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### Endosulfan Poisoning Induced Myocarditis: Rare Manifestation of a Commonly Used Insecticide in India: A Case Report.

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#### ABSTRACT

Endosulfan poisoning is very common in India. Toxicity is mainly neurological in form of recurrent seizures, ataxia, and headache. Cardiac toxicity is rare. We here report an uncommon complication of endosulfan poisoning induced myocarditis. Clinicians need to be aware of this uncommon manifestation of commonly used insecticidal poison in India.

**Keywords:** endosulfan, myocarditis, insecticide

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## INTRODUCTION

Pesticide poisoning is very common in India [1] and leads to loss of many young life in present time. In India, being a agriculture based country; the availability of the different insecticide is not a problem and hence they are often used for self poisoning. In this part of central India endosulfan is one of the commonly used insecticidal agent for self poisoning other being organophosphorus, celphos, and ethylene dibromide etc. Endosulfan primarily present with neurological [2,3] and gastrointestinal symptoms. We here report an uncommon complication of endosulfan poisoning which has rarely been reported in literature previously.



## CASE HISTORY

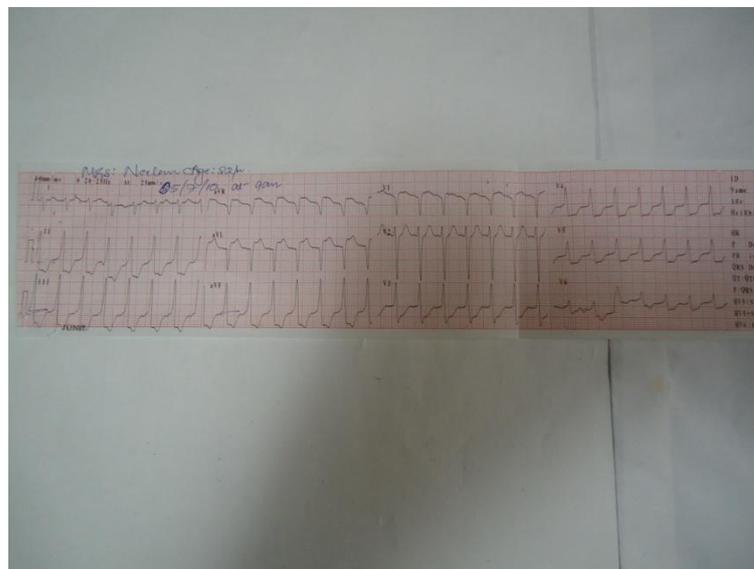
Our patient was a 22 year old female who was brought by relatives with history of recurrent seizure episode, altered sensorium and laboured breathing pattern for past half an hour. History of ingestion of insecticidal poison one hour prior to admission was revealed by husband. The poison bottle was produced by husband which was PRECEL (endosulfan). There was no history of any fever, seizure disorder or significant medical complaints. She was not on any medical treatment before admission to hospital. On examination patient was unconscious, general condition of patient was poor, pulse = 108/minute, blood pressure = 140/100 mm of Hg, Temperature= Afebrile, Respiratory Rate =24/minute. Systemic examination of central nervous system revealed patient was stuporous, responding to deep painful stimuli, moving all four limbs on painful stimulus, pupil was normal size reacting briskly to light, bilateral plantar were flexor. Cardiovascular, abdominal and respiratory examination were unremarkable except tachycardia and tachypnea.

Patient was immediately intubated with endotracheal tube and started on aggressive medical treatment in form of antiepileptic therapy, intravenous fluids, gastric lavage and supportive therapy. She was shifted to Intensive care unit where she was put on ventilatory support in view of recurrent seizure and respiratory distress. Baseline investigation revealed Hb=12g/dl, TLC= 31800 (P 68, L 27, M 02, E 03) , Blood urea= 22mg/dl, serum creatinine= 1.3mg/dl, Sodium= 144meq/dl, potassium= 4.7, LFT= WNL ,

baseline ECG was normal , chest x ray PA view was within normal limits, baseline echocardiography revealed normal study with ejection fraction of 60% . Patient's seizures were controlled and patient was tried for weaning but in view of respiratory distress she was continued on ventilatory support. On third day of hospitalization patient developed hypotension, ECG showed nonspecific ST-T changes, repeat echocardiography showed borderline dilatation of left ventricle and global hypokinesia with LV ejection fraction of 25%. Cardiac enzymes (CPK-MB and Troponin) were increased . A diagnosis of endosulphan induced myocarditis was considered as the other common causes were excluded by history and laboratory investigations. Our patient subsequently developed renal dysfunction and remained on ventilatory support. Her condition deteriorated despite of our best efforts and she could not be saved and was declared dead on 6<sup>th</sup> day.

