MR imaging findings of ovarian endometrioid adenocarcinoma and sertoliform endometrioid adenocarcinoma: Clues for the Differential Diagnosis

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Introduction: Ovarian endometrioid adenocarcinoma (EA) and sertoliform endometrioid adenocarcinoma (SEA) belong to the surface epithelial-stromal tumors [1]. SEA is an uncommon variant, and comprises a portion resembling EA and a portion resembling sex-cord stromal tumor [2]. The aim of this study was to investigate differential imaging features between ovarian EA and SEA on magnetic resonance imaging.

Materials and Methods: Between January 2007 and January 2012, we identified 25 patients with confirmed 22 EA and 3 SEA by surgery. The ages of the patients ranged from 26 to 80 years (mean age: 57 years). MR images were obtained by using 1.5T, or 3.0 Tesla superconducting units. Spin-echo T1-weighted images, fast spin-echo T2-weighted images, contrast-enhanced T1-weighted images without fat saturation and diffusion-weighted images (DWI) with high b-value (b=0, 500 and 1000 sec/mm2) were obtained in all subjects. In visual assessment, each tumor was analyzed for the following categories: the size, the internal architecture, the presence of hemorrhage in the cystic component on T1-weighted images, the presence of thickened cystic wall and the presence of adhesions between uterus and rectum. In quantitative assessment, signal intensity ratio (SIR)= muscle signal intensity of abdominal rectus muscle/solid portion signal intensity of tumor on T2-weighted images. SIR values of EA and SEA were analyzed by Mann-Whitney test using commercially available software (JMP; SAS Institute Inc.). Significance was defined at $P < 0.01$.

Results: The tumor size ranged from 51 to 250 mm (mean; 107mm) at their maximum diameter in EA and from 99 to 152 mm (mean; 129mm) at their maximum diameter in SEA. All the tumors appeared as 17 unilocular cyst with solid-mass type (Fig. 1a), 4 multilocular cystic mass with solid component type (Fig. 1b) and 4 solid-mass type (Fig. 1c). In SEA, solid mass type is two cases and multilocular cystic mass with solid component type was one. In EA, the presence of thickened cystic wall was 17 in 22, the presence of hemorrhage was 18 in 22 and the presence of adhesions was 15 in 22. In SEA, the presence of thickened cystic wall, the presence of hemorrhage and the presence of adhesions were 0 in 3. EA more commonly had thickened cystic wall, hemorrhage and the presence of adhesions. Both tumors showed low signal intensity on T2-weighted images. In quantitative assessment, the mean and SD of SIR value were: for EA, 0.23 ± 0.06; for SEA, 0.43 ± 0.07(p=0.007). These groups displayed a significant difference in individual Mann-Whitney test results, with a 1% significance level.

Discussion and Conclusion: In macroscopic features, SEAs vary considerably in size and most are predominantly solid [2]. SEAs of our ceases varied considerably in size and were more likely solid type. In visual assessment, the presence of hemorrhage, thickened cystic wall, and adhesions was seen only in the EA. SEA may not appear in the endometrioma. In microscopic features, typically, areas of EA are present, merging with the sertoliform areas [2]. Because the tumor's histologic type resembles that of sex-cord stromal tumors, MR imaging findings may show a large solid component and low signal intensity on T2-weighted images [3,4]. In quantitative assessment, SIR values of SEA reflecting T2-low signal intensity yielded low values than those of EA, however it is difficult to differentiate between them in the visual assessment. In conclusion, SEAs were most predominantly solid. MR imaging findings of endometrioma were more likely EA, whereas SIRs of SEA yielded low values.

References

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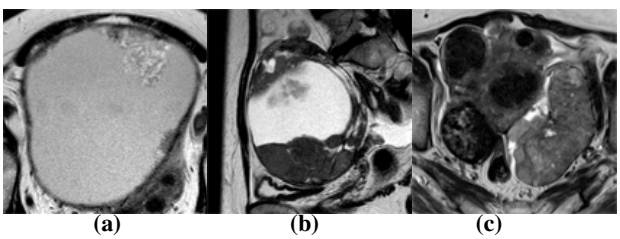

(a) (b) (c)

Fig 1(a) unilocular cyst with solid-mass type; EA, SIR=0.29 (b) multilocular cystic mass with solid component type; SEA, SIR=0.41 (c) solid-mass type; SEA, SIR=0.49

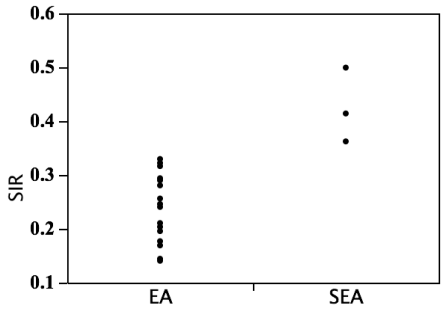

Fig. 2. SIR of EA vs. SEA