

Amphetamine-induced Cardiotoxicity in a Young Male: A Rare Case Presentation

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Introduction

Cardiotoxic manifestations of stimulant intoxications, such as acute myocardial infarction (AMI), heart failure, or arrhythmia related to the misuse of amphetamine and its synthetic derivatives have been documented but are rather rare

Case report

An otherwise healthy 20-year-old male was referred to us for fast atrial fibrillation (AF) secondary to acute coronary syndrome. He was febrile (38.6°C) with the documented heart rate of 190 bpm and normal blood pressure. He was given antipyretics, dual antiplatelet therapy and intravenous digoxin prior to transport to our centre. Upon arrival, he appeared restless and diaphoretic, with the respiratory rate of 24 breaths/min. His pupils were bilaterally dilated. Chest examination revealed bibasal crepitation up to midzone with chest radiograph showing signs of pulmonary oedema (**Fig.1**). Repeated ECG showed AF with the heart rate of 150 bpm (**Fig. 2**). A bedside urine drug was performed, which was positive for amphetamine. A diagnosis of fast AF in failure secondary to amphetamine intoxication was made. Intravenous midazolam and intravenous frusemide were given with observed clinical recovery and sequential improvement in arterial oxygenation. Echocardiogram later showed severe mitral regurgitation with biventricular dilatation (Ejection fraction 59%). Unfortunately, he developed persistent AF and was later discharged with life-long warfarin.

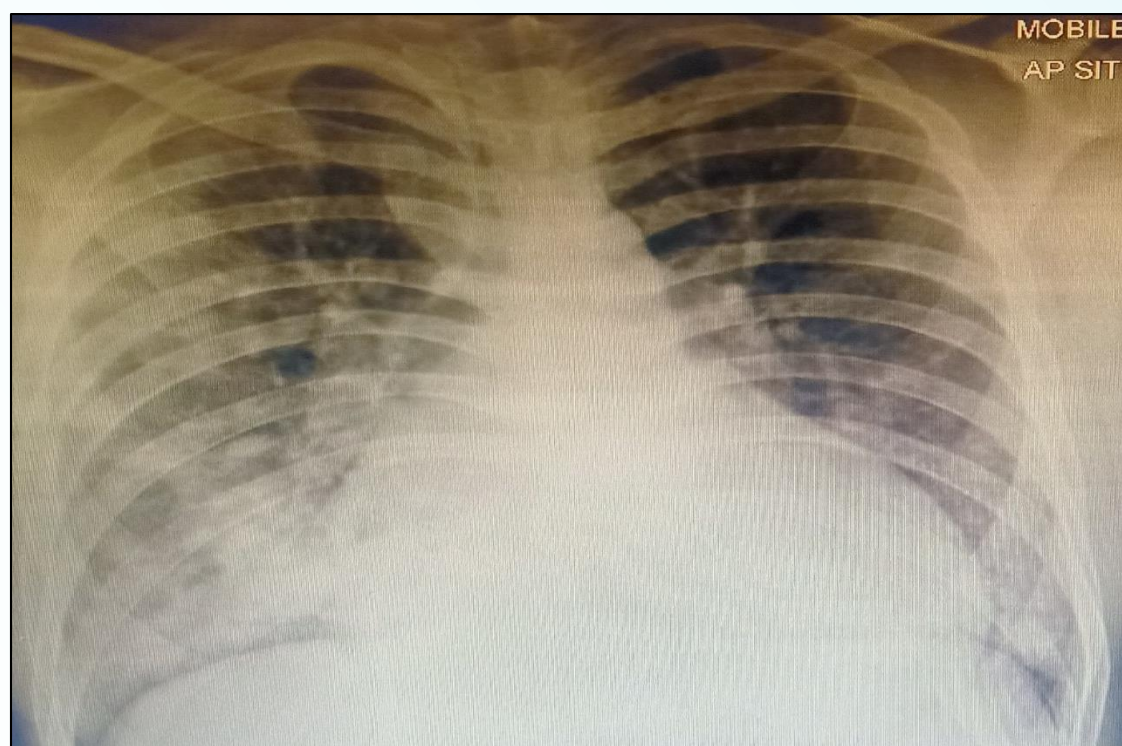


Fig.1. CXR showing cardiomegaly and batwing appearance.

