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Placenta accreta spectrum in patients with pernicious placenta previa : The analysis of MRI Features

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Background: Pernicious placenta previa(PPP) means that placenta previa this pregnancy after previous cesarean section. It is a kind of disease which may largely combined with placenta accreta spectrum (PAS). The prenatal diagnosis of the implantation depth is important to clinical treatment for the reason that hemorrhage may occur during and after delivery if implantation into the uterus is deeper, even the uterus has to be extracted to save life.

It is well-known that ultrasound is a routine prenatal inspection. But it is sometimes difficult to make a definitive diagnosis. In this case, MRI may bring many valuable messages. However, nowadays no consensus were made on the meaning of MRI signals.

Purpose: To analyze the MRI features of PAS in patients with PPP and try to find the meaning of each feature.

Subjects: Totally 198 patients with PPP were divided into 3 groups: Group-1 with normal placenta (NP Group)(n=46), group-2 with placenta accreta or placenta increta(PA&PI Group) (n=108), and group-3 with placenta percreta(PP Group) (N=44).

Field Strength/Sequence: 1.5T MRI, B_FFE, T2_SS_TSE, T1_FFE and DWI .

Assessment: Two radiologists independently evaluated 8 MRI features of PAS.

Statistical Tests: SPSS16.0.

Results: Significant differences were found in 4 MRI features between patients with NP Group and those with PA&PI Group(P <0.05), while significant differences were found in 7 MRI features between patients with PA&PI Group and those with PP Group (P <0.05). The MRI feature of "tenting of the bladder" was found to have significant difference in the contrast of two groups(PP1 Group and PP2 Group).

Data Conclusion: "Abnormal uterine bulging", "placental bulging", "uterine serosal hypervascularity", "placental heterogeneous intensity" are useful MRI features to distinguish NP Group from PA/PI Group , and they are useful features to differentiate PP Group from PA&PI Group, too. The other 3 features, such as "abnormal intraplacental vascularity", "placental recess", "T2 dark intraplacental bands" are also useful features for differentiating PP Group from PA&PI Group. The MRI feature of "tending of the bladder" is useful in differentiating PP1 Group from PP2 Group.

Recent Publications

1. Zhang Zhan, Xu Xiangfeng, Kang Liqing. Editorial for "Validation of Phase-Resolved Functional Lung (PREFUL) Magnetic Resonance Imaging Pulse Wave Transit Time in Healthy Subjects and Chronic Obstructive Pulmonary Disease"[J]. J Magn Reson Imaging, 2021, undefined: undefined.

2. Zhang Zhan, Kang Liqing.The value of MRI in the diagnosis of placenta accreta in the middle and third trimester of pregnancy[J].Tianjin Medical Journal,2019,47(01):108-112.

3. Zhang Zhan, Xu Xiangfeng, Liu Haidong, Wang Wei.Diagnostic value of MRI in the T-staging of cervical cancer[J].Journal of Shandong University(Health Sciences), 2016,54 (05): 70-73.

4. Zhang Zhan, Xu Xiangfeng, Wei Gang.Evaluation of MRI-staging and assessment of lymphatic metastasis in cervical cancer[J].Tianjin Medical Journal,2016,44(08):1022-1025.

Biography

Zhan Zhang came from China, she graduated from zhengzhou university school of medicine with the bachelor's degree, then she finished the master's degree in sun yat-sen university zhongshan school of medicine, and now she got M.D. In tianjin medical university. she has worked in tianjin central hospital of gynecology obstetrics as a radiologist for almost 15 years and gained plenty of experiences in radiological diagnosis, especially in aspects of genecology & obstetrics and pediatrics. She did peer reviews for J Magn Reson Imaging (IF:4.8)for many years.

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