Characteristics of Spontaneous Spinal Cord Infarction and Proposed Diagnostic Criteria
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Objective:
To describe the characteristics of spontaneous spinal cord infarction (SCI) and propose diagnostic criteria.

Background:
Spinal cord infarction is often disabling, and the diagnosis can be challenging without an inciting event (eg, aortic surgery). Patients with a spontaneous SCI are often misdiagnosed as having transverse myelitis. Diagnostic criteria for SCI are lacking, hindering clinical care and research.

Design/Methods:
An institution-based search tool was used to identify patients ≥ 18 years of age with a spontaneous SCI evaluated at Mayo Clinic, Rochester, Minnesota, from 1997-2017. Controls were selected from a database of alternative myelopathy etiologies for validation of diagnostic criteria (n = 280).

Results:
Of 133 included patients with spontaneous SCI, the median (interquartile range) age was 60 (52-69) years, and 101 (76%) had vascular risk factors. Rapid onset of severe deficits reaching nadir within 12 hours was typical (102 [77%]); some had a stuttering decline (31 [23%]). Sensory loss occurred in 126 patients (95%), selectively affecting pain/temperature in 49 (39%). Initial MRI spine was normal in 30 patients (24%). Characteristic T2-hyperintense patterns included owl eyes (82 [65%]) and pencil-like hyperintensity (50 [40%]); gadolinium enhancement (37 of 96 [39%]) was often linear in the anterior gray matter. Confirmatory MRI findings included diffusion restriction (19 of 29 [67%]), adjacent dissection/occlusion (16 of 82 [20%]), and vertebral body infarction (11 [9%]). Cerebrospinal fluid showed mild inflammation in 7 of 89 patients (8%). Diagnostic criteria was proposed for definite, probable, and possible SCI. In the validation cohort (n = 280), 9 patients (3%) met criteria for possible SCI, and none met criteria for probable SCI.

Conclusions:
This large series of spontaneous SCIs provides clinical, laboratory, and MRI clues to SCI diagnosis. The diagnostic criteria proposed here will aid clinicians in making the correct diagnosis and ideally improve future care for patients with SCI.