

IMPACT OF hTEE ON THE DIAGNOSIS AND MANAGEMENT OF A HEMODYNAMICALLY UNSTABLE PATIENT WITH ANEURYSMAL SUBARACHNOID HEMORRHAGE

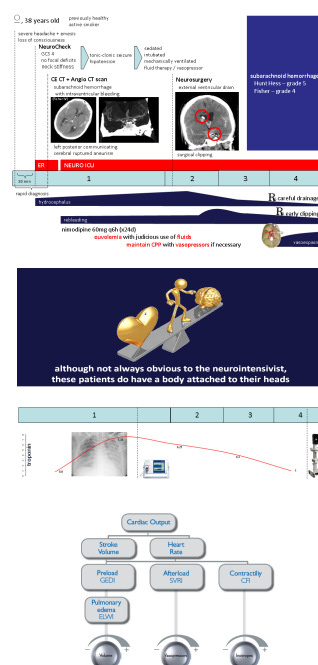
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THE PATIENT

A 38 year old woman presented to the Emergency Department soon after the onset of severe headache, emesis and loss of consciousness. She was an active smoker and has been a healthy woman with unknown medical conditions or medication, namely arterial hypertension.

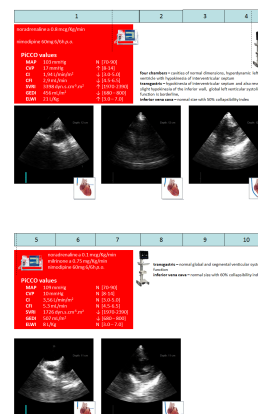
INITIAL SYMPTOMS

The symptoms began 30 minutes before hospital admission with sudden severe headache, emesis, loss of sphincter control and unconsciousness. The emergency medical team found the patient in coma (Glasgow coma score 4) with bilateral ocular deviation to the right, without motor deficits. She was brought to the hospital and the brain CT scan showed subarachnoid hemorrhage with intraventricular bleeding (Fisher score IV), swelling and moderate hydrocephalus. Fluctuating state of consciousness, seizures with associated tachycardia and hypertension were observed while in the Emergency Department and the patient was sedated, intubated, and mechanically ventilated. Angiographic-CT identified a left posterior communicating cerebral artery ruptured aneurysm and the patient underwent surgical clipping and external ventricular drain placement due to concomitant hydrocephalus. Fluid therapy and vasopressor support were started due to hypotension.



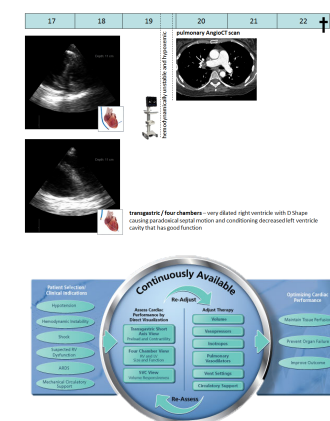
hTEE EXAM I

A hTEE probe was placed and demonstrated severe LV wall motion abnormalities, borderline left ventricular performance and superior vena cava collapsibility (SVC) index of 38%. Together with the PiCCO system, the hTEE system helped to find the right balance between fluids and vasopressors and stabilizing the patient's condition. Over the next few days, cardiac biomarkers normalized and the cardiac output progressively improved with disappearance of segmental wall abnormalities.



hTEE EXAM II

The patient followed a long recovery process. On the 19th day in the ICU, while performing a cerebral angiographic procedure, the patient suddenly became hemodynamically unstable and hypoxemic. An hTEE was performed showing a dilated RV and paradoxical interventricular septum kinetic compatible with pulmonary thromboembolism and effective treatment with heparin and fluids were started. Pulmonary CT scan confirmed the diagnosis.



CONCLUSION

In conclusion this case demonstrates the importance of the hTEE in the diagnosis, management and follow-up of cardiac complications of SAH patients due to its capability to access regional contractility abnormalities (present in a significant number of patients) as well as providing guidance on the fluid status of the patient, something that conventional monitoring can not achieve. It is consequently useful in guiding hemodynamic management in the neurocritical care setting (in particular in SAH), where segmental or regional contractility defects are common and often underestimated.