## DISCUSSION

Endosulfan is an organochlorine compound used as an insecticide. They have a long half-life in the human body, and cause moderate toxicity [4,5]. Endosulfan is the derivative of hexa chloro cyclopentadiene and chemically similar to aldrin, chlordane and heptachlor. In endosulfan poisoning the usual presenting symptoms are neurological including recurrent seizures, ataxia, giddiness, headache [2,3]. Sometimes renal involvement in form of haematuria, proteinuria and anuria may occur [6]. The usual cause of death is brain injury resulting due to recurrent seizures. Cardiac manifestation in endosulfan poisoning are rare. We present a rare case of endosulfan poisoning induced myocarditis.



Myocarditis is defined as an inflammation of the heart muscle identified by clinical or histopathologic criteria [7]. A broad range of insults – infectious, autoimmune, toxic, drug induced, hypersensitive and vasculitic – have been implicated in etiologies of myocarditis. Out of all these, viral infection is the most common etiology for myocarditis. The clinical presentation in myocarditis may vary from asymptomatic ECG finding to cardiogenic shock or even death. Clinically, patients with acute myocarditis present with tachycardia, hypotension, and shortness of breath. ECG in acute myocarditis may show sinus tachycardia with nonspecific ST segment and T wave abnormalities. Cardiac enzyme elevation may be

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**Computerized Clinical Biochemistry Laboratory**

Patient Name : NEELAM SINGH      Age /Sex : 22Y/F  
 Ref. by Dr. :                                      Lab no : 02  
 Investigation adv. : CCU                                      IPD - 5277                                      Date: 05/07/2010

Test	Observed values	Normal values
Blood Glucose (fasting )		70 to 110 mg%
P. P.		Up to 140 mg%
Random		70 to 140 mg%
<b>LIVER FUNCTION TESTS</b>		
Total Bilirubin	0.87	0.1 to 1.2 mg%
Direct Bilirubin	0.70	0.0 to 0.3 mg%
Indirect Bilirubin	0.17	0.1 to 0.9 mg%
SGPT/ALT	436.5	6 to 40 IU/L
SGOT/AST	766.5	8 to 37 IU/L
Alkaline phosphatase	50.7	15 to 112 IU/L
Total Protein		6.0 to 8.3 gm%
Albumin		3.7 to 5.3 gm%
Globulin		2.3 to 3.0 gm%
A/G/ Ratio		
<b>LIPID PROFILE</b>		
Serum Total cholesterol		150 to 210 mg%
TG		Up to 150 mg%
HDL		>35 mg%
LDL		<150 mg%
VLDL		Up to 30 mg%
Risk factor (total chol. /HDL chol.)		
<b>CARDIAC MARKERS</b>		
CK-MB	100.0	0 to 24 IU/L
Troponin-I	POSITIVE	
<b>RENAL FUNCTION TESTS</b>		
Urea	31.1	15 to 45 mg%
Creatinine	1.2	0.6 to 1.4 mg%
<b>ELECTROLYTES</b>		
Sodium	143.0	135 to 145 mEq/L
Potassium	3.8	3.5 to 5.0 mEq/L
<b>OTHERS</b>		
Amylase		22 to 80 IU/L
Lipase		Less than 60 IU/L
Calcium		8.4 to 10.4 mg%
Uric acid		2.5 to 7.2 mg%

LAB TECHNICIAN                                      DOCTOR IN CHARGE

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seen. The echocardiographic finding of myocarditis are near normal ventricular dimensions with global decrease in systolic function. Subsequent to initial insult ventricular dilatation may result in varying degree of mitral and tricuspid regurgitation. Mainstay of therapy for acute myocarditis is supportive therapy for left ventricular dysfunction in form of ACE inhibitor, ARB, diuretics ,beta blockers, digoxin etc. Our patient was a young female who had ingested endosulfan for homicidal purpose. Although myocarditis is frequently seen with variety of toxic agents including organophosphorus poisons but it has been rarely reported with endosulfan(organochlorine) poisoning. The reason for reporting this case is it's rare manifestation in a commonly used insecticidal agent used for homicide or accidental poisoning. Clinicians need to be aware of this uncommon manifestation so as to suspect, diagnose and treat this complication.

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