The advantage of MRI in detecting congenital anomalies of fetal spine comparing with ultrasonography

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Abstract Objective: To explore advantages of MRI in detecting congenital anomalies of fetal spine comparing with ultrasonography.

Materials and methods: 132 women with complicated pregnancies, age from 22 to 35 years, gestation from 13-39 weeks, were studied with a 1.5 T superconductive MR unit within 48 hours after ultrasound (US) studies. Half-Fourier acquisition single-shot turbo spin-echo (HASTE) T_2-weighted imaging (T_2WI) sequence were performed in all patients, T_1-weighted imaging (T_1WI) with or without fat suppression sequence were applied sequentially in twelve of them. Comparison of the results was made between the MRI and US findings as well as autopsy or postnatal follow-up MRI findings.

Results: Thirty-two fetuses were diagnosed congenital anomalies of fetal spine, but nineteen of them were only demonstrated spinal canal dilation and/or abnormal alignment of the vertebral bodies, the exact diagnosis of these ten cases were not made by ultrasonography. MRI displayed them with diastematomyelia, tethered cord, arachnoid cysts, Chiari Ⅰ malformation, hemivertebra, ect.

Conclusion: US has limits and low specificity to demonstrate anomalies of fetal spine cord. MR has advantages in displaying fetal congenital spine anomalies than ultrasonogrphy, MR imaging is a valuable complement to US in difficult cases, it can conforming, completing, even more correcting the diagnosis made by ultrasonography.

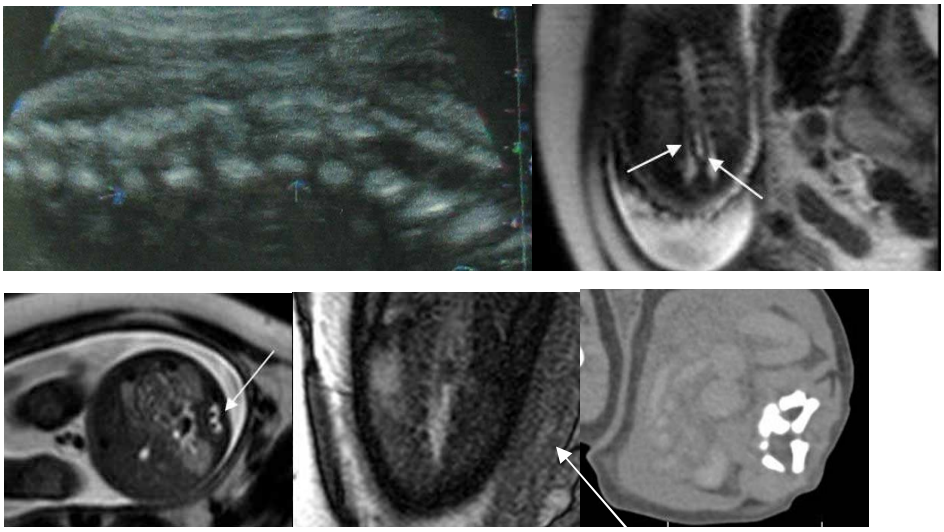

Fig. 1: Diastematomyelia

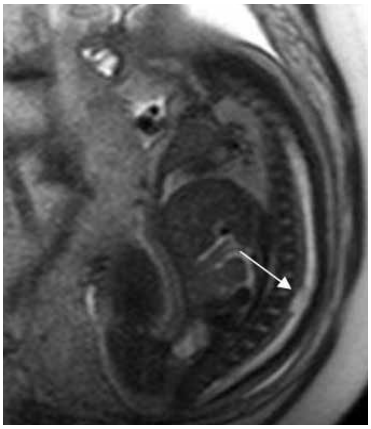

Fig. 2: Tethered cord and arachnoid cyst.