

## **3D/4D based spatio: temporal image correlation during routine fetal anomaly scan**

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### **Objective**

To evaluate the role of STIC in completing fetal cardiac evaluation, during routine anomaly scan.

### **Methods**

This is a longitudinal observational study at a single center. All the scans were performed by a single experienced fetomaternal specialist. 8750 patients had Routine anomaly scan including fetal heart examination according to ISUOG practice guidelines. Scan time was kept to the time frame allotted to routine anomaly scan. STIC technique both conventional and Electronic probes were used only when the examiner could not complete all the list recommend by ISUOG (ISUOG practice guidelines) which include demonstration of Situs and general aspect, atrial chambers, ventricular chambers and atrioventricular junction and valves. For the conventional STIC we employed a multiplanar approach, tomographic ultrasound imaging (TUI) and rendering approach. For electronic STIC, in addition to rapid acquisition of the volume we have used Biplane and sonoVCAD.

### **Results**

During the study time, 8750 patients were seen for routine anomaly scan. During study time, 52 patients were diagnosed with congenital cardiac defects. The total number of fetal malformations diagnosed during the time of the study was 350 which mean cardiac anomalies constituted (4%) of all fetal malformation in this study. In 1312 patient (15%) of the total number of patients the examiner could not obtain the full images required as per ISUOG protocol. Accordingly both conventional and electronic STIC was used in this group, depending on the condition. In all these patients the obstetrician was able to complete the examination. STIC was also applied to patients where a cardiac anomaly was suspected. More information with regards to these abnormal cases was found in 10% of the cases.

### **Conclusion**

In this study we have shown that using STIC technique we can obtain a volume of adequate quality which will allow us to complete the cardiac examination and reduce the number of cases referred to fetal cardiologists and hence decrease patient anxiety. STIC did not influence our detection rate of cardiac anomaly, however, when the diagnosis is made STIC added more information which helped us with our initial counseling.