

CADTH Reference List

Digital Subtraction Myelography for Cerebrospinal Fluid Leak Identification

November 2022

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Cite As: *Digital Subtraction Myelography for Cerebrospinal Fluid Leak Identification*. (CADTH reference list: summary of abstracts). Ottawa: CADTH; 2022 Nov.

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Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

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Key Messages

- We did not find any studies on the diagnostic test accuracy of digital subtraction myelography for the identification of patients with cerebrospinal fluid leaks.
- Other references on this topic that may be of interest are listed in the report.

Research Question

What is the diagnostic test accuracy of digital subtraction myelography for the identification of patients with cerebrospinal fluid leaks?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concept was digital subtraction myelography. No filters were applied to limit the retrieval by study type. A supplemental search was completed, where the main search concepts were cerebrospinal fluid leaks and diagnostic imaging. CADTH-developed search filters were applied to the supplemental search to limit retrieval to health technology assessments, systematic reviews, meta-analyses, indirect treatment comparisons, any types of clinical trials or observational studies, or diagnostic test accuracy. Where possible, retrieval was limited to humans. The search was completed on November 7, 2022, and limited to English-language documents published since January 1, 2012. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in [Table 1](#). Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications.

Results

No relevant health technology assessments, systematic reviews, randomized controlled trials, or non-randomized studies were identified regarding the diagnostic test accuracy of digital subtraction myelography for the identification of patients with cerebrospinal fluid leaks.

Table 1: Selection Criteria

Criteria	Description
Population	Patients suspected of cerebrospinal fluid leak
Index test	Digital subtraction myelography
Comparator test	MRI with gadolinium
Reference standard	CT (conventional or dynamic)
Outcomes	Diagnostic test accuracy (e.g., sensitivity, specificity, positive predictive value, negative predictive value, leak location, provider experience impact)
Study designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies

References of potential interest that did not meet the inclusion criteria are provided in [Appendix 1](#).

Overall Summary of Findings

No relevant literature was found regarding the diagnostic test accuracy of digital subtraction myelography for the identification of patients with cerebrospinal fluid leaks; therefore, no summary can be provided.

References

Health Technology Assessments

No literature identified.

Systematic Reviews

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Appendix 1: References of Potential Interest

Systematic Reviews

Alternative Comparator

1. D'Antona L, Jaime Merchan MA, Vassiliou A, et al. Clinical presentation, investigation findings, and treatment outcomes of spontaneous intracranial hypotension syndrome: a systematic review and meta-analysis. *JAMA Neurol*. 2021 03 01;78(3):329-337. [PubMed](#)
2. Shlobin NA, Shah VN, Chin CT, Dillon WP, Tan LA. Cerebrospinal fluid-venous fistulas: a systematic review and examination of individual patient data. *Neurosurgery*. 2021 04 15;88(5):931-941. [PubMed](#)

Non-Randomized Studies

Unclear Comparator

3. Schievink WI, Maya M, Prasad RS, et al. Spontaneous spinal cerebrospinal fluid-venous fistulas in patients with orthostatic headaches and normal conventional brain and spine imaging. *Headache*. 2021 02;61(2):387-391. [PubMed](#)
4. Schievink WI, Moser FG, Maya MM, Prasad RS. Digital subtraction myelography for the identification of spontaneous spinal CSF-venous fistulas. *J Neurosurg Spine*. 2016 Jun;24(6):960-964. [PubMed](#)

No Comparator

5. Farb RI, Nicholson PJ, Peng PW, et al. Spontaneous intracranial hypotension: a systematic imaging approach for CSF leak localization and management based on MRI and digital subtraction myelography. *AJNR Am J Neuroradiol*. 2019 04;40(4):745-753. [PubMed](#)
6. Hoxworth JM, Trentman TL, Kotsenas AL, Thielen KR, Nelson KD, Dodick DW. The role of digital subtraction myelography in the diagnosis and localization of spontaneous spinal CSF leaks. *AJR Am J Roentgenol*. 2012 Sep;199(3):649-653. [PubMed](#)

Case Reports

7. Gharehbagh SS, Rasmussen BK, Smilkov E, Jensen RH. Spontaneous intracranial hypotension presenting with progressive cognitive decline. *BMJ Case Rep*. 2021 Jul 21;14(7):21. [PubMed](#)
8. Nagesh CP, Devaraj R, Joshi G, Shafi P, Krishna KN, Satischandra P. The importance of repeat digital subtraction myelography in the diagnosis of cryptogenic CSF-venous fistula causing spontaneous intracranial hypotension. *Interv Neuroradiol*. 2021 Oct;27(5):727-732. [PubMed](#)

Review Articles

9. Kranz PG, Gray L, Malinzak MD, Houk JL, Kim DK, Amrhein TJ. CSF-venous fistulas: anatomy and diagnostic imaging. *AJR Am J Roentgenol*. 2021 12;217(6):1418-1429. [PubMed](#)
10. Wang SJ. Spontaneous intracranial hypotension. *Continuum (Minneap Minn)*. 2021 06 01;27(3):746-766. [PubMed](#)