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Case Report

Envenomation: an uncommon cause of respiratory distress in a neonate

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ABSTRACT

Respiratory distress in a neonate is a common problem in our practice. The causes may be respiratory, cardiovascular, metabolic, haematological, surgical and central. However in late neonatal period is often due to pneumonia, metabolic or cardiac. We report an uncommon cause of acute respiratory distress in a 26 day old neonate due to myocarditis secondary to scorpion sting envenomation who recovered with our early diagnosis and prompt treatment.

Keywords: Respiratory distress, Myocarditis, Scorpion sting, Neonate

INTRODUCTION

The causes of respiratory distress in the late neonatal period are pneumonia (sepsis), metabolic or secondary to a cardiac cause.[1] Myocarditis in a neonate presents with tachycardia, tachypnea, cyanosis, distant heart sounds, gallop rhythm, acidosis and shock. The causes of myocarditis are mostly viral in origin.[2] Here we report an uncommon cause of acute myocarditis in a neonate, a case of scorpion sting envenomation which presented with acute respiratory distress.

CASE REPORT

A 26 day old male neonate, 1st born of non-consanguineous marriage was brought to the casualty at 11pm midnight with complaints of acute onset respiratory distress, increased oral secretion and inconsolable cry for the past 1 hour. Baby was breast fed before 1 hour and was kept in his cradle (thooli), 15 minutes later the baby had incessant cry and noted to have increased oral secretion (Figure 1). There is no history of nasal regurgitation of feeds, no H/o lethargy and no feeding difficulties in the past. He is full term neonate delivered by labour natural to a primi mother, birth weight - 3 kg and his perinatal period was uneventful.

Figure 1: Sick male neonate in casualty.

Baby was admitted in NICU suspecting aspiration pneumonia or cardiac failure. On examination baby was irritable with acrocyanosis. His vitals were heart rate - 188 per minute, respiratory 72 breathes per minute, SpO_2 - 92 % in room air, 94% with oxygen thro hood at 10 liters per minute, ice cool below knee, peripheral pulses

palpable equally on both sides, capillary refill time more than 3 sec, NIBP - 128/72 mm of Hg, blood sugar 220 mg/dL. Systemic examination of respiratory system showed - bilateral air entry equal, basilar crepts, subcostal and intercostal retraction with grunt (respiratory distress score of 6/10 Downey), cardio vascular system - S3 gallop, abdomen - liver span of 8 cm in right MCL. These findings of tachycardia, respiratory distress and gallop rhythm suggest the possibility of acute myocarditis.

Examination of the genitalia revelled priapism (Figure 2), which gave us the clue to the probable diagnosis of scorpion sting envenomation with autonomic storm, acute myocardial dysfunction and pulmonary oedema. But the mother denied such possibility. The child was given a saline bolus, started on prazosin through NG tube and dobutamine infusion. X-ray showed cardiomegaly (Figure 3), ECG showed features of myocarditis (Figure 4) like marked ST depression. Within few hours after starting prazosin, the respiratory distress, tachycardia, and oral secretion decreased, peripheries became warm and blood pressure returned to normal limits. Baby needed 3 doses of prazosin and dobutamine infusion for 12 hours, then he stabilised. Next day morning the father of the baby brought a dead scorpion from the cradle (thooli) (Figure 5) in which the baby was kept in the previous night.

Figure 2: Erected genitalia (before treatment) and normal genitalia (after treatment).

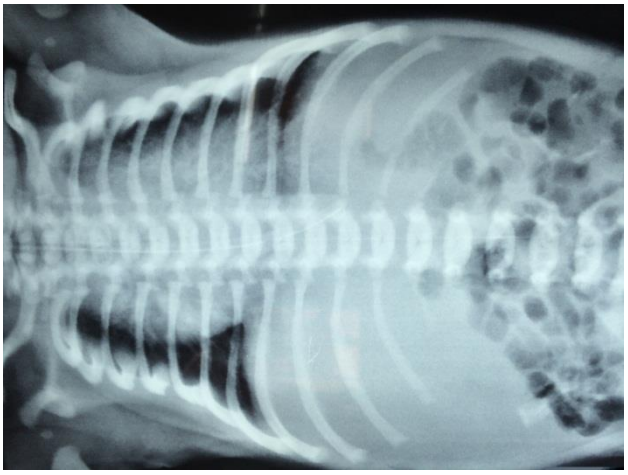

Figure 3: Chest X-ray showing cardiomegaly.

