CASE STUDY 2

FAINTING ATTACKS

FAINTING – ANYTHING FROM A NUISANCE TO SERIOUS

A 55 year old man was admitted to coronary care after an episode of blackout or syncope as doctors call it.

Over the last 6-9 months he had four additional episodes where he came over briefly feeling hot and then waking up on the floor.

The warning and feeling hot then waking up with no injury was suggestive of a faint. However he had had multiple episodes with no clear trigger.

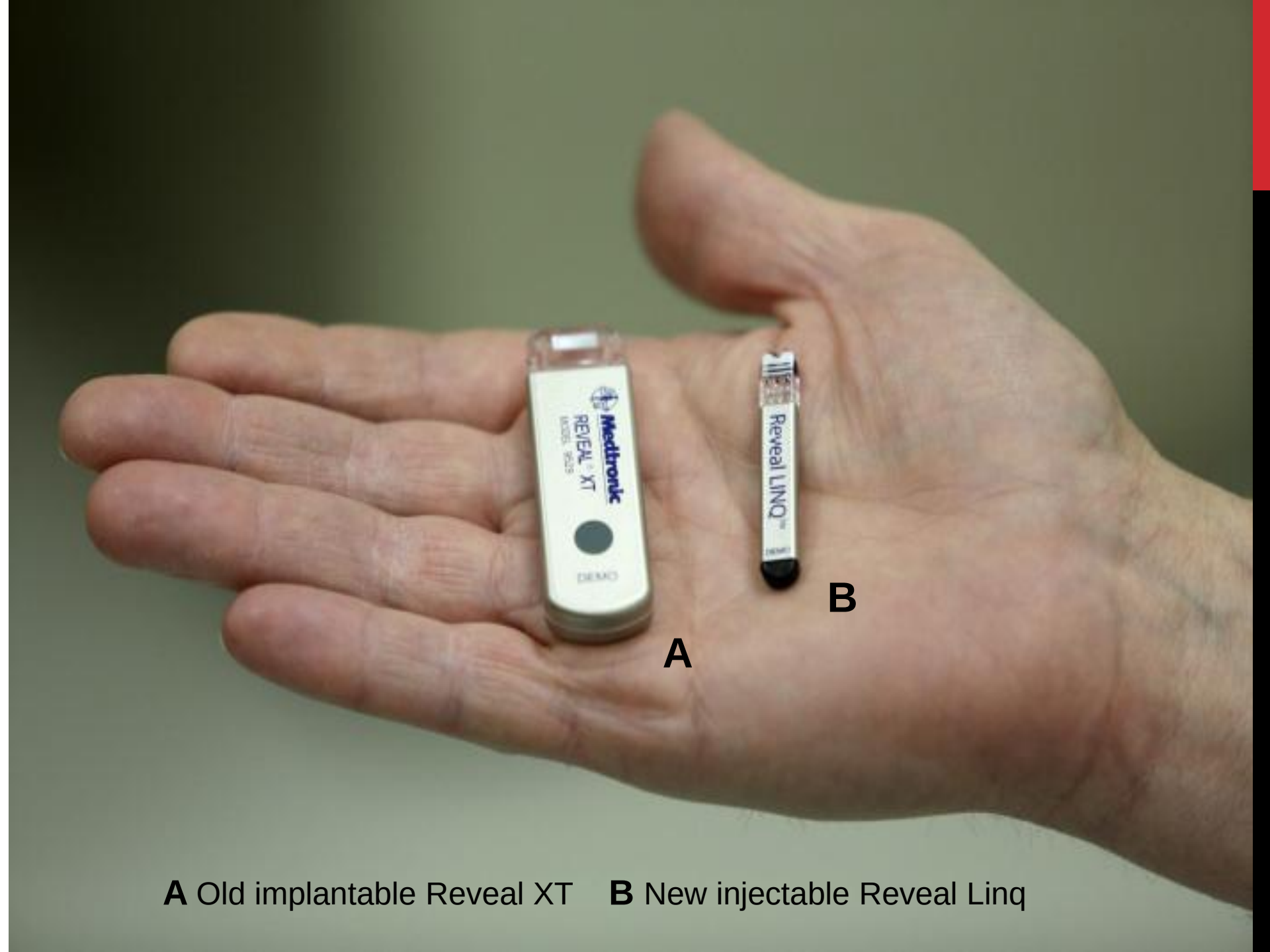
The repeated unexplained events and a mild ECG abnormality raised the possibility of a tachycardia – a rapid increase in heart rate as the cause – which can lead to a fall in blood pressure and collapse.

