Ebstein’s anomaly is a rare form of congenital heart diseases (CHD) which accounts 0.3–0.6% of all cardiac defects.¹ The anomaly is characterised by the apical displacement of septal and posterior leaflets of tricuspid valve. The portion between the original atroioventricular valves and displaced cuspis of the right ventricle is unified with right atrium which is called “atrialization of right ventricle”. Tricuspid valve insufficiency, cardiomegaly and left axis due to right atrial dilatation are the classical findings.² Usually, the diagnosis could be made using the apical four chamber view on 2D sonography.

We examined a woman at age of 29 year old who was first admitted at the 21st week of gestation. She was the mother of a healthy girl at age of two years old and did not carry any risk factor for CHD. The examination was made using the convex volumetric transducer (RAB 4-8 MHz) on a VOLUSON 730 Pro (GE Medical Systems, Kretztechnik, Zipf, Austria) system.
Cardiomegaly was the initial finding causing the pulmonary hypoplasia. Apical four chamber view demonstrated the intraventricular attachment of posterior and septal leaflets of tricuspid. Color Doppler examination showed marked reflux during the ventricular systole (Figure 1). Volumes were acquired starting from the level of four chamber view of the heart where the sternum of the fetus is in closest position to the transducer. Volume acquisition and angle were set to low quality and 25° for scanning the entire volume of heart in one cardiac cycle. Multiplanar image was obtained and processed to get four chamber view on 3D (Figure 2). The family opted to terminate the pregnancy but denied to perform an autopsy.

Prognosis of fetal Ebstein’s anomaly is usually lethal and a report of Polish cohort found that 90% of babies died mostly due to pulmonary hypoplasia. Berg et al. also reported a poor prognosis with Ebstein’s anomaly. The authors pointed the importance of the difference of right atrial area index between the few survivors and the non survivors. While this difference did not found to be significant due to small number of cases, the alteration from the fetal to neonatal circulation interfere to determine the postnatal outcomes. In another report, Berg et al. had evaluated the hemodynamical changes in fetuses with obstructed right heart. They found that altered indices on the ductus venosus signify cardiac compromise in babies with Ebstein’s anomaly in contrary to the other obstructive lesions of the right heart. However, these results require to further studies, due to lack of sufficient number of cases.

While the diagnosis of Ebstein’s anomaly is usually possible using the 2D sonography, we believe that adding the 3D cardiac evaluation may permit to better demonstrate the CHD. The ability of storing the entire volume of heart is an other advantage of 3D allowing reevaluation.

**FIGURE 1:** Apical four chamber view of the heart in color Doppler examination showing marked valvular insufficiency. Note the left axis of the heart due to right ventricular (RV) dilatation. Ve: vertebra.

**FIGURE 2:** 3D four chamber view of the heart in Ebstein’s anomaly. Asterisk located on the interventricular septum shows the low set insertion of the septal leaflet of tricuspid. RA: right atrium, RV: right ventricle, LA: left atrium, LV: left ventricle, M: mitral valve.
REFERENCES


