

EP09.06 Cardioversion of Atrial Flutter in a Dichorionic Diamniotic (DCDA) twin by in utero fetal intramuscular digoxin injection

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Introduction

Fetal Atrial Flutter (tachyarrhythmia) has increased possibility of hydrops fetalis and perinatal death. While the prevailing standard of care involves maternal administration of antiarrhythmic agents, its effectiveness may be compromised due to insufficient placental transfer or maternal drug toxicity, particularly in cases of multiple gestations where only one fetus necessitates treatment.

Here is case of dichorionic diamniotic twin pregnancy at 29 weeks of gestation, where twin A exhibited sustained atrial flutter (atrial rate of 456 bpm; ventricular rate of 228 bpm) with pericardial effusion. Given the potential risk of inducing pro-arrhythmia or toxicity in the unaffected co-twin through maternal therapy, a direct fetal intervention was undertaken.

Utilizing continuous ultrasound guidance, the affected fetus was administered two doses of intramuscular (IM) digoxin (0.8 µg/kg of estimated fetal weight) injected into the thigh, with dosing spaced 12 hours apart.

Successful cardioversion to sinus rhythm was attained in twin A approximately 6 hours following the second IM injection. Twin B showed normal heart rate before and after the procedure. At 36 weeks, both fetuses were delivered by LSCS.

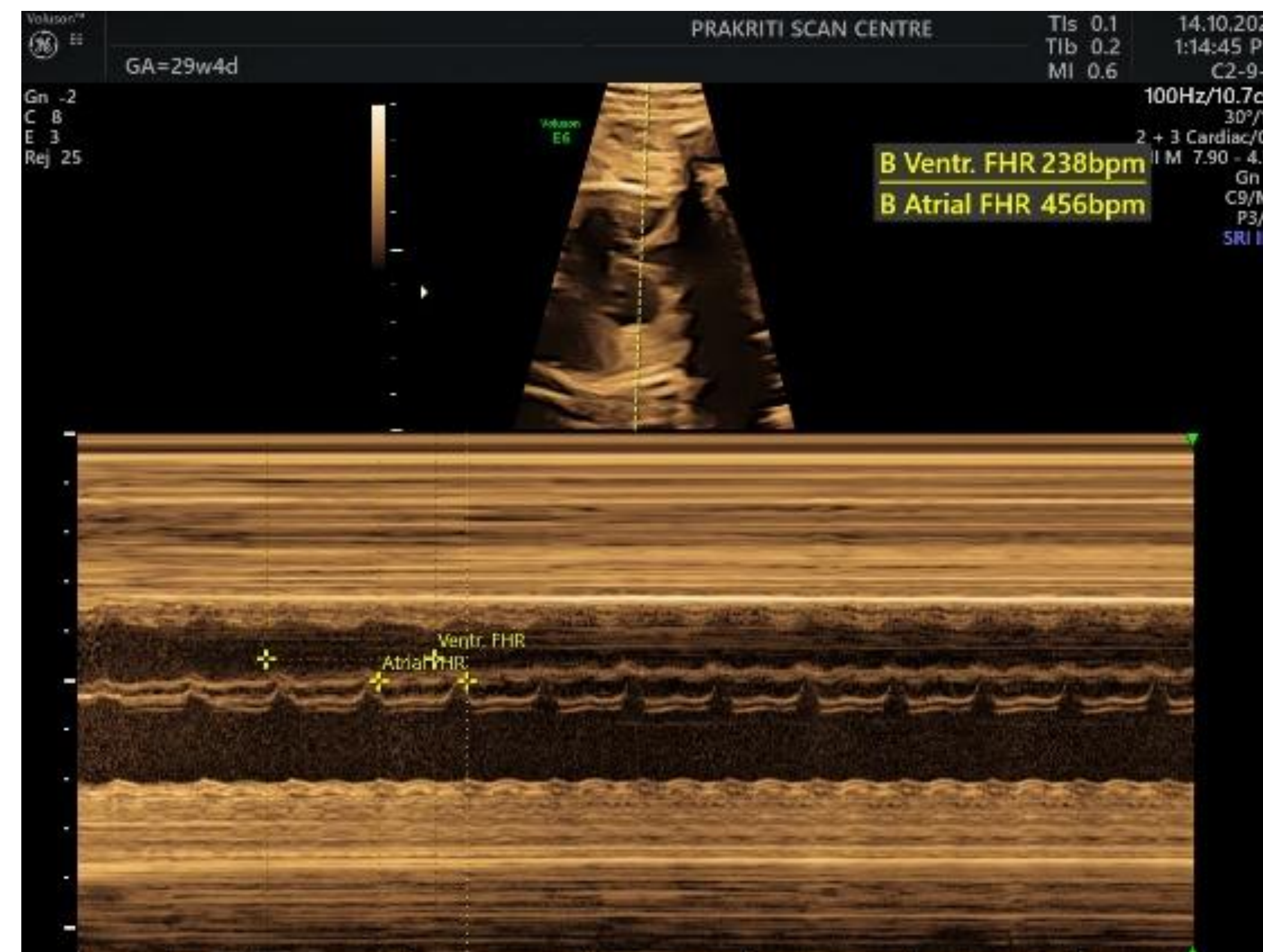


Figure 1. M-mode demonstrating fetal atrial flutter with 2:1 AV conduction, atrial rate of 456 bpm; ventricular rate of 228 bpm



