

isuog2025.27f097b. Ultrasound morphology and vascularization of malignant ovarian tumors

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The Aim

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

Methods

126 patients with ovarian cancer were included. US examination was performed with TV 3D probe and tumor vascularization was analyzed utilizing power Doppler US. After blood vessel mapping, spectral Doppler analysis was performed in tumor vessels. Pourcelot resistance index was used for measurement of vascular resistance in tumor blood vessels. Classification of malignant ovarian tumors was performed after definitive histopathological analysis.

Results

Mean patient's age was 53,5 years. Nuliparous patients had incidence of 27%, 21% had one delivery, and 39% had two deliveries. The remaining 13 % had more than two deliveries. Menopause was present in 63% of patients. Ascites was present in 76% of patients. Average cancer diameter was 113,59±60,93mm. Exophytic cancer ultrasound morphology was detected in 16%, solid in 44 %, multilocular in 21% and cystic papillary in 15%. Other morphological types were detected in 4% of malignant ovarian tumors.

Results 2

Total of 854 blood vessels were analyzed in tumor tissue. Pericystic localization had 31% of blood vessels, 16% were mapped in septum, 11% were detected in endophytic tissue, and 42% in solid tissue. Mean value of Pourcelot index of vascular resistance in ovarian cancer was $RI=0,382\pm0,0897$. The average number of analyzed vessels per tumor was 5. Mean Resistance index in borderline tumors was $RI=0,44\pm0,06$, significantly higher than in ovarian cancer.

Conclusion

Our data showed that malignant ovarian tumors had dominantly tissue morphology. Analysis of tumor vascularization confirmed that ovarian cancer tissue had increased vascularization and that tumor vessels had very low Pourcelot resistance indices.