IMPLANTABLE LOOP RECORDER OR ‘REVEAL DEVICE’

Implantable devices which monitor for potentially dangerous rhythm disturbance have been available for 20 years.

They are placed under the skin on the upper left chest and have a battery life of three years. The device automatically records very slow and fast heart rates and pauses in the rhythm which may lead to blackout. Manual recording using a remote device can store information following a patient blackout as well

Originally the size of the device was 62 mm x 19 mm x 8 mm and required a 2.5 cm incision to implant it. The new Reveal Linq is 1/8 of the size and is injected via a tiny incision



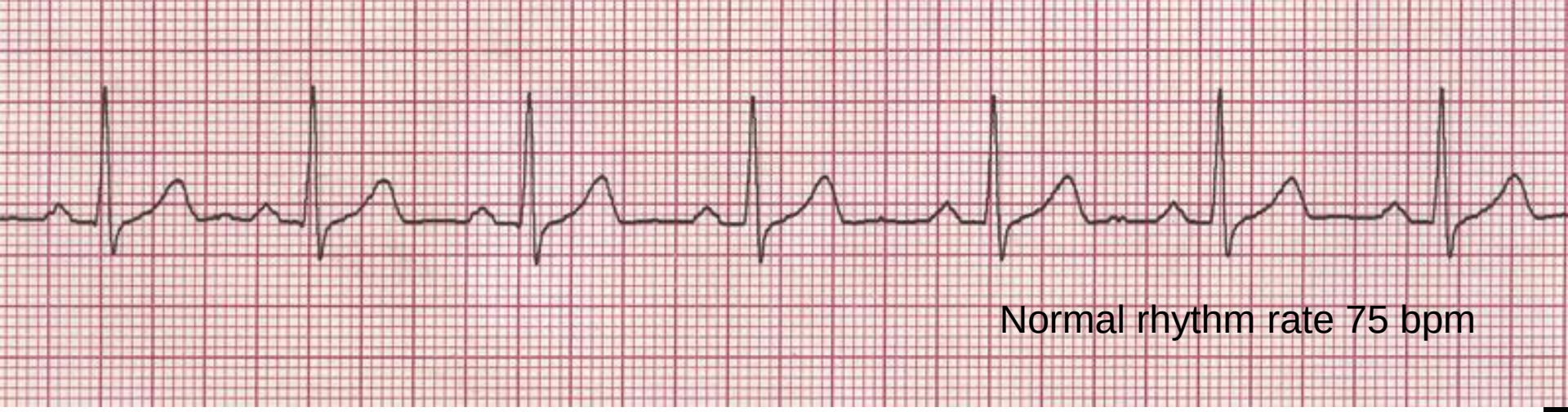
A Old implantable Reveal XT **B** New injectable Reveal Linq

