

INTRODUCTION

Fetal intra-abdominal umbilical vein varix (FIUVV) is a well-known focal dilation of the umbilical vein, typically located in the pre-hepatic segment, immediately behind the point where the umbilical vein enters the abdomen. Diagnosis is usually made by ultrasonography, which reveals an oval anechoic mass behind the cord insertion in the abdomen, showing significant turbulence on color Doppler interrogation. We hypothesize that compression of the vein at the level of the umbilical annulus increases blood flow velocities and is the primary cause of venous dilation. Therefore, the objective of this work is: To determine blood flow velocities in the umbilical vein prior to the cord's entry into the abdominal wall, at the level of the umbilical annulus, and in the intrahepatic segment, in cases of umbilical vein varix and in paired control cases.

MATERIAL and METHODS

We conducted prospective case-control research to determine with spectral pulsed Doppler the maximum velocities of umbilical venous flow in the section immediately before the cord insertion (pre-ring), at the level of the annulus (ring) and in the intrahepatic segment of the UV (post-ring)

Seventeen cases of FIUVV diagnosed in our center from 2012 to 2020 were matched with 34 control cases of the same gestational age without any associated maternal or fetal pathology. Homogeneity of variances was tested with the F test. Maternal and gestational ages were homogeneous. Therefore, the comparison of these variables was carried out with the T test and the rest with the Willcoxon test. A p value < 0.05. (Infostat. v software was used. 2020.1)

RESULTS

Maternal age and gestational age did not show statistically significant differences. The maximum venous flow velocities at the ring level showed marked differences between the two groups ($p > 0,0001$.) "Pre-ring" speed was slightly higher in the study group, whereas the post-ring flow velocity did not reach statistical significance.

CONCLUSIONS

We have shown that cases of FIUVV exhibit a significant increase in UV flow velocities at the level of the ring, which may explain the genesis of vein dilation. If other studies confirm these findings, UV flow velocities could also serve as a tool for follow-up and prognosis.

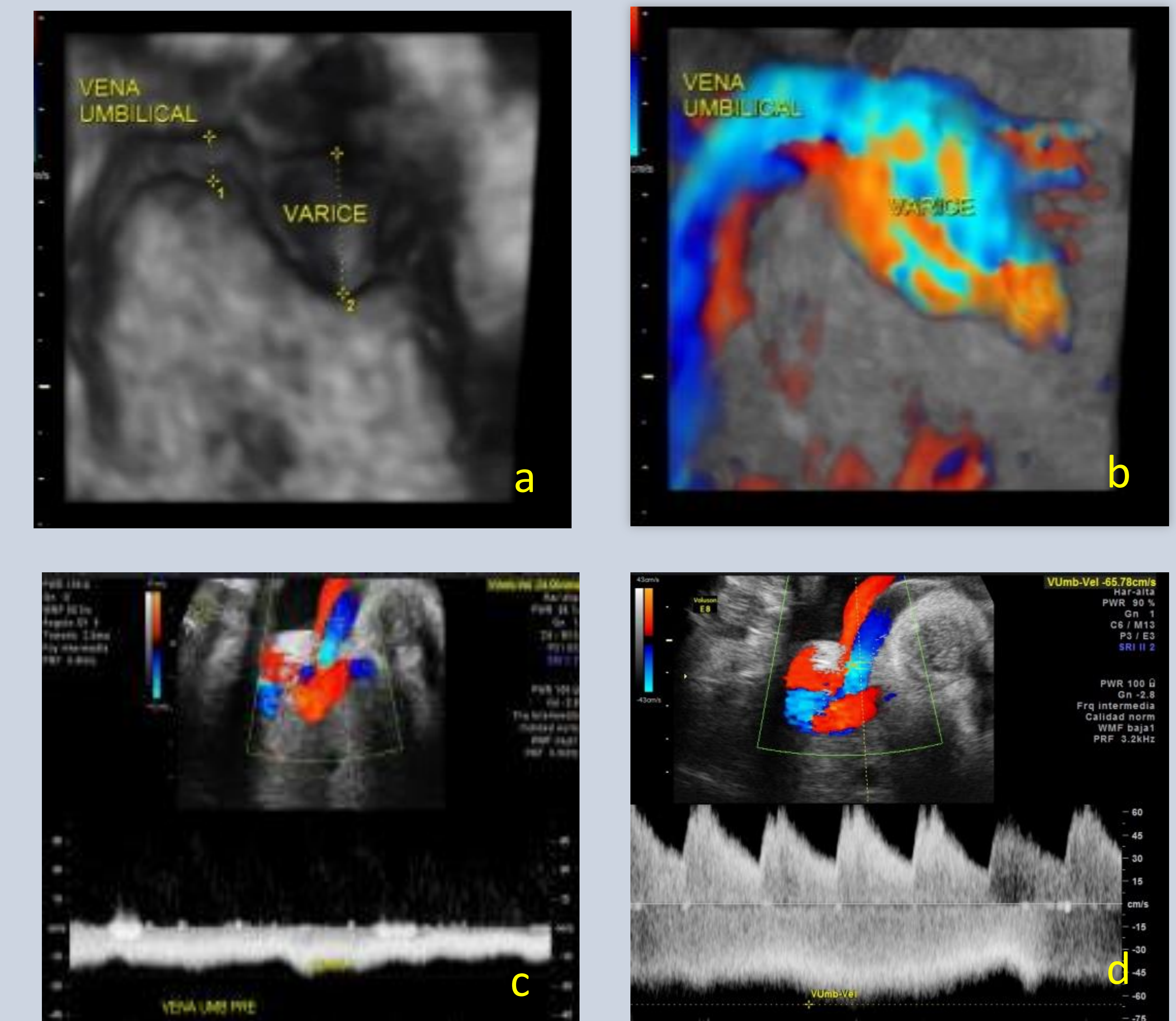


FIG: a) Intraabdominal prehepatic umbilical vein dilation b) Color Doppler 3D reconstruction shows significant turbulences at the level of the varix c) Pulsed spectral Doppler pre-umbilical annulus (pre-ring). d) Striking increase in velocities showed through pulsed spectral Doppler at the level of umbilical ring.