17th World Congress in Fetal Medicine

The types of connections between the portal sinus and the main portal vein in fetuses; Preliminary results

Gürses C, Erol O, Karadağ B, Erkan FS
University Of Health Sciences, Antalya Training and Research Hospital, Antalya, Turkey

Objective

In prenatal period, the three types of connections between the portal sinus and the main portal vein have been published in the literature; T-shaped or end-to-side type, X-shaped or side-to-side and H-shaped or parallel-coursed vessels connected with a short segment (Czubalski et al 2000, Kivilevitch et al 2009). The end-to-side type is the most frequent one in different studies and the aim of our study is to define the percentage of the connection types in our population.

Methods

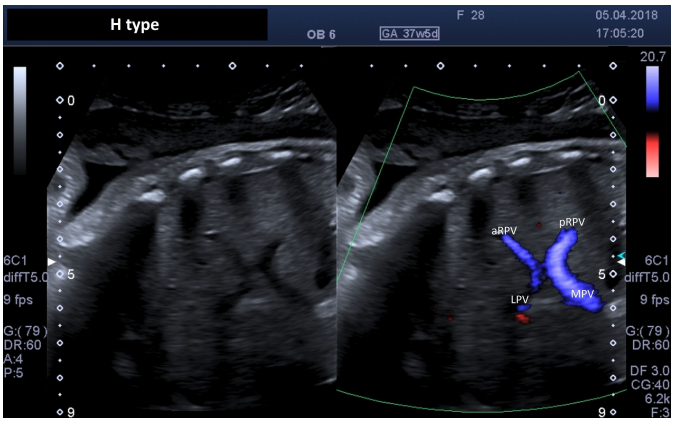
In this prospective study, 100 women between 20 and 38 weeks of pregnancy and without fetal anomaly or pregnancy-related complications were included and the precordial veins of the fetuses were examined using a wide-band color Doppler (CD) technique, named as advanced dynamic flow (ADF) with Toshiba Applio 500 ultrasound (US) system. The still-images and clip videos were stored in the picture archiving and communication system (PACS) to re-examine retrospectively. The types of connections were determined using the shape of the color coding of the vessels in Doppler examinations. Additionally, the following criteria, which characterize the type of connection according to Czubalski et al's study were used; for T-shaped type, the presence of only one right portal vein branch, for X-shaped type, the presence of two independent veins running to the right lobe of the liver and for H-shaped type, the presence of a short communicating vessel and two independent veins running to the right lobe of the liver. The types were determined during the fetal examination in all of the fetuses; however, all of the patients were re-examined using video clips, stored in the PACS system retrospectively in order to confirm the types.

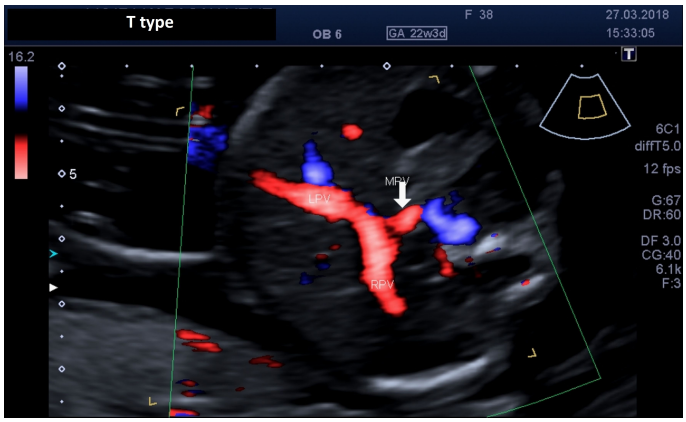
Results

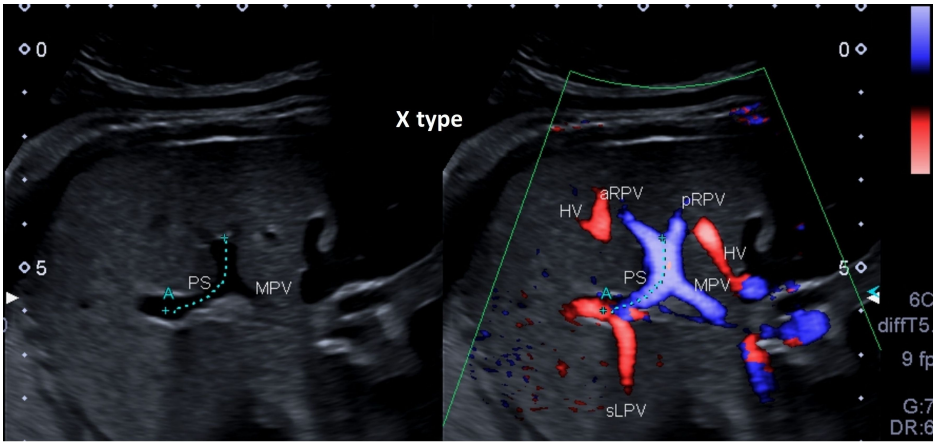
The most frequent connection type was X-shaped, 82%. The second type was T-shaped, 15% and the least frequent type was the H-shaped connections, 3%.

Conclusion

Our results are contrary to the previous studies of Czubalski et al, 2000 and Kivilevitch et al, 2009. The reviews of Yagel et al 2010, Sinkovskaya et al 2013 and Chaoui et al 2014 were based on the previous studies. There might be some reasons for these conflicting results; Czubalski et al's study included the limited number of autopsies and there might be some fetal or maternal complication of T-shaped pregnancy. The reason for the different results compared to Kivilevitch et al's study on living fetuses is thought to be due to the difference of the determination of the right portal vein branches. It is understood that Kivilevitch et al did not consider the branches of the right portal vein for typing of the connections, which is the crucial point for typing the connection according to Czubalski et al's study. The geographical features might be another reason for the discrepancy.







PS= Portal Sinus, **MPV**= Main Portal Vein, **RPV**= Right Portal Vein, **LPV**= Left Portal Vein, **HV**= Hepatic Vein, "**p**"= Posterior branch, "**a**"= Anterior branch, "**s**"= Superior branch