

Successful Cardioversion of Neonatal Atrial Flutter: Diagnostic Challenges and Therapeutic Resolution

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Dear Editor,

We recently managed a case of neonatal atrial flutter (AF) that reminded us how easily it can be mistaken for more common arrhythmias — and how crucial timely diagnosis and collaboration can be.

The patient was a female infant, born at 36 weeks via emergency caesarean section due to sustained fetal tachycardia (250–260 bpm). She cried spontaneously at birth but remained tachycardic and mildly distressed, requiring CPAP support. Aside from the persistent high heart rate, her examination was otherwise unremarkable.

An initial 3-lead ECG suggested supraventricular tachycardia (SVT), and we proceeded with escalating doses of adenosine (100, 200, then 300 mcg/kg). While each dose transiently slowed the rate, sinus rhythm wasn't restored. At that point, we reached out to the cardiology team at Children's Health Ireland, Crumlin, who advised capturing a 12-lead ECG during the next adenosine dose. This proved pivotal — the rhythm strip showed classic saw-tooth flutter waves, confirming atrial flutter.

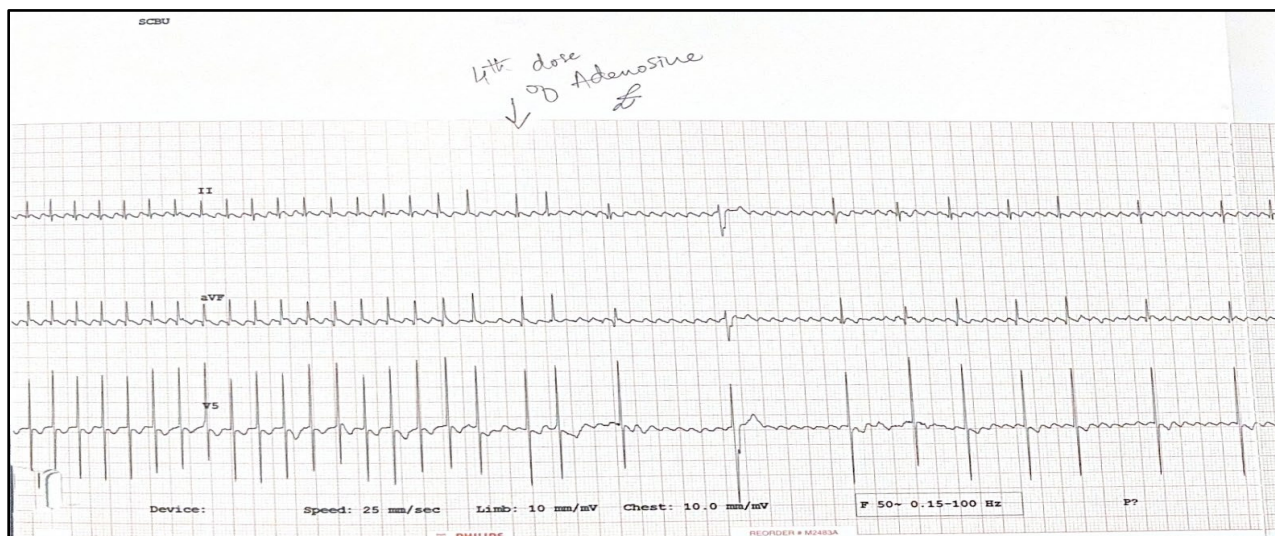


Figure 1. Rhythm strip from 12-lead ECG during adenosine administration, showing a narrow complex tachycardia prior to adenosine administration and atrial flutter waves after.

Following their guidance, we performed synchronized DC cardioversion (6 J, or 1.8 J/kg) under morphine sedation. Sinus rhythm was successfully restored straight away and within 80 minutes of birth. A saline bolus was given for brief hypotension, and the infant was transferred to CHI Crumlin for monitoring. She made an excellent recovery and was discharged home three days later, with no further episodes.

Atrial flutter in neonates is rare, especially in structurally normal hearts¹. It often mimics SVT and can be challenging to diagnose based on ECG alone² — particularly when flutter waves are masked by the rapid ventricular response. In this case, adenosine didn't convert the rhythm, but it did exactly what we needed: it briefly slowed conduction enough to reveal the flutter waves.

DC cardioversion remains the most effective treatment for neonatal AF¹, and in our experience, early cardiology involvement made a significant difference. The case was a good reminder of the value of a team-based approach — and of keeping AF in mind when SVT management doesn't go as expected.

Take-home messages:

If adenosine doesn't convert SVT, use the opportunity to capture a 12-lead ECG and think about Atrial Flutter.

Atrial flutter can be subtle — don't rule it out too quickly.

Timely cardiology input can change the course of management.

Declarations of Conflicts of Interest:

None declared.

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Acknowledgements:

Sincere thanks to the CHI Crumlin cardiology team and our SCBU staff, whose expertise and teamwork were central to this positive outcome.