Cerebral N-butyl cyanoacrylate glue–induced abscess complicating embolization

Case illustration

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KEY WORDS • abscess • arteriovenous malformation • embolization • interventional neuroradiology

Complications of arteriovenous malformation (AVM) embolization are well known, but infection of the embolized AVM nidus is extremely rare. There are only 2 reported cases of abscesses arising after embolization of cerebral AVMs.3,4 We report the third case in a patient who developed a delayed multiloculated abscess after undergoing an uneventful embolization.

In 2002, a 24-year-old nonimmunocompromised man, with a known left parietal AVM and right focal seizures, underwent embolization of the AVM in which Hystoacryl glue (N-butyl cyanoacrylate [NBCA]) was used. He presented 4 years later with a 1-week history of headache and vomiting. He was conscious, oriented, had bilateral papilledema but no focal motor or sensory deficits. Preoperative MR imaging showed multiple ring-enhancing, conglomerate mass lesions situated in the left parietal cortex (Fig. 1A). Preoperative CT scanning demonstrated the NBCA with edema and mass effect (Fig. 1B). Digital subtraction angiography revealed a deep-seated residual AVM with NBCA (Fig. 1C). There was no primary focus of infection.

The patient underwent a left parietooccipital craniotomy and excision of the granuloma with multiple abscesses and the residual AVM. He experienced complete relief of symptoms and was cured of the dominant inferior parietal AVM; no neurological deficits were present. Examination of the pus culture did not reveal any causative organism. Histopathological evaluation showed granulation tissue and an abscess wall with hyalinized vessels and residual AVM (Fig. 1D).

The duration of the procedure2 and repeated handling of the catheters3 as well as the use of large amount of foreign material or Hystoacryl glue, as in our case, probably caused the infection. Cure of the lesion can only be obtained by excision of the infected and partially embolized AVM. Antibiotic prophylaxis with all endovascular procedures is recommended.1 (DOI: 10.3171/JNS/2008/109/8/0347)

References


Fig. 1. Preoperative imaging studies.  A: Axial contrast-enhanced T1-weighted MR image showing multiple ring-enhancing lesions suggestive of multiloculated abscess.  B: Preoperative axial plain CT scan showing the NBCA glue in the nidus as well as significant surrounding edema and mass effect.  C: Preoperative digital subtraction angiogram demonstrating residual AVM and partially embolized nidus and glue at the embolization site.  D: Photomicrograph of the excised multiple abscesses and residual AVM showing hyalinized vessels and amorphous material. H & E, original magnification × 100.