



A case of persistent and recurrent ventricular fibrillation with successful resuscitation and good neurological outcome

Priyamali Jayasekera¹, Priyantha Kannangara², Ajantha Rajapaksha², Sumedha Malawisinghe³, Ajith Senevirathna³

¹Department of Medicine, General Sir John Kotalawala Defence University, Rathmalana, Sri Lanka; ²Department of Cardiology, ³Medical officer, Teaching Hospital Kurunegala, Kurunegala, Sri Lanka

Correspondence to: Priyamali Jayasekera. Sri Lanka, General sir john Kotalawala Defence University, Rathmalana, Sri Lanka.

Email: priyamja@yahoo.com.

Abstract: Defibrillation is paramount in the management of cardiac arrest due to ventricular fibrillation (VF). We describe a case of cardiac arrest in a previously healthy man who made a complete recovery after a prolonged cardiac arrest which required 24 defibrillations.

Keywords: Ventricular fibrillation; cardiac arrest; defibrillation; resuscitation

Received: 21 October 2018; Accepted: 29 October 2018; Published: 09 November 2018.

doi: 10.21037/jecm.2018.10.18

View this article at: <http://dx.doi.org/10.21037/jecm.2018.10.18>

Introduction

Shock resistant ventricular fibrillation (VF) is defined as VF persisting after three defibrillation attempts (1). In approximately 10–25% of all cardiac arrests, shock-resistant VF develops, and 87% to 98% of those patients die (2).

Defibrillation is critical in the resuscitation of patients with cardiac arrest due to ventricular tachycardia (VT) or VF. Survival rates drops markedly if 5 or more shocks are required for either persistent or recurrent episodes of VF (2). This is a report on a patient who survived and neurologically intact after 24 defibrillator shocks.

Case presentation

A 54-year-old, previously healthy, man walked into the Emergency Department with a 1-hour history of retrosternal chest pain. He was experiencing intermittent chest pain four days prior to this presentation. He was a non-smoker and had no cardiovascular risk factors. He suffered a witnessed cardiac arrest while taking the electrocardiogram (ECG). And the first part of recording showed ST elevation in anterior leads and VF in the later part (*Figure 1*). He was immediately started on advanced cardiac life support. Resuscitation was continued with strict accordance to European resuscitation

council guidelines. Sinus rhythm and cardiac output was established after 40 minutes of resuscitation by giving 16 defibrillations, 5 doses of 1 mg intravenous adrenaline, amiodarone 300 mg intravenously and added dose of 150 mg intravenously followed by a continuous infusion, intravenous calcium gluconate and intravenous magnesium sulphate. Last five defibrillations were given with keeping the pad anterior-posteriorly.

Patient suffered two more episodes of VF cardiac arrests each episode requiring four further defibrillations with keeping the pads anterior-posteriorly and 3 additional doses of intravenous adrenaline. Total number of defibrillator shocks received during his resuscitation was 24.

Once he had a stable rhythm (*Figure 2*) and cardiac output, he was sent for urgent primary percutaneous coronary intervention (PCI), which showed critical stenosis at ostium of left anterior descending artery (LAD). He had angioplasty and stent placement to reestablish blood flow in the LAD (*Figures 3,4*). His post procedure echocardiogram revealed mild left ventricular dysfunction with anterior wall hypokinesia. Left ventricular ejection fraction was 50%.

He was treated in the coronary care unit (CCU) during the next few days and treated with noradrenaline and abciximab infusion for first 24 hours. Fifth day at the CCU

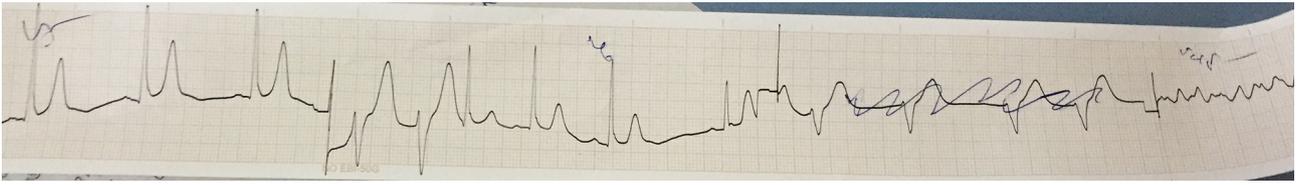


Figure 1 ECG on admission-VF in lead V4R. ECG, electrocardiogram; VF, ventricular fibrillation.



Figure 2 ECG after stabilising the patient. ECG, electrocardiogram.

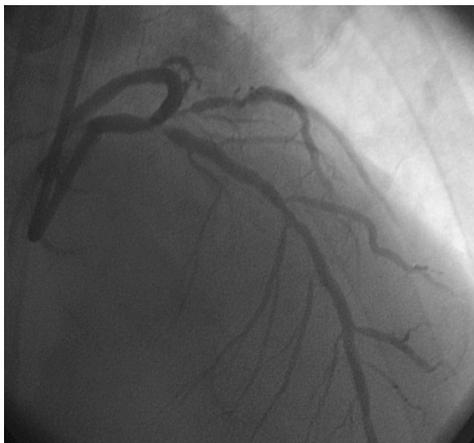


Figure 3 Coronary angiogram showing critical stenosis at LAD. LAD, left anterior descending artery.



Figure 4 Coronary angiogram after reestablishing blood flow.

was complicated by aspiration pneumonia and acute renal failure. Both those conditions managed satisfactorily with intravenous antibiotics and peritoneal dialysis respectively. He made a complete recovery without residual neurological deficits.

He was well and completely asymptomatic with follow-up in 3 months and 1 year.

Over the past decades there have been great advances in both the standard and process of resuscitation, but the process of in-hospital resuscitation has remained relatively unchanged. Nonetheless, successful resuscitation and good recovery after prolonged arrest have been documented (3-5).

Discussion

This case illustrates all the favourable factors in the chain of survival—early access, early CPR, early defibrillation and early advanced care. The patient was relatively young and previously well to deserve prolonged maximum effort of resuscitation.

Acknowledgements

I would like to thank my patient and the family who consented to participate my study and then to publish the case history. The director teaching hospital Kurunegala and

all the doctors and healthcare staff in accident and emergency unit at the time of his arrest and the doctors and the staff in coronary care unit, Teaching Hospital Kurunegala.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Informed Consent: Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

References

1. Sarkozy A, Dorian P. Strategies for reversing shock-

doi: 10.21037/jeccm.2018.10.18

Cite this article as: Jayasekera P, Kannangara P, Rajapaksha A, Malawisinghe S, Senevirathna A. A case of persistent and recurrent ventricular fibrillation with successful resuscitation and good neurological outcome. *J Emerg Crit Care Med* 2018;2:94.

- resistant ventricular fibrillation. *Curr Opin Crit Care* 2003;9:189-93.
2. Weaver WD, Cobb LA, Copass MK, et al. Ventricular defibrillation -- a comparative trial using 175-J and 320-J shocks. *N Engl J Med* 1982;307:1101-6.
3. Sakar A, Kumar, Chitihoti S, et al. A rare case of survival after one hour of cardiopulmonary resuscitation: of case reports in practice. *J Case Rep Pract* 2015;3:67-9.
4. Chung CH. A case of persistent and recurrent ventricular fibrillation with successful resuscitation and good neurological outcome. Available online: <https://hkcm.com/html/publications/Journal/2005-1/P28-31.pdf>
5. Nusbaum DM, Bassett ST, Gregoric ID, et al. A case of survival after cardiac arrest and 3½ hours of resuscitation. *Tex Heart Inst J* 2014;41:222-6.