

isuog2025.27e097a. 3D and color Doppler ultrasound in analysis of ovarian tumors

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The Aim

The aim of our study was to analyze the application of Color Doppler and 3D tomographic ultrasound in analysis of morphology and vascularization of ovarian tumors.

Methods

329 patients with ovarian tumors were included. Benign tumors had 242 patients and 87 had malignant tumors. US examination was performed with transvaginal 3D probe and tumor vascularization was analyzed utilizing power Doppler ultrasound. Measured values of Pourcelot resistance index below 0,4 were considered as increased risk for malignancy. Final classification of ovarian tumors was performed after definitive histopathological diagnosis.

Results

Mean patient's age in benign group was 43,5 years and patients in malignant group were significantly older (54 years). Largest tumor dimension in benign group was 90,72±54,53mm and in malignant group mean tumor dimension was significantly higher 115,11±57,18mm. Dominant tumor morphology in benign group was cystic in 63 % of patients, multilocular in 28% and soli din 9% of cases. Dominant tumor morphology in malignant group was solid in 38 %, multilocular in 21%, cystic papillary in 18% and exophytic in 16%.

Results 2

Total of 1489 tumor blood vessels were analyzed. Mean number of analyzed vessels per tumor in benign group was 3,34±2,22 and in malignant group 5,55±2,9. Mean value of Pourcelot index of vascular resistance in benign group was 0,54±0,127. Pourcelot index was significantly lower in malignant group 0,39±0,09.

Conclusion

Our data showed that malignant tumors were significantly bigger due to expansive growth. Dominant benign morphology was cystic, and malignant tumors have increased number of tissue type morphology. Malignant tumors had increased vascularization and significantly lower Pourcelot index of vascular resistance.

