Development of a cerebral mycotic aneurysm within 5 days

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A 35-year-old man with a history of IV drug abuse and endocarditis underwent a surveillance digital subtraction angiography (DSA) after completing a prolonged course of IV antibiotics. The DSA did not show mycotic aneurysms (MA). A transesophageal echocardiogram did not demonstrate the presence of any vegetation. The patient relapsed after these diagnostic tests and used IV drugs.

Five days after the relapse, the patient developed an intense headache. A CT scan showed a right parietal intraparenchymal hematoma (figure 1) and an image suggestive of a new distal MA. A repeat DSA performed 5 days from the previous DSA demonstrated interval development of a ruptured MA (figure 2) in a distal branch of the right middle cerebral artery. Blood cultures grew *Streptococcus mitis*.

MA are usually located in distal branches of the anterior circulation and have a fusiform shape and small diameter. These angiographic characteristics make DSA the gold standard for detection of MA since CT sometimes does not detect <3 mm aneurysms.^{1,2}

The exact timing for development of MA in humans is unknown. Animal studies have demonstrated MA development as early as 24 hours after septic embolism.³ This case documents short-term MA development in a human within 5 days by means of DSA. The proven possibility of rapid MA formation may warrant diagnostic testing with DSA in high-risk

Figure 1 Head CT with a right intraparenchymal hemorrhage (arrow)

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Figure 2 Digital subtraction angiography (DSA)

(A) Lateral view of the right internal carotid DSA without evidence of any mycotic aneurysms (MA). (B) A second DSA performed 5 days later demonstrates a new MA in an M3 branch of the middle cerebral artery (circle).

patients who develop new neurologic symptoms due to intracerebral hemorrhage. DSA may also be obtained shortly before a high-risk patient will be exposed to high levels of anti-coagulation like during open-heart surgery.

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AUTHOR CONTRIBUTIONS

Edgar A. Samaniego: study concept and design, acquisition of data, study supervision. Santiago Ortega, Leal Stander, Enrique Leira: critical revision of manuscript for intellectual content.

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