Case report

Paroxysmal atrial fibrillation in 5 months old Afro-Caribbean

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Abstract
Congenital paroxysmal Atrial Fibrillation in infants is a rare occurrence requiring a high index of suspicion. The majority have a Pre-excitation syndrome which may be concealed. It may be associated with specific structural congenital cardiac lesions. This Index case had only paroxysmal atrial tachyarrhythmia with no predisposing condition that subsided spontaneously and is the first case documented in an Afro-Caribbean infant.

Learning objective
This Case Report documents a rare Paroxysmal Atrial Fibrillation in an infant with spontaneous remission. This has never been documented in the English Medical Literature in an Afro-Caribbean.

Keywords
Atrial fibrillation • Wolff-Parkinson-White syndrome • Beta-blockers • Flecainide

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Introduction
Congenital paroxysmal Atrial Fibrillation in infants was noted in only ten patients over seventeen years between 1958 and 1975 by Radford et al [1]. The rarity and findings have been well documented by Andersen et al (1953) and Clint et al in 1972. [2,3]. Simcha et al had thirty nine cases isolated cases in seventeen years. Agarwala et al in 1980 confirmed that the diagnosis has become more frequent with the use of Foetal and Neonatal electrocardiographic monitoring [4,5]. Campa et al has classified these patients using the age of onset in three groups with a direct clinically significant correlation. The onset occurs in the foetus in group one, in the first month of life in group two and group three with occurrences of atrial dysrhythmia, between one month and twelve months of age. Group one had episodic episodes with slower heart rates, Group two had a greater occurrence of
cardiac decompensation [6]. In most of the cases mentioned by Simcha et al, Campa et al and Radford et al about one-third has complete cessation before a year of age and up to 70% of cases had Wolff-Parkinson Syndrome which was either overt or concealed, on resting electrocardiography (ECG) [4,6]. The signs of Pre-excitation may post date the onset of arrhythmia and was associated with a greater recurrence when confirmed [1-4, 6].

Atrioventricular re-entry tachycardia (AVRT) was noted more in infants with atrio-ventricular bypass tracts as compared to atrio-ventricular node re-entry in adolescents as the underlying mechanism of the atrial tachyarrhythmia [7,8]. The statistically significant structural cardiac lesions associated with paroxysmal atrial tachycardia were noted to be Ebstiens anomaly but it also occurred in patients with atrial septal defects, ventricular septal defects, transposition of the great arteries, endocardial fibroelastosis, coarctation of the aorta and dextrocardia [6-8]. The index case had none of these structural lesions or any Pre-excitation syndrome or Ion channelopathy.

Case report
A five month old Afro-Caribbean female infant presented with intermittent respiratory distress and mother noticing intermittent episodes of palpitations associated with the respiratory distress. There was no preceding or concurrent fever, viral symptoms or signs, in caregivers or infant. She was the product of an uncomplicated pregnancy and delivery, who was feeding well with appropriate weight gain for age. There was no gestational diabetes or maternal autoimmune disorder. No family history of arrhythmia, pre-excitation syndrome, ion channelopathy, sudden infant death syndrome, sudden death or deafness.

Significant findings on examination were confined initially to the respiratory system with intermittent episodes of rhonchi. Heart rate was 160 beats per minute. There was no hepatomegaly or signs of congestive cardiac failure. Twenty four hour Holter assessment detected intermittent episodes of Atrial tachycardia (Fig.1), when the event button was pressed and at other times not noted by caregiver. The resting ECG and Transthoracic Echocardiogram were normal and Digoxin was given with cessation of symptoms. This was discontinued by caregiver despite advice after two months and there has not been a recurrence. Thyroid function tests were normal.
Discussion

The spontaneous remission of the Atrial Tachyarrhythmia in the absence of a structural congenital cardiac lesion and absence of Pre-excitation syndrome is consistent with the majority of cases reports with similar findings. The prophylactic treatment of one year where the likelihood of recurrences would be expected would have been optimal but the fortuitous discontinuing of medication helped to confirm the spontaneous cessation of the tachyarrhythmia [6-9].

The use of Digoxin with no overt accessory pathway was used with the caution that a concealed pathway could lead to exacerbation of symptoms. Beta-blocker, the drug of first choice for many centers was avoided because of the possibility of exacerbation of bronchospasm noted clinically [8-10].

The choice of medication is dependent on the initial presentation and the persistent and incessant nature of the arrhythmia. Treatments being used have changes over the past two decades with Adenosine now being used as drug of choice in some centers, instead of direct cardioversion for the incessant especially in Congestive Cardiac Failure. Medications recommended in order of preference varies among institutions, in the absence of cardiac decompensation are beta-blockers, flecainide, digoxin. Drugs control the most common cause of AVRT in different ways. Conduction via the accessory pathway is affected by beta-blockers and digoxin. Reductions of transmission via the accessory pathway are by use of flecainide and propafenone. Sotalol and amidoradone are used in incessant and resistant cases and affect conduction in both the atroventricular node and the accessory pathway. All are consistent with avoidance of Verapramil in infancy which aggravates cardiac decompensation. Amidoradone is used as a last resort with a close watch for the myriad of complications associated with its use [9]. Incessant and uncontrollable cases have the potential to be
cured with Electrophysiological studies and Catheter ablation, preferred in the older child but can be used successfully in Infants when Atrial Tachyarrhythmia is uncontrollable [8-10].

The inadvertent early positive outcome with complete cessation, in this 5 month old female Afro-Caribbean, is the first case of paroxysmal Atrial Fibrillation documented in an Afro-Caribbean infant.

**Statement on ethical issues**

Research involving people and/or animals is in full compliance with current national and international ethical standards.

**Conflict of interest**

None declared.

**Author contributions**

The author read the ICMJE criteria for authorship and approved the final manuscript.

**References**