DIAGNOSIS

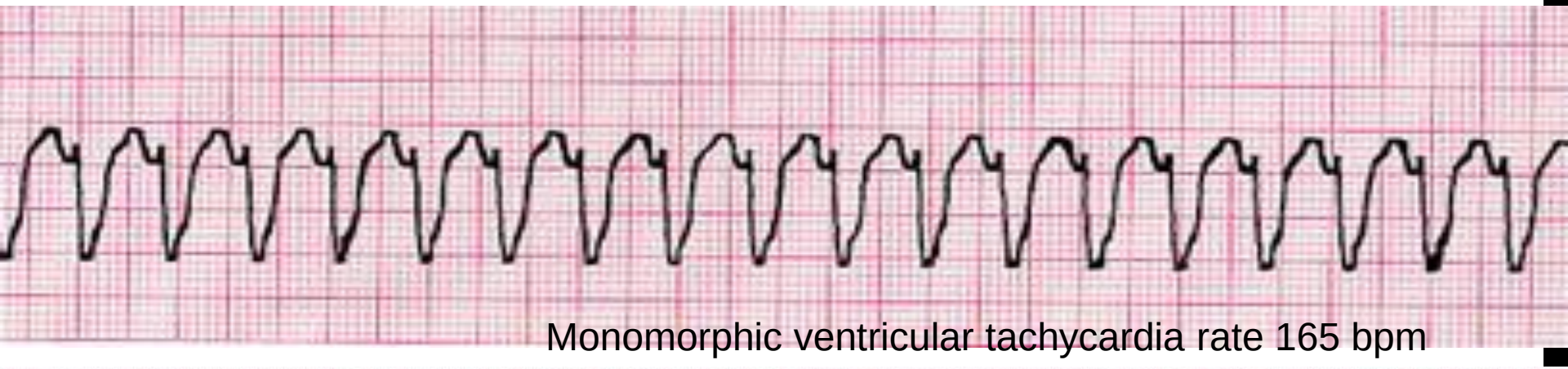
2 weeks later the patient had a further blackout

The Reveal XT device was interrogated wirelessly and revealed a serious rhythm disturbance called polymorphic VT.

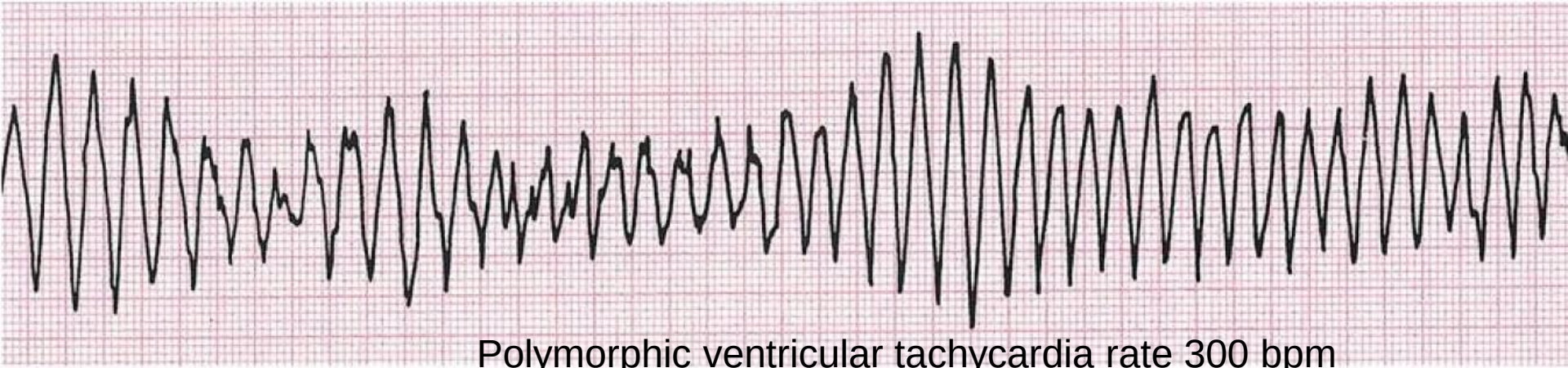
In a 55 year old the normal peak heart rate is around 165 beats per minute. A ventricular tachycardia starts in the pumping chambers and can increase the heart rate to 220+ beats per minute in a regular organized fashion (monomorphic VT) or in a disorganized fashion (polymorphic VT with rates up to 300 beats per minute)



Normal rhythm rate 75 bpm



Monomorphic ventricular tachycardia rate 165 bpm



Polymorphic ventricular tachycardia rate 300 bpm

MANAGEMENT

The patient received an implantable cardioverter defibrillator or ICD. This device is programmed to recognise serious heart rhythm disturbances.

Depending upon the actual rhythm disturbance it can either pace terminate the rhythm by pacing the heart faster than the rhythm disturbance which can revert it to normal rhythm or deliver a controlled shock to restore regular rhythm.

