UCS) and evaluated Foxp3 expression in tumor cells to explore their prognostic significance.

**Methods**

Twenty-two cases of UCS were retrieved and re-evaluated. Medical charts were reviewed for overall survival (OS). Representative slides with both neoplastic components were stained for Foxp3 (ab20034, 1:200 dilution, Abcam). Sixty-six images (three per case) at 200x magnification were obtained. Images were color deconvoluted to highlight the Foxp3-positive cells. Nuclear Foxp3 expression in TILs and its cytoplasmic expression in tumor cells were considered positive.

**Results**

Foxp3-expressing TILs ranged 2–35 per 200x field (mean 10.43). Average OS was 30.25 months. In nine cases, the tumor cells expressed Foxp3 in their cytoplasms. Overall Cox-regression did not show any linear relation between survival and number of TILs or tumor cell positivity for Foxp3. Log-rank test showed that cases with more than 25 Foxp3 TILs per 200x field (4/22) have a significantly worse prognosis (OS 3.17 months vs 36.92 months, \( P \)-value = .012) irrespective of the tumor stage.

**Conclusion**

Although there is no linear correlation between the number of Foxp3+ TILs and survival, tumor infiltration by >25 Foxp3+ (per 200x field) predicts poor survival irrespective of the tumor stage. Foxp3 expression in tumor cells did not have any prognostic significance. Immunomodulatory therapies directed at Foxp3-expressing TILs may offer a therapeutic option in a subset of patients with UCS.