

differences in symptom definitions. At a minimum, data collection should include symptoms such as fever, cough, sore throat, shortness of breath/difficulty breathing, headache, muscle pain, recent loss of taste or smell, and importantly, recollection of chills or night sweats because some individuals may not have directly measured fever during acute symptom onset. Location of exposure (if known) should also be documented when possible. One formidable challenge has been the lack of consensus on the definition of fever in COVID-19. For instance, the Centers for Disease Control and Prevention defines COVID-19 fever as 38°C/100.4°F, whereas fever was defined as 37.5°C/99.5°F in Wuhan, China.¹³ Thus, an infected individual with a temperature of 37.8°C/100.0°F would be considered asymptomatic in one country and clearly symptomatic in the other. Even within the United States, there is no consensus on the definition for COVID-19 fever. States such as Georgia, Ohio, and Pennsylvania use a cutoff value of 38°C/100.4°F, Texas uses 37.8°C/100°F, and other states, including Minnesota and Delaware, use 37.5°C/99.5°F for routine temperature screening.¹⁴ Although no single definition for fever will be perfect in every circumstance, we propose using 37.5°C/99.5°F to increase the sensitivity for detecting mildly symptomatic COVID-19 cases at the earliest stages of disease onset. Because transient spikes in body temperature can occur for a variety of reasons (environment, physical exertion, etc), specificity for detecting fever may be increased by retesting positive individuals after 20 to 30 minutes of acclimation to confirm an elevated temperature if needed. In summary, coordinated development and standardization of clinical criteria among countries, and even between different states and clinical research groups, will be necessary to reduce confusion in the field and improve the ability to compare and interpret COVID-19 study outcomes in the future.

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Amyloid Deposition in the Brain

To the Editor.—I read with interest the excellent review of “An Organ System-Based Approach to Differential Diagnosis of Amyloid Type in Surgical Pathology” in the March 2020 issue of the *Archives of Pathology & Laboratory Medicine* by Giannini and Nast.¹ The number of amyloid types and their relevance to diagnostic pathology and patient management will no doubt continue to increase, as they continuously have over the years. Although the review focused specifically on surgical pathology, my experience with cases I see in consultation and discussions with colleagues is that it is not uncommon to see amyloid-related processes in hematoma and brain biopsy specimens handled by surgical pathologists in general practice, even in large medical centers and academic centers where a neuropathologist is not available. As such, I would like to bring to the attention of the readers a few points in this context.

Cerebral amyloidoma is a rare, focal, mass-forming amyloid light chain deposition associated with clonal B-cell population without systemic disease.² Otherwise, beta-amyloid (A β) is the most common type of amyloid seen in the brain.³ Autopsy pathology and detailed discussions aside for the sake of this correspondence on practical diagnostic issues, the typical scenario is the identification of A β in the walls of the blood vessels in the background of blood clot (Figure 1), leading to the diagnosis of A β -cerebral amyloid angiopathy (A β -CAA), the most common type of CAA, originally described as congophilic angiopathy. The hemorrhage is typically lobar/hemispheric, rather than basal ganglionic, thalamic, or pontine hemorrhage of hypertension, and can be multiple metachronously or synchronously, drawing attention to their suspected nature. CAA⁴ is a common cause of cerebral hemorrhage in those older than 60 years of age. Its prevalence increases with age. Rare hereditary forms are also

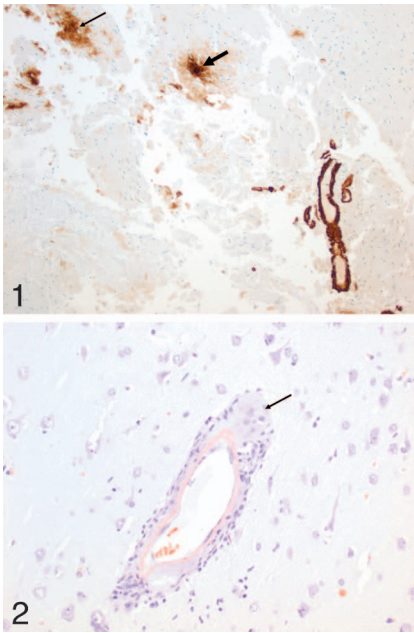


Figure 1. Cerebral amyloid angiopathy and plaque pathology. Aβ immunohistochemistry shows positivity in blood vessel walls (bottom right) as well as parenchymal deposition consistent with a mature (neuritic) plaque with a dense core (thick arrow) and a primitive plaque (thin arrow) (original magnification: ×100).

Figure 2. Cerebral amyloid angiopathy-related inflammation. Congo red highlights the amyloid in the blood vessel, which is surrounded by histiocytes, some of which are multinucleated (arrow), with no destruction of its wall. Aβ immunohistochemistry was positive (not shown) (original magnification: ×200).

present. If there are small fragments of gray matter admixed in the blood clot,

it is possible to identify the plaque pathology (Figure 1). Although the diagnosis of Alzheimer disease requires a more in-depth examination of the brain, many unsuspected patients can be brought to clinical attention, with a direction for future care for the survivors and their families. Two relatively recently characterized pathologic processes involving Aβ in the brain are CAA-related inflammation and Aβ-related angiitis.⁵ Their clinicopathologic and radiologic features are different from primary central nervous system vasculitis and pure CAA, and can be biopsied because of suspected vasculitis or their focal radiologic findings. CAA-related inflammation is an inflammatory reaction around the blood vessels containing Aβ, but without vascular destruction (Figure 2), whereas Aβ-related angiitis results in a vasculitis picture, with destruction of the blood vessel.

These Aβ pathologies are limited to the central nervous system, but with significant and frequently catastrophic consequences. Their immunohistochemical identification in otherwise mundane or unremarkable-appearing specimens can result in drastic changes in management, as well as in the lives of their families. Although no definitive treatment is available, immunomodulatory therapies and management to prevent cerebrovascular accidents can be beneficial. Immunohisto-

chemistry for Aβ, if not available in-house, can be performed as a tech-only service in commercial laboratories and is easy to interpret without major technical issues.

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