Objective
Fetal arrhythmias are uncommon diseases occurring in 1–3% of all fetuses. Fetal bradycardia, defined as a consistent fetal heart rate <110 beats/min, is a very disturbing finding for the prospective parents. Prognosis depends on the etiology, associated anomalies, and degree of cardiac dysfunction. We aimed to correlate the prenatal presentation and outcome of fetal bradyarrhythmia.

Methods
Retrospective analysis of case records from 2017-2021 at The Fetal Clinic, Pondicherry - India. All fetuses with sustained bradycardia beyond 11 weeks were included in the study. Fetuses with transient sinus bradycardia were excluded. Data regarding cardiac and extracardiac findings were abstracted. Post-natal outcome was obtained through telephone follow up with the parents.

Results
There were 20 fetuses with bradycardia during the study period. The mean gestational age at diagnosis was 23 weeks 2 days. The type of bradyarrhythmia was as follows: Complete AV block 10 (50%), Sinus Bradycardia 7 (35%), second degree AV block 2 (10%), and Unclassified 1 (5%). In 10 fetuses, cardiac and extracardiac anatomy was normal while 10 fetuses had other associated anatomic abnormalities - 8 fetuses (40%) had associated cardiac anomalies, 1 fetus had CNS abnormality (intraventricular hemorrhage) and 1 had large NT with cystic hygroma. Among the 10 fetuses with associated anomalies: The type of bradyarrhythmia was as follows: 6 had sinus bradycardia, 2 had complete AV block, 1 had 2:1 AV block, and 1 remained unclassified. Five pregnancy terminations - 3 had heterotaxy syndromes, 1 had complex cardiac defect and 1 had large NT with cystic hygroma; one intrauterine fetal demise at 33 weeks with heterotaxy and hydrops at presentation; three neonatal demise - 2 babies with AVSD and one neonate with antenatal intraventricular hemorrhage; one liveborn - under follow up for asymmetry of outflow tracts and persistent left superior vena cava. Among the 10 fetuses with normal anatomy: Two pregnancy terminations – both had complete AV block; eight liveborn – 6 with complete AV block, 1 with 2:1 AV block and 1 with sinus bradycardia. Five of the 10 mothers (50%) tested positive for Anti Ro/La antibodies. One woman tested negative, while the other four declined testing. All the 6 liveborn fetuses with complete AV block are on conservative management: 2 on metaproterenol and 4 on clinical follow up. None of them required pacing so far. The fetus with 2:1 AV block reverted to normal rhythm at 28 weeks following maternal treatment with corticosteroid in view of positive Anti Ro/La antibodies status. Postnataally, the neonate had normal rhythm. In one fetus, prenatal diagnosis of sinus bradycardia which was immune mediated was changed to AV block in the postnatal evaluation and is on medication. This fetus also had endocardial fibro elastosis during antenatal follow up. In those where a postnatal diagnosis was established by a pediatric cardiology unit, 9 out of 10 cases had correct prenatal diagnosis.

Conclusion
Correct prenatal identification of fetal bradyarrhythmia is feasible in about 90% of cases. The risk of postnatal pacemaker requirement appears to be low irrespective of maternal Anti Ro/La status.