

# Traumatic Gerbode defect and aortic dissection

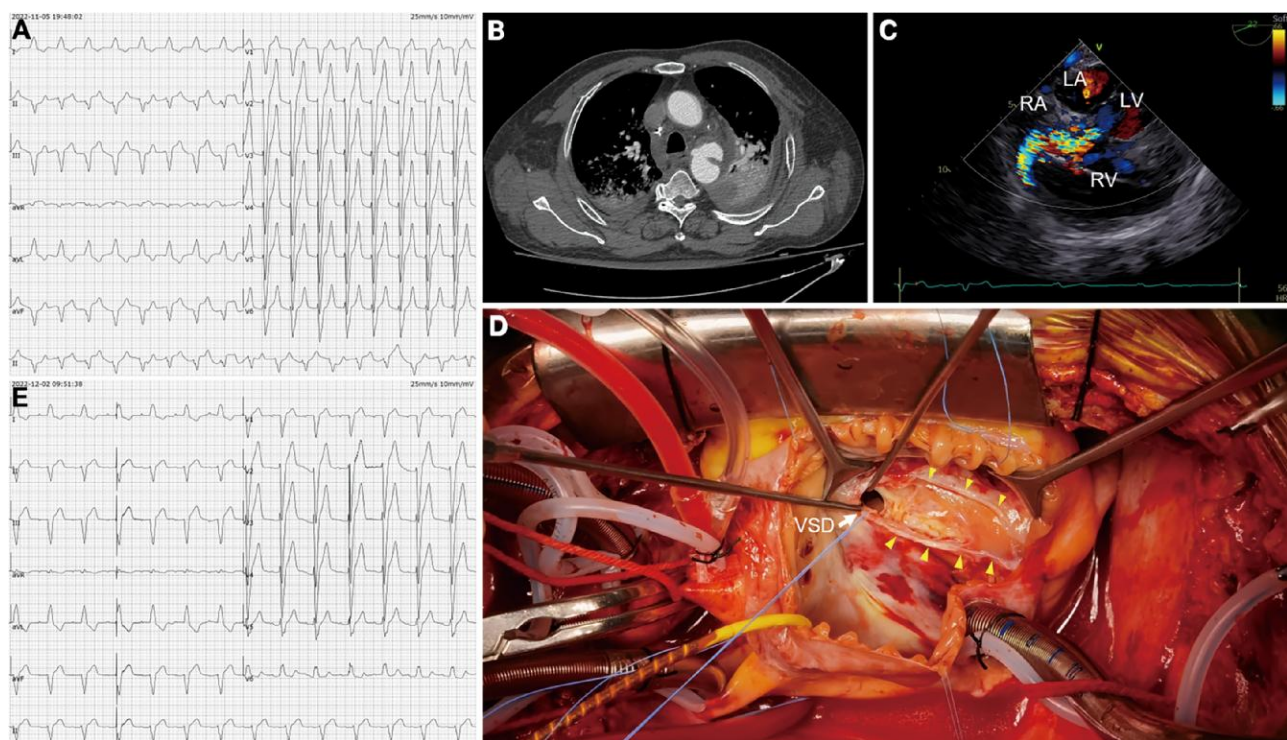
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A 66-year-old male was referred to the emergency department with chest pain and paraplegia for 3 days after suffering from a vehicle collision. He did not have any complaint prior to the accident. Physical examination revealed jugular venous distension, bilateral decreased breath sounds, holosystolic murmur at the left lower sternal border, loss of movement and sensation in both lower limbs, multiple tenderness, and contusion. The electrocardiogram showed accelerated ventricular rhythm (Panel A). The computed tomography showed rupture of the aortic isthmus (Panel B), subarachnoid haemorrhage,

multiple ribs, and L1 vertebral fractures. Transoesophageal echocardiography revealed abnormal shunt from the left ventricle to the right ventricle with tricuspid septal leaflet disruption and severe regurgitation (Panel C; Supplementary material online, Video S1). Emergent endovascular repair for aortic rupture and 1-week-later surgical cardiac repair were successfully achieved. The intra-operative view revealed a membranous ventricular septal defect (VSD) with a huge tricuspid septal leaflet avulsion, named type I Gerbode defect (Panel D). The patient recovered well with a sinus rhythm and complete left bundle branch block



**Figure 1** (A) The pre-operative electrocardiogram showed accelerated ventricular rhythm. (B) The computed tomography showed aortic dissection at isthmus. (C) Transoesophageal echocardiography revealed an abnormal shunt from the left ventricle to the right ventricle with tricuspid septal leaflet disruption and severe regurgitation. (D) The intra-operative view revealed a membranous ventricular septal defect with a huge tricuspid septal leaflet avulsion. (E) The post-operative electrocardiogram showed sinus rhythm and complete left bundle branch block.

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(Panel E). Traumatic aortic dissection is occasionally occurred in the motor vehicle collision. However, traumatic VSD is an uncommon sequela and most occurs in the muscular inter-ventricular septum near the apex. For the present case, the possible mechanism is the shear force injury of the aortic isthmus and compression of the ventricle at the end diastole increasing the ventricular pressure. This deserves as educational value for differential diagnosis trauma in the motor vehicle collision.

## Supplementary material

[Supplementary material](#) is available at *European Heart Journal – Case Reports*.

**Consent:** The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

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## Data availability

No new data were generated or analysed in support of this research.