Teaching NeuroImage: Ultrafast Dynamic CT Myelography for the Identification of Leakage Level in Multiple Meningeal Diverticula

Author(s):
Bernardo Corrêa de Almeida Teixeira, MD, PhD1,2; Afonso Henrique de Araçao, MD1; Camila Carneiro Ferreira, MD1; Mohammed Ali Hussein, MD1; Kristofer Fingerle Ramina, MD1

Corresponding Author:
Bernardo Corrêa de Almeida Teixeira, berteteixeira@gmail.com

Affiliation Information for All Authors: 1. Instituto de Neurologia de Curitiba, Paraná, Brazil; 2. Universidade Federal do Paraná, Brazil

Equal Author Contribution:

Contributions:
Bernardo Corrêa de Almeida Teixeira: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data
Afonso Henrique de Araçao: Major role in the acquisition of data; Analysis or interpretation of data
Camila Carneiro Ferreira: Major role in the acquisition of data; Analysis or interpretation of data
Mohammed Ali Hussein: Major role in the acquisition of data; Analysis or interpretation of data
Kristofer Fingerle Ramina: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Analysis or interpretation of data

Neurology® Published Ahead of Print articles have been peer reviewed and accepted for publication. This manuscript will be published in its final form after copyediting, page composition, and review of proofs. Errors that could affect the content may be corrected during these processes.
A 26 year-old woman presented with symptoms of orthostatic headache for 1 year that temporarily improved after 2 non-targeted epidural blood patches. Despite this intervention, she had persistent radiological signs of CSF hypotension (Figure 1) and multiple meningeal diverticula on conventional CT myelography (Figure 2, A and C). Ultrafast dynamic CT myelography confirmed only one T8-T9 right-side meningeal diverticula in the initial phases (Figure 2, B and D), with later opacification of the remaining diverticula. Surgical treatment resulted in symptom resolution.

Ultrafast dynamic CT myelography can identify ventral dural tears, leaking meningeal diverticula and CSF-venous fistula, with superior contrast and temporal resolution than MRI. Greater radiation exposure is necessary\(^\text{1,2}\) and should be balanced against diagnostic precision.
REFERENCES


**Figure 1. Brain MRI.** Midline sagittal T1-weighted contrast enhanced images showing diffuse venous sinus engorgement (stars), pituitary enlargement with effacement of the suprasellar cistern (short arrows) and sagging of posterior fossa structures with reduced mamilloponsine distance (long arrows). MRI at first presentation (A) and one year latter after relapsing symptoms and before surgical treatment (B).
Figure 2. CT myelography. Coronal conventional CT myelography shows multiple meningeal diverticula (long arrows) and leakage of intrathecal contrast to the epidural spaces (short arrows) (A, C). Ultrafast dynamic myelography shows opacification of only one large diverticula at the right side of T8-T9 (B, D) in the initial phases, with later opacification of the remaining diverticula (not shown).
Teaching NeuroImage: Ultrafast Dynamic CT Myelography for the Identification of Leakage Level in Multiple Meningeal Diverticula
Bernardo Corrêa de Almeida Teixeira, Afonso Henrique de Aragão, Camila Carneiro Ferreira, et al.
Neurology published online November 2, 2022
DOI 10.1212/WNL.0000000000201497

This information is current as of November 2, 2022

Updated Information & Services
including high resolution figures, can be found at:
http://n.neurology.org/content/early/2022/11/02/WNL.0000000000201497.citation.full

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
- Cerebrospinal Fluid
  http://n.neurology.org/cgi/collection/cerebrospinal_fluid
- CT
  http://n.neurology.org/cgi/collection/ct
- Low pressure syndrome
  http://n.neurology.org/cgi/collection/low_pressure_syndrome

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
http://www.neurology.org/about/about_the_journal#permissions

Reprints
Information about ordering reprints can be found online:
http://n.neurology.org/subscribers/advertise