

TYPE I BRUGADA ELECTROCARDIOGRAM PATTERN IN YELLOW OLEANDER POISONING

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ABSTRACT

Ingestion of yellow oleander seeds produces manifestations similar to digitalis toxicity with spectrum of cardiac manifestations including sinus node dysfunction, AV block, atrial and ventricular premature complexes, ventricular tachycardia, ventricular fibrillation and sudden cardiac death. We report a rare manifestation of yellow oleander poisoning presenting with type I Brugada pattern electrocardiogram.

Keywords: Bradycardia, Type 1 Brugada Syndrome

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INTRODUCTION

Brugada syndrome was first described in 1992 by the Brugada brothers (Brugada and Brugada, 1992) as a distinct heritable clinical entity characterized by malignant arrhythmias in patients without organic heart disease and by a peculiar electrocardiogram (ECG) pattern consisting of coved-type ST elevation ≥ 2 mm in one or more leads from V1 to V3 (Brugada type 1 ECG pattern). Patients with a Brugada type 1 ECG pattern may suffer sudden cardiac death (SCD). Recognized risk factors are spontaneous type 1 ECG and syncope of presumed arrhythmic origin. Familial sudden cardiac death (f-SCD) is not a recognized independent risk factor (Delise *et al.*, 2017). Brugada-type electrocardiogram changes are also associated with toxicity (Jaffe *et al.*, 2018)

CASE

40 year old male with no previous history of cardiac illness or medication presented with ingestion of two yellow oleander seeds out of depression. Patient had profound bradycardia with junctional rhythm at heart rate of 32 beats per min and blood pressure was 110/70 mm Hg. Serum electrolytes (Na^+ , K^+ , Mg^{++} , Ca^{++}) were within normal limit. First ECG showed junctional rhythm with type I Brugada pattern in precordial



Figure 1: ECG showing type I Brugada Pattern in V1-V3

Case Report (Open Access)

leads V₁-V₃. Patient was managed with Isoprenaline infusion, Brugada pattern disappeared in the second ECG taken after 12 hours and the patient was discharged on fourth day with sinus rhythm without ST or T wave changes.

DISCUSSION

Yellow Oleander or *Thevetia peruviana* is an ornamental plant grown widely in tropical countries like India and its flower is used for religious purposes. All parts of the plant are poisonous and contain toxins like thevetin A, thevetin B, peruvoside, nerifolin, thevetoxin and ruvoside which are cardiac glycosides similar to digitalis (Bandara et al. 2010). Common cardiac manifestations of yellow oleander poisoning are sinus node dysfunction, AV block, junctional rhythm, atrial and ventricular premature complexes (APC, VPC), ventricular tachycardia and fibrillation. In our case we found profound bradycardia with junctional rhythm and type I Brugada pattern which disappeared on second day. This type I Brugada ECG pattern has not been described elsewhere in the literature related to yellow oleander poisoning. Our case report is the unique and first case report of Brugada ECG pattern in acute oleander poisoning. All the cardiac manifestations in yellow Oleander poisoning are due to inhibition of trans membrane Na⁺/ K⁺ ATPase resulting in accumulation of sodium and calcium ion in cardiac myocytes. Brugada electrocardiographic pattern in our case may be due to these cardiac glycosides mediated inhibition of sodium channel in phase 0 of cardiac action potential (Eddleston et al. 2000).

Conflicts of Interest

The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript

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