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# INAPPROPRIATE SHOCK FROM AICD TO AN INAPPROPRIATE PERSON

Cardiology

**Vyom Mori*** Department of Cardiology, Sir Ganga Ram Hospital, New Delhi-110060, India. *Corresponding Author

**Arun Mohanty** Department of Cardiology, Sir Ganga Ram Hospital, New Delhi-110060, India.

**Aman Makhija** Department of Cardiology, Sir Ganga Ram Hospital, New Delhi-110060, India.

## ABSTRACT

Since the inception of AICD (Automatic Implantable Cardioverter-Defibrillator) for primary or secondary prevention of sudden cardiac death in patients of ischemic/ non-ischemic cardiomyopathy it has significantly reduced mortality in this group of patients. The delievery of inappropriate shocks to the patient has been known either due to electromagnetic interference or by damage to components of ICD. This is a case of inappropriate shock delievered to inappropriate person suggesting the device is not benign outside of body.

## KEYWORDS

### INTRODUCTION:

AICD is a commonly used device to prevent the sudden cardiac death in patients with left ventricular dysfunction with risk or history of ventricular tachycardia/fibrillation[1]. This devices are programmed to detect and deliever shock as programmed in device when ventricular tachycardia/fibrillation is detected. Once such rhythm is sensed by the device it will automatically deliever shock through the implanted leads and try to cardiovert the rhythm and prevent the sudden cardiac death. Inappropriate shocks are due to inappropriate signals sensed by the device and an undesirable shock is delievered to patient. Incidence of inappropriate shock is around 13% at 3 year and 18% at 5 year[2]. Inappropriate shocks can lead to myocardial stunning, burning chest pain, discomfort to patient and some reports of its increasing the mortality has also been found[2]. Here we report a case of inappropriate shock to inappropriate person.

### CASE REPORT:

A VISIA AF VR Medtronic single chamber AICD device(Figure 1) was implanted in patient of ischemic cardiomyopathy with LVEF of 28% for primary prevention of sudden cardiac death. Patient expired in intensive care unit due to progressive heart failure, systemic illness, multiple comorbidities and sepsis. Before sending body to morgue the device was explanted by a para medical staff along with leads attached to the device and was kept in cupboard. Next morning when the sweeper tried to clean the cupboard the vibration within device due to its movement was detected by the device. The leads was connected to the device, and it was sensed by the device as ventricular fibrillation (Figure 3) which than delievered two rapid shocks (Figure 4) through the leads to the last finger of the staff person suggesting that devices are not completely benign out of the body. The staff didn't suffer any major injury and just superficial burns on the little finger (Figure 2). An asynchronous shock delievered to body during the vulnerable repolarisation phase on ventricle can induce VT/VF so precaution should be taken to prevent such incidences as it may lead to unpredicted incidences.

### DISCUSSION:

Inappropriate shocks delievered by the AICD is a known drawback of the device since device is programmed to detect a fast ventricular rate with specific amplitude and broad QRS which can occur due to other false sensing also. Commonly reported causes for the inappropriate shock are myofibrillatory potentials detected from the surrounding muscle[3] or sometimes the diaphragm[4], electromagnetic interference from the devices near by[5], supraventricular tachycardia and sometimes due to lead fracture or malposition[6]. This is a first such kind of case report best to our knowledge where an inappropriate shock was delievered to an inappropriate person from an explanted AICD device. This case is to enlighten that this devices are not completely benign outside of body so such kind of events can be prevented by following a certain protocol of removal and disposal of the device. Specifically in India certain community prefer doing cremation rather than burying the last mortal remains of the deceased, any device implanted should be explanted to prevent explosion occurring from the lithium battery in the device. The device should first be deactivated by an external programmer and than removed, leads should be properly detached from the device, and than be disposed off in a proper manner.

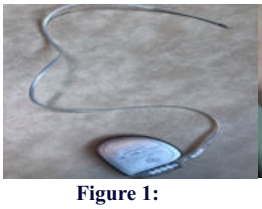
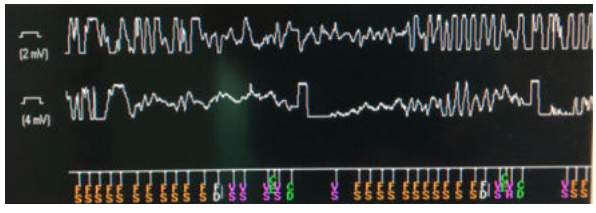


**Figure 1: Medtronic DeviCE**

**Figure 2: Burns On Hand Due To Shock**

**Figure 3: Turbulence Due To Movement Detected As Ventricular Fibrillation(vf)**

**Figure 4: Shock Being Delievered Through The Device**



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