Traumatic ascending aortic transection in a patient with a subdural haematoma: timing of surgery

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Figure 1. Trans-oesophageal echocardiography showed deformities matching an intramural haematoma or a haematoma around the ascending aorta but no signs of an aortic transection or dissection and no aortic valve-insufficiency

A 41-year-old man was brought into the emergency department after an accident with his motorbike. He was intubated immediately and mechanically ventilated.

The chest X-ray revealed a haemothorax on both sides and the mediastinum was too broad. The CT-scan of the brain showed a small frontal subdural haematoma, a small frontal cerebral contusion and fractures of the skull base. Cerebral ventricles were small and there was no midline shift. Trans-oesophageal

Figure 2. Angio-CT scan of the thorax shows a haematoma around the ascending aorta and the posterior intima flap, suspect for a transection.

echocardiography showed deformities matching an intramural haematoma or a haematoma around the ascending aorta but no signs of an aortic transection or dissection and no aortic valve insufficiency (figure 1, movie 1, which can be found on the Journal's website at www.cardiologie.nl).

An angio-CT scan of the thorax confirmed the presence of the haematoma around the ascending aorta but also revealed a posterior intima flap and an intramural haematoma, compatible with a transection of the ascending aorta (figure 2).

Traumatic aortic transection (TAT) is a rare injury.^{1,2} Only 15 to 20% of the victims reach the hospital alive. The injury is located in the ascending aorta in only 3% of the survivors.³⁻⁶

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Figure 3. Haematoma around the ascending aorta.

Most patients have associated injuries, sometimes with a higher treatment priority than the aortic injury. These injuries also increase the risk of aortic surgery. The combination of traumatic brain injury and transaortic transection started a discussion about the right time for surgery, because for repair cardiopulmonary bypass heparinisation was inevitable, due to the site of the transection. We weighed the risk of heparinising this patient with a recent subdural haematoma against the risk of delayed surgery.⁷ There are not many data available about delayed surgery in TAT of the ascending aorta. Although most data are about trauma at the level of the isthmus, delayed surgery in ascending aortic ruptures also seems safe when there is no tamponade or uncontrolled aortic valve regurgitation.⁸⁻¹⁰ A strict hypotensive regimen is obligatory with β -blockers and vasodilators to control systolic blood pressure and heart rate.⁴ In cases with head injury where neurological monitoring is not possible, intracranial pressure monitoring is needed to control cerebral perfusion pressure. Intensive radiological follow-up is recommended with chest X-rays and CT-scans.

Nevertheless we decided to operate on the patient five days after the accident. After sternotomy a large haematoma around the ascending aorta was visible (figure 3, movie 2).

The aorta was opened ventrally and a partial transection of 3 cm in the posterior wall could be repaired (figure 4, movie 2). After the operation the patient woke up without neurological harm. He was extubated on day 15 and discharged from the intensive care one day later. His further recovery was without complications.

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Figure 4. Transection in the posterior wall after the ascending aorta was opened.

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In this section a remarkable 'image' is presented and a short comment is given.

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