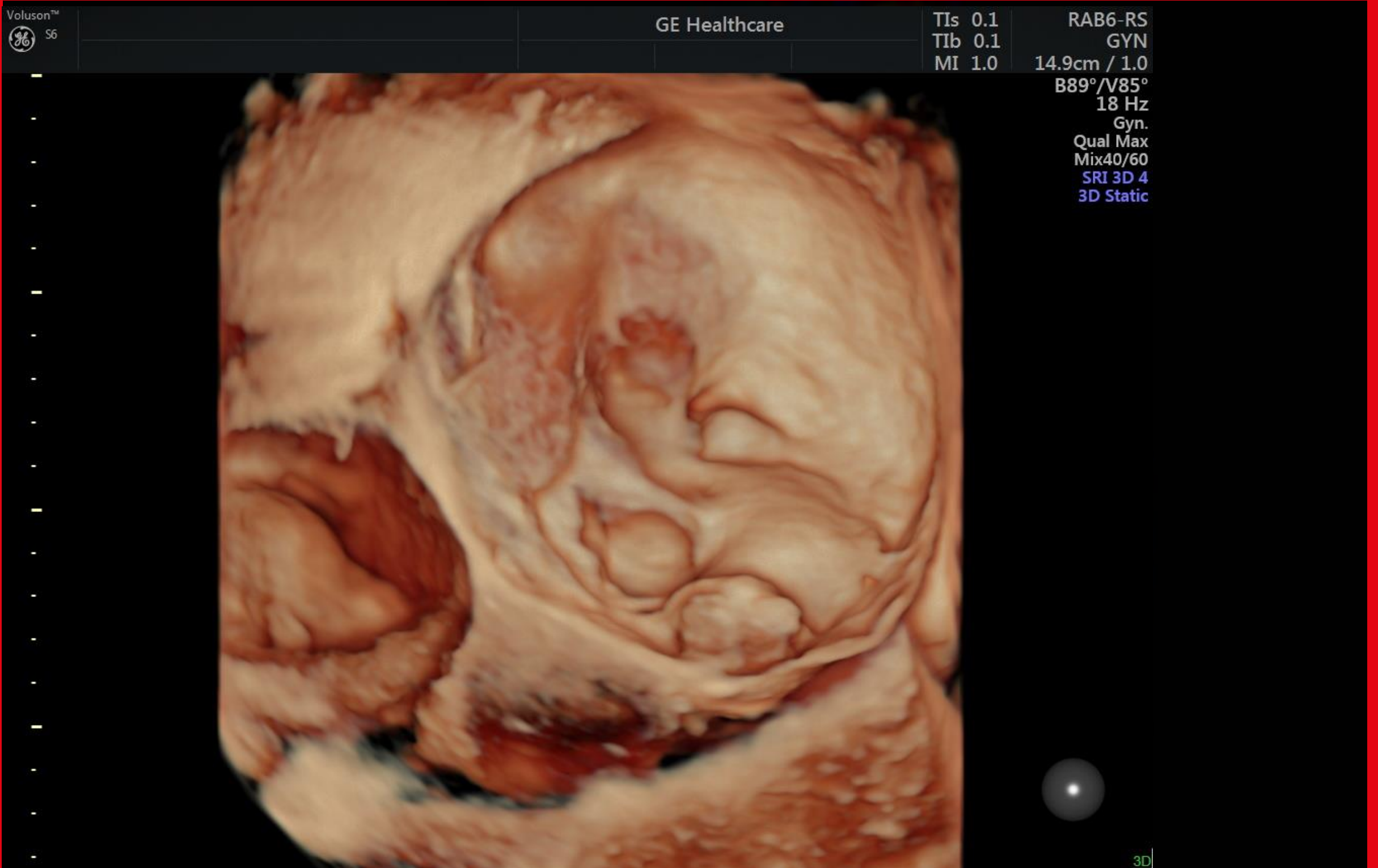


Figure 1. Ovarian cancer morphology

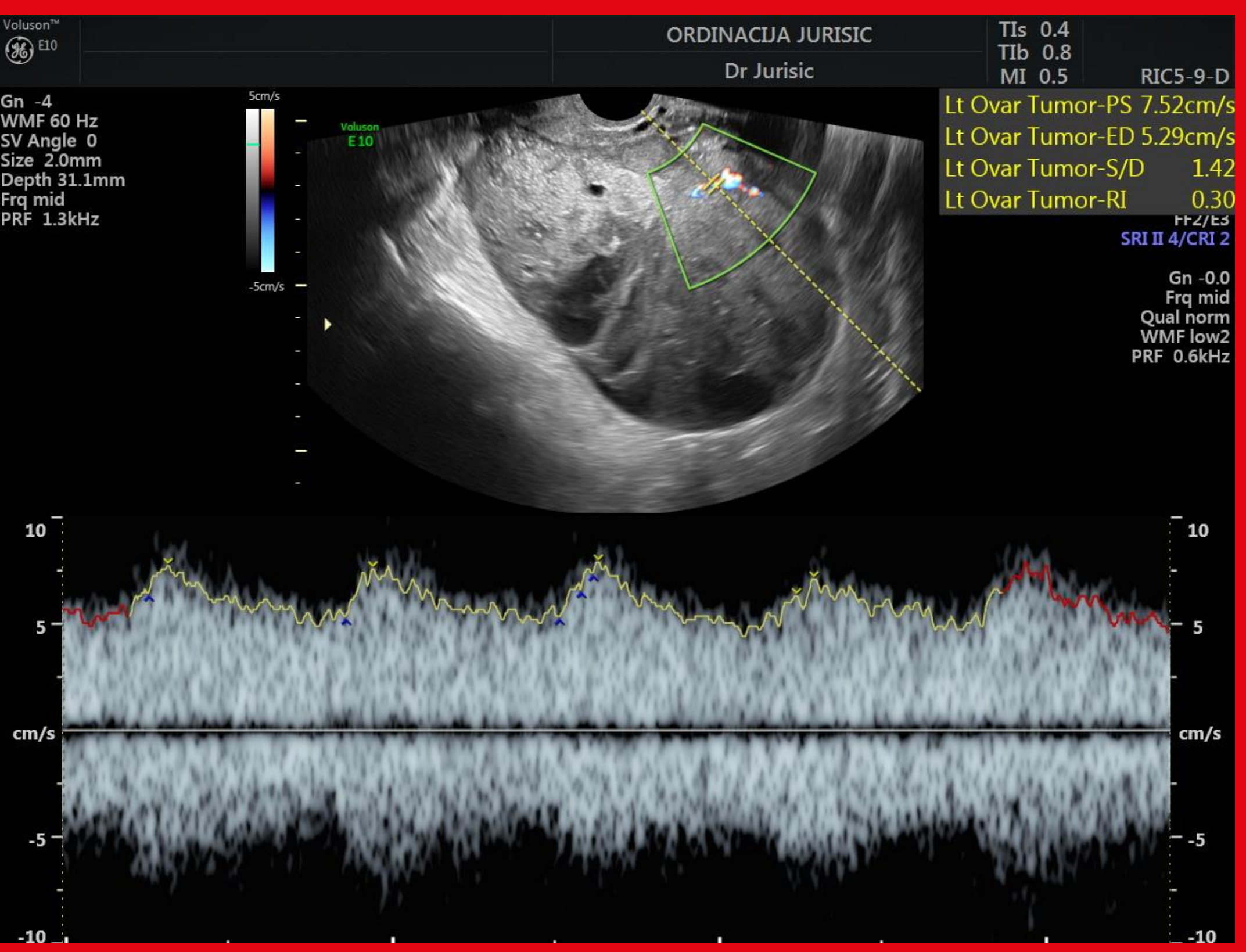


Figure 2. Spectral Doppler analysis in cancer vessels

	<i>Benign TU 242 patients</i>	<i>Malignant TU 87 patients</i>	<i>ANOVA</i>
<i>Total No of analyzed blood vessels</i>	<i>862</i>	<i>627</i>	
<i>Mean No of blood vessels per tumour</i>	<i>3,34±2,22</i>	<i>5,55±2,9</i>	<i>p<0,001</i>
<i>Pourcelot vascular resistance index RI</i>	<i>0,54±0,127</i>	<i>0,39±0,09</i>	<i>p<0,001</i>

Figure 3. Ri in ovarian cancer