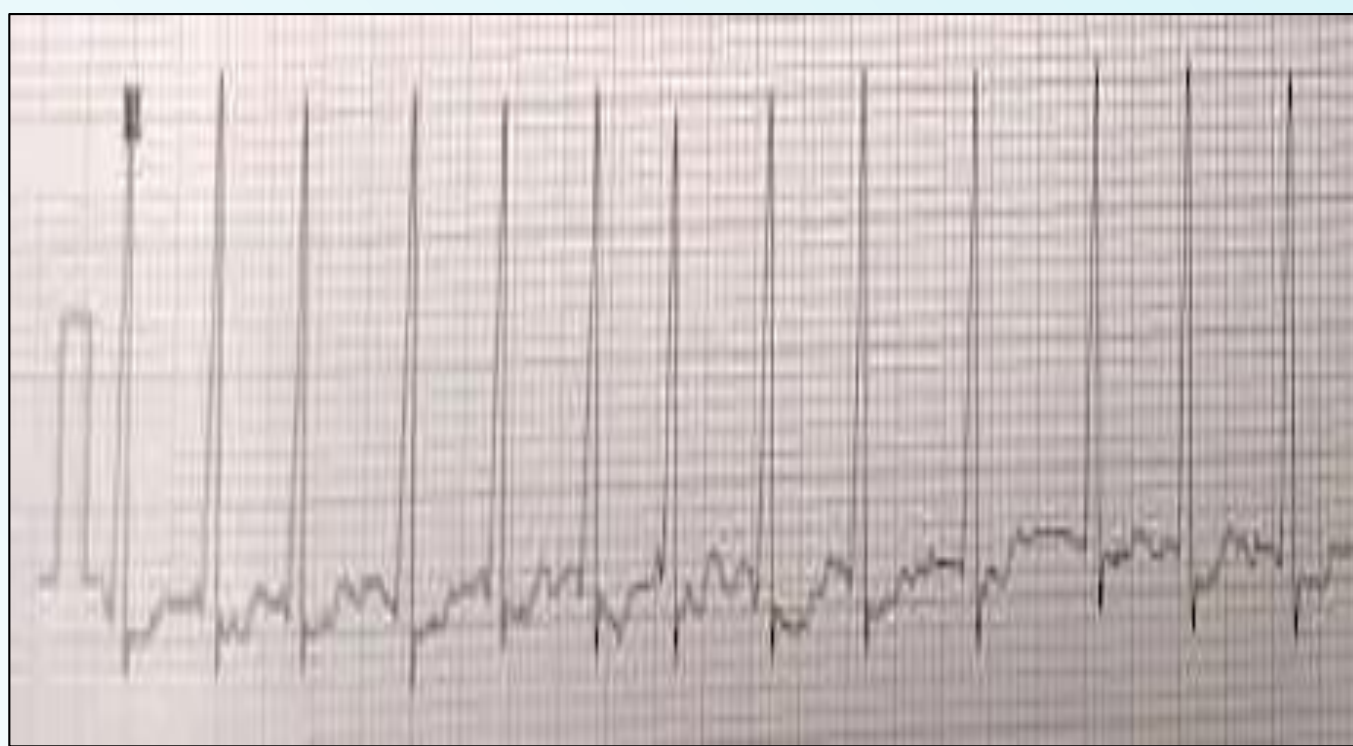


Fig.2. ECG showing absent p wave, narrow QRS complexes, and variable ventricular rate

Discussion / conclusion

- Statistics from National Anti-Drug Agency 2020 has reported Amphetamine-type stimulants are the most popular recreational drug used among Malaysians
- Patients with low-to-intermediate risk for coronary artery disease presenting with atypical signs and symptoms may benefit from detailed substance abuse history and urine for drug screening
- Judicial use of benzodiazepines and meticulous supportive care form the cornerstone of treatment for amphetamine toxicity

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Declaration of conflict of interest

The authors no declare no conflict of interest

References

1. Carvalho, M. et al. (2012). Toxicity of amphetamines: an update. *Archives of toxicology*, 86(8), 1167-1231.
2. Brinkman, J. et al. (2014). 'Double arrest'—amphetamine fatality in a 31-year-old male: a case report. *Netherlands Journal of Critical Care*, 18(2), 17-20.
3. Lantz-Dretnik, S., Czernicki, M., & Kunnumpurath, S. (2015). Management of Acute and Chronic Drug Abuse of Amphetamines. In *Substance Abuse* (pp. 155-164). Springer, New York, NY.