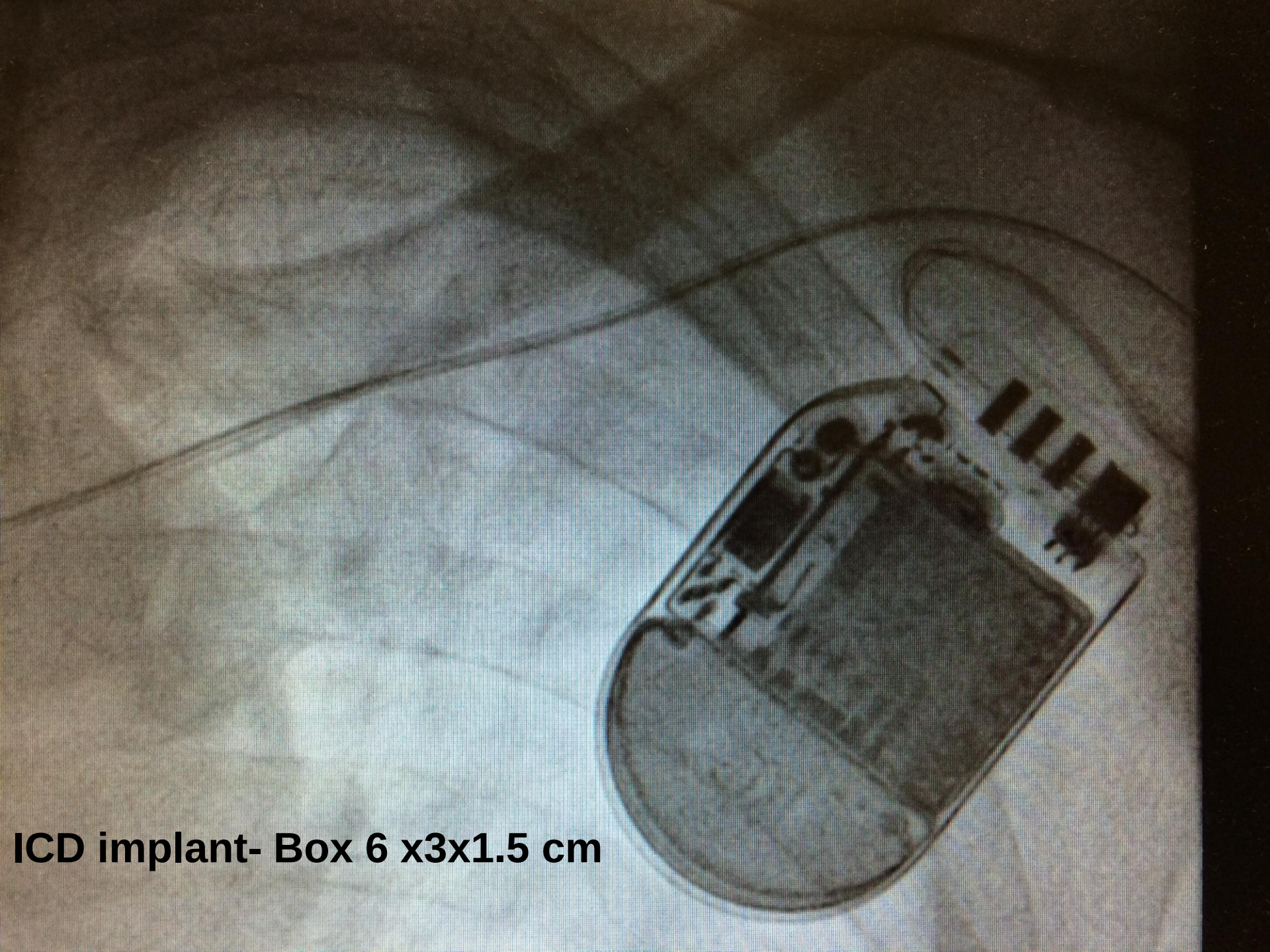
The ICD has significantly reduced sudden cardiac death in at risk individuals.

The following image shows an Xray contrast image of the arm vein on the chest which is used to access the heart with the diagnostic reveal device and the subsequent ICD implant with the Reveal removed

Above- Contrast image showing the arm vein for pacemaker lead access to right heart

Below: first generation implantable loop rhythm recorder 6 cm long under skin

Positioner Primary Angle: 0



ICD implant- Box 6 x3x1.5 cm