Figure 2. demonstrates in utero Intramuscular Digoxin Injection, arrow pointing to the needle

Conclusion

Direct intramuscular injection of digoxin is a feasible and effective targeted therapeutic option for managing refractory or high-risk fetal atrial flutter in DCDA twins, while mitigating the risk of systemic toxicity to the healthy co-twin and the mother.

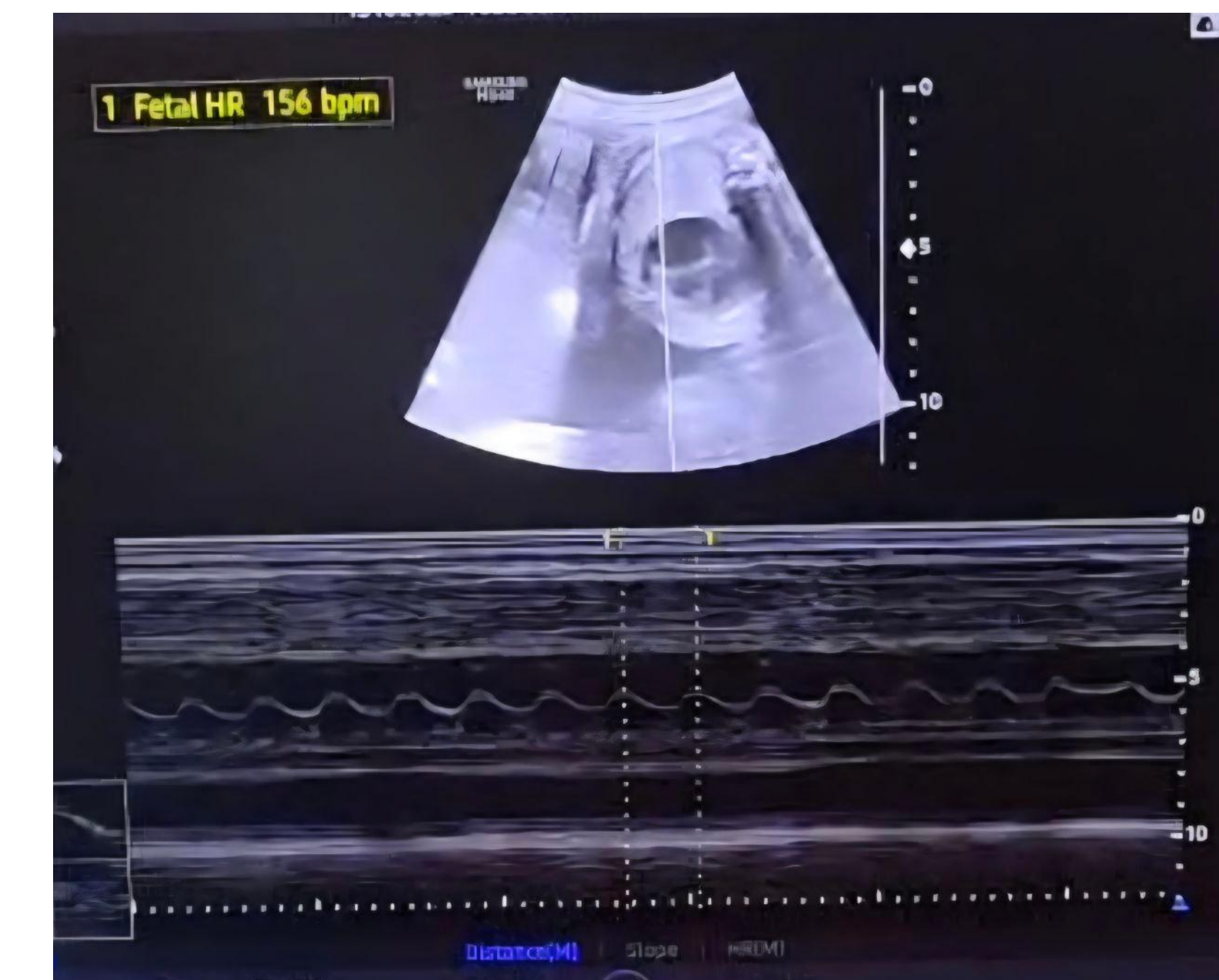


Figure 3. demonstrates ventricular rate of 154 bpm – Normal sinus rhythm after 2 doses