Unilateral diaphragmatic palsy may be a rare but important complication of elective direct current cardioversion

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DESCRIPTION

A 69-year-old man presented with mild, but limiting exertional breathlessness. He had undergone an elective direct current (DC) cardioversion for atrial fibrillation 7 days previously.

A chest radiograph performed by the cardiology team showed a raised right hemi-diaphragm (figure 1). A chest radiograph performed 6 months before had been normal. Symptoms and radiographic changes were persistent at 4 months, and referral to the respiratory team was made. Pleural ultrasonography confirmed a right hemidiaphragmatic paralysis and no sinister cause was identified either clinically or by CT scanning. Pulmonary function tests showed a reduced forced vital capacity of 1.89 litres (50% predicted). At most recent review 8 months after the initial presentation, the patient's symptoms continued unchanged.

Unilateral diaphragmatic paralysis is a known complication of cardiac surgery and more recently catheter ablation; however, there are no previous cases reported in the literature following DC cardioversion. Possible explanations for the relationship of diaphragmatic paralysis to cardioversion include thermal injury, since phrenic nerve damage may occur at relatively low rises in temperature, or damage to the right internal mammary artery leading to phrenic nerve infarction. Embolic phenomena affecting phrenic nerve function cannot be excluded, despite the patient being warfarinised in the period following cardioversion.

Our patient was symptomatic of his condition; however, more than 75% of patients with unilateral diaphragmatic palsy do not experience symptoms, which might explain the paucity of previous case reports as chest radiographs are not performed routinely after elective DC cardioversion.

Learning points

▶ Breathlessness after direct current (DC) cardioversion may have a non-cardiac cause.
▶ Unilateral diaphragmatic palsy may be a rare but important complication of DC cardioversion.

Competing interests None.
Patient consent Obtained.

REFERENCES

Daneshvar C, Tippett VM, Wathen CG. Unilateral diaphragmatic palsy may be a rare but important complication of elective direct current cardioversion. *BMJ Case Reports* 2012;10.1136/bcr-03-2012-6125, Published XXX

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