Acute aortic syndrome (AAS) includes a group of life-threatening pathologies of the aorta (acute aortic dissection, intramural hematoma and penetrating aortic ulcer). The etiology has been described to be associated with possible congenital cardiovascular defects, genetic syndromes so as nonsyndromic genetic variants.

**Clinical case I** - 76 year’s old male with a thoracic aorta rupture due to an Intramural hematoma

**Clinical Case II** - 75 year’s old male with an asymptomatic Penetrating thoracic aortic ulcer

**Clinical case III** - 50 year’s old female patient with a symptomatic Type B aortic dissection

**Discussion**

- Initial technical success was achieved in all patients.
- Nevertheless in clinical case I, the patient died of cardiac arrest two days after the procedure.
- The other two patients are still alive and kept in regular follow-up (median 2.1 years). In clinical case III, one and a half year after the procedure we noticed a proximal aortic false lumen expansion that required revision with deployment of a new proximal stent.

**Conclusion**

- Latest developments in imaging and therapeutic techniques have further highlighted the importance of prompt diagnosis of AAS which remains to be crucial for the survival of such a highly lethal disorder.
- Endovascular stent grafting has been described as a successful strategy used in these patients. The aim of treatment is to exclude the lesion (entry tear, false lumen or ulceration) and reconstruct the thoracic aortic segment.