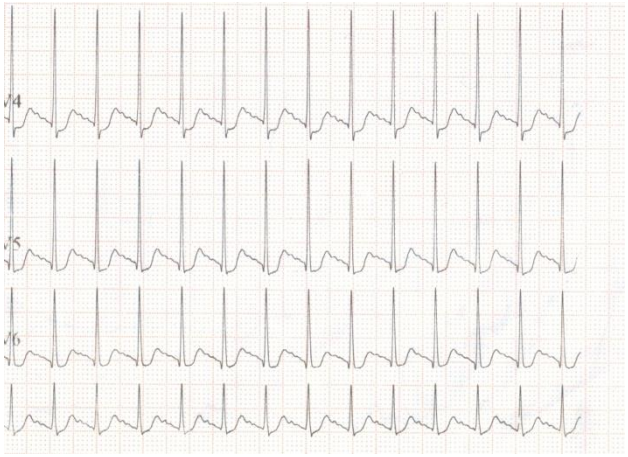

Figure 4: ECG showing marked ST segment depression.

Figure 5: General appearance of thoolli.

DISCUSSION

Myocarditis is defined as inflammation of myocardium. Clinically, the manifestation of myocarditis is relatively uncommon in infants and children. The majority of cases of myocarditis are secondary to viral infection.[3] Envenomation causing myocarditis is rare.

The clinical manifestation due to scorpion sting envenomation are believed to be primarily due to complex interaction between sympathetic and parasympathetic stimulation characterised by transient cholinergic (vomiting, sweeting, bradycardia, priapism, ventricular premature contractions, salivation and hypotension) and prolonged sympathetic stimulation (hypertension, tachycardia, pulmonary oedema, cool extremities and shock).[4]

Cardio vascular system is the most common system affected by scorpion venom. Clinical manifestations depend upon the duration of envenomation. Hypertension, cardiac arrhythmias, tachycardia, pulmonary oedema, hypotension and shock are result of on-going autonomic storm.[5]

In a study by Ramesh Pol et al.[6] of 240 children with scorpion sting, 40% of envenomation had myocarditis

with ECG finding, but most were in the age group of 2 to 7 years. ECG is the most important and diagnostic tool easily available at rural setting. No victim with systemic envenomation shows normal ECG. RST segment and T waves are most frequently affected. Arrow head tented T waves looking like Ashoka tree indicates acute injury, while tent shaped T wave looking like Christmas tree indicate recovery. Early myocardial infraction like pattern, atrial arrhythmias, non-sustained ventricular tachycardia various conduction defects are secondary to conduction system defects. Low voltage, wide QRS complex, tachycardia, hemi block and marked ST segment depression carries bad prognosis.[7,8]

Chest X-ray suggestive of pulmonary oedema are seen within 3 hours of envenomation. Normal cardiac silhouette with pulmonary vascular congestion, straight non branching lines in upper lung that run diagonally towards hilum and horizontal non radiating lines in periphery of lower lung indicating inter lobular septal oedema are seen.

Prazosin is widely used for management of scorpion sting envenomation.[10] Prazosin is phosphodiestrase inhibitor, it reduces pre load and left ventricular impedance without raising heart rate. Children who presented with hypokinetic phase due to ventricular dysfunction clinically characterised by hypotensive shock, tachycardia, delirium with or without pulmonary oedema improves with dobutamine infusion 5 to 20 microgram/kilogram/minute.[12,13] Our neonate recovered well with prazosin and dobutamine.

If clinical picture doesn't correlate with the common causes, then look for the common presentation of uncommon causes, like in our case, envenomation is the rarest possibility of respiratory distress in a neonate. But this possibility was looked in earlier as it is apparently normal baby brought with a short history of respiratory distress from a rural village (India) at night.

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