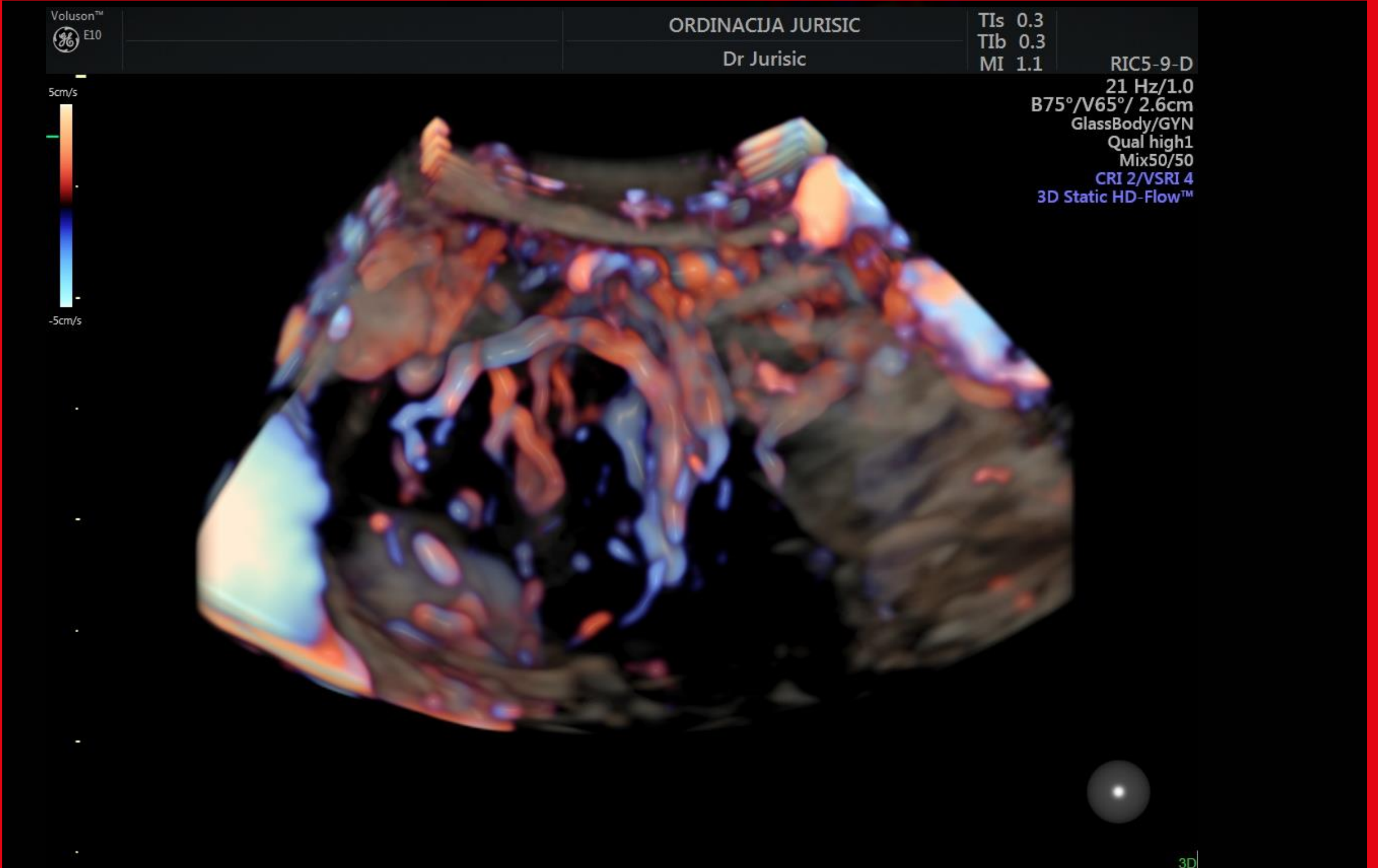


Figure 1. Ovarian cancer vascularization

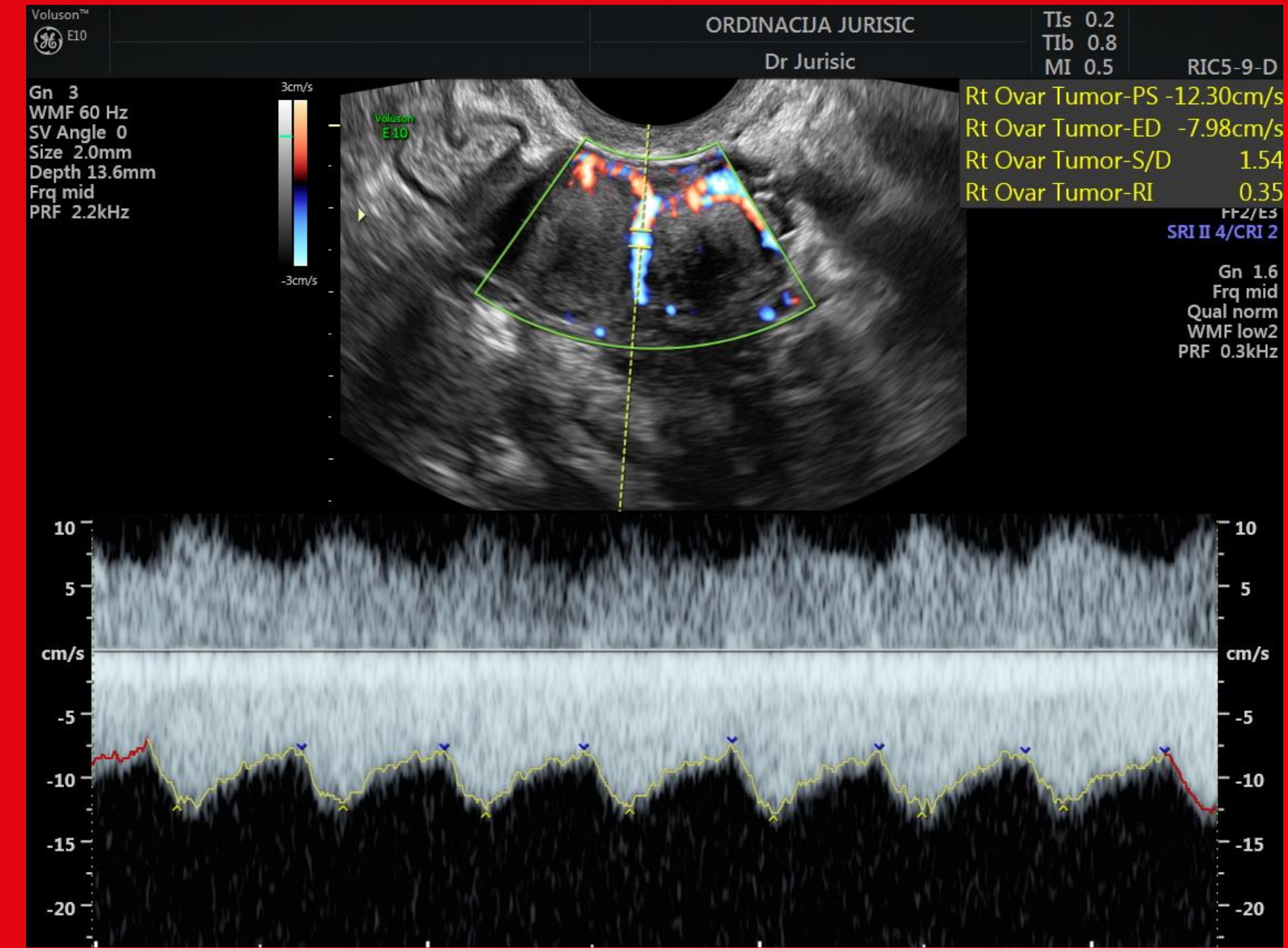


Figure 2. Spectral Doppler analysis in cancer vessels

	RI	SD	No of vessels anal
ACSerosum	0,376037	0,090016	329
ACSerMuc	0,395097	0,093869	72
ACMucin	0,358068	0,067681	74
ACEndometr	0,370545	0,088903	156
SARCOMA	0,386389	0,077723	36
Borderline	0,440857	0,059771	28
Brener	0,4275	0,059776	8
ClearCell	0,381865	0,092579	37
Disgerm	0,507143	0,055291	7
Granulosa	0,359968	0,062236	31
M terat	0,566667	0,061101	3
Meta	0,400904	0,104446	73

Figure 3. RI in ovarian cancer