

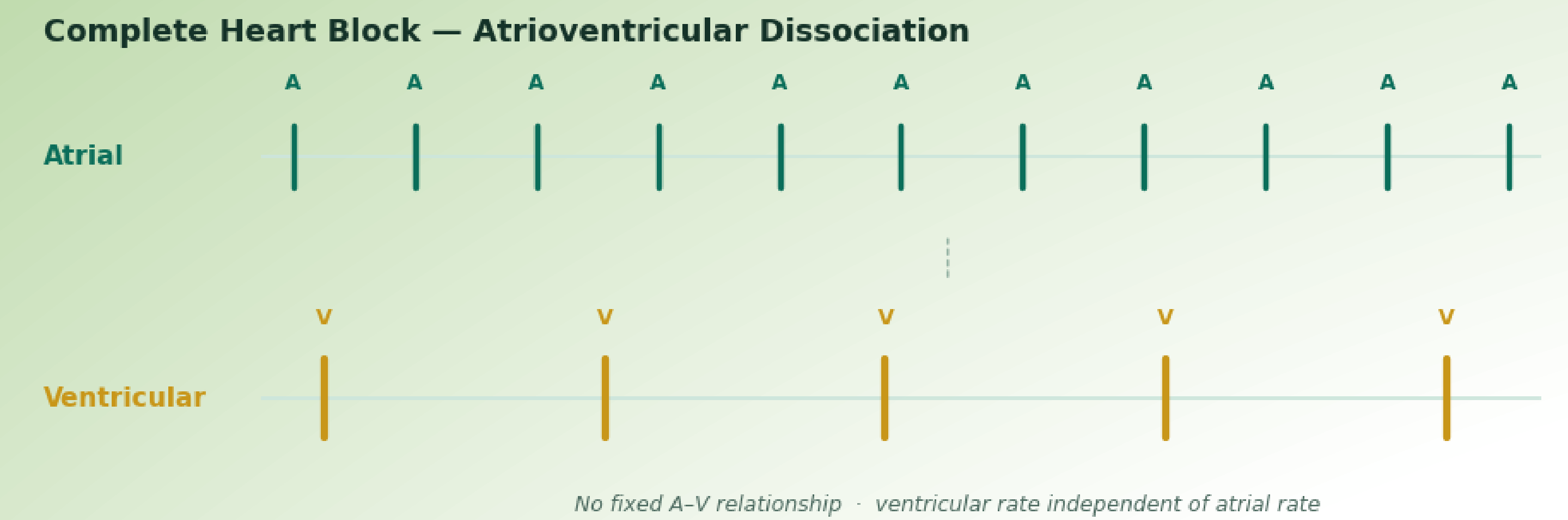
Immune-Mediated Fetal Complete Heart Block: A Case Series in a Middle-Income Country

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BACKGROUND

- Congenital complete heart block (CCHB) is a rare fetal bradyarrhythmia caused by disruption of atrioventricular conduction.
- In structurally normal hearts it is usually immune-mediated by transplacental maternal anti-SSA/Ro and/or anti-SSB/La antibodies, producing irreversible fibrosis of the conduction system.
- It affects 2–3% of seropositive pregnancies; recurrence risk rises to 17–20% after a prior affected pregnancy.
- Objective: to describe the clinical course, management, and perinatal outcomes of three antibody-mediated CCHB pregnancies managed in a middle-income tertiary Centre.



1:20,000

Live births

2–3%

Baseline risk in seropositive pregnancy

17–20%

Recurrence risk after a prior affected case

METHODS

- Retrospective review of three pregnancies with immune-mediated CCHB managed at a tertiary maternal–fetal unit.
- Serial fetal echocardiography, maternal anti-Ro/La serology, immunomodulatory therapy, and multidisciplinary delivery and pacing planning were reviewed.

RESULTS — THREE CASES

Case 1 Favourable outcome

31-year-old primigravida, 23 weeks. Third-degree AV block (atrial 130 / ventricular 60 bpm), structurally normal heart. Anti-Ro positive. *Therapy: Dexamethasone; fetus remained stable.* Outcome: Planned Caesarean at 35 weeks with immediate neonatal pacing.

Case 2 Intrauterine demise

38-year-old multiparous woman, 31 weeks. Co-managed with another centre after presenting with reduced fetal movement. Bradyarrhythmia (ventricular 56–60 bpm) with mild cardiomegaly. *Therapy: Maternal corticosteroids.* Outcome: Intrauterine fetal demise at 34 weeks despite therapy

Case 3 EXIT-assisted pacing

38-year-old with SLE, 24 weeks. CAVB with ventricular dysfunction and mild pericardial effusion (atrial 150–160 / ventricular 50 bpm). *Therapy: IVIG, dexamethasone, HCQ; ventricular rate fell to 35–40 bpm by 35 weeks.* Outcome: Emergency Caesarean with EXIT-assisted transcutaneous pacing, followed by successful temporary epicardial pacemaker insertion.

Table 1. Comparative clinical profile and perinatal outcomes of the three cases.

Parameter	Case 1	Case 2	Case 3
Maternal profile	31 y, primigravida, anti-Ro+	38 y, multiparous	38 y, SLE, anti-Ro+
GA at diagnosis (weeks)	23	31	24
Atrial/ventricular rate (bpm)	130 / 60	140/ 56–60	150–160 / 50 → 35–40
Cardiac findings	Structurally normal	Mild cardiomegaly	Early cardiomyopathy
Therapy	Dexamethasone	Maternal corticosteroids	IVIG, dexamethasone, HCQ
Outcome	LSCS 35 week; neonatal pacing BW: 2.4kg	Intrauterine demise, 34 week	EXIT pacing → epicardial pacemaker

DISCUSSION

Case 1: Achieved a favourable outcome due to the absence of severe prognostic factors (e.g., no hydrops, ventricular dysfunction, or severe bradycardia)

Case 2: The pregnancy resulted in intrauterine demise at 34 weeks despite maternal corticosteroids, highlighting the critical need for early referral and close monitoring by Maternal-Fetal Medicine (MFM) specialists and paediatric cardiologists at a tertiary centre

Case 3: Dexamethasone and IVIG improved ventricular function, but severe bradycardia (35–40 bpm) persisted. This necessitated an EXIT-assisted delivery with transcutaneous pacing, followed by temporary epicardial pacemaker insertion

Corticosteroids and IVIG are unable to reverse complete atrioventricular block (CAVB), but they effectively improve ventricular function. Fetal hydrops, myocardial dysfunction, and severe ventricular bradycardia remain the strongest predictors of poor clinical outcomes. Maternal administration of hydroxychloroquine (HCQ) may reduce the risk of recurrence in subsequent anti-Ro/SSA-positive pregnancies when initiated pre-conception or in early gestation. Despite resource constraints, favourable outcomes can be consistently achieved through structured multidisciplinary surveillance, planned delivery, and timely neonatal pacing.

CONCLUSION

- Although established antibody-mediated CCHB is irreversible, early serial echocardiographic screening and a multidisciplinary approach, combined with resource-adapted pacing strategies at a tertiary referral centre, can achieve highly favourable outcomes even in middle-income settings

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