

DISEKCIJA AORTE: PREGLED SLIKOVNIH METOD IN SMERNIC

AORTIC DISSECTION: OVERVIEW OF IMAGING METHODS AND GUIDELINES

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IZVLEČEK

Uvod in namen: Disekcija aorte je potencialno življenjsko ogrožajoče stanje, pri katerem pride do razslojitve žilne stene aorte. S tem je omogočen pretok po prvotnem in dodatnem, t. i. lažnem volumnu žile. Disekcije ločimo glede na mesto njihovega nastanka. Po Stanfordski klasifikaciji Tip A vključuje disekcijo ascendentne aorte, medtem ko tip B ne vključuje prizadetosti ascendentne aorte. Ključnega pomena je prepoznavanje znakov, med katere spada huda prsna bolečina, ki se širi vzdolž disekcije. Z različnimi diagnostičnimi postopki moramo potrditi diagnozo, opredeliti mesto disekcije, prizadetost vej aorte ter morebitno prizadetost koronarnih arterij. Računalniška tomografija in magnetnoresonančno slikanje sta glavni tehniki slikanja pri diagnosticiranju in spremljanju disekcije aorte. Namen članka je pregled literature in predstavitev tehničnih izzivov pri diagnosticiranju disekcije aorte.

Metode: Uporabljena je bila deskriptivna metoda in metoda pregleda literature. S pomočjo spletnega brskalnika dLib, Google učenjak in PubMed Central sem iskala slovenske in tuje članke s ključnimi besedami disekcija aorte, diagnosticiranje, računalniška tomografija.

Rezultati: Računalniška tomografija in magnetnoresonančno slikanje omogočata dobro prostorsko in kontrastno ločljivost slik in s tem natančnejšo oceno aorte. Protokoli diagnosticiranja z računalniško tomografijo predlagajo slikanje nativne oz. brezkontrastne faze, ki ji sledita arterijska ter pozna faza celotne aorte. Priporoča se uporaba tehnike slikanja z elektrokardiogramom, ki zagotavlja slike z manj artefakti pulziranja srca in aorte. Pozno fazo slikanja izvedemo, ko pričakujemo ishemijo organov ali okončin, ki so izključeni iz krvnega obtoka. Alternativa računalniški tomografiji pri spremljanju kronične disekcije je magnetnoresonančno slikanje, ki ima prednost v meritvi pretoka aorte in odsotnosti ionizirajočega sevanja.

Razprava in zaključek: Dokazovanje disekcije zahteva hitre in natančne diagnostične postopke. Pomembno je slediti smernicam in priporočilom, ki nas opozarjajo na morebitne težave pri izvedbi preiskav in nas usmerjajo k čim bolj kakovostnim diagnostičnim slikam.

Ključne besede: disekcija aorte, diagnosticiranje, računalniška tomografija

ABSTRACT

Introduction and purpose: Aortic dissection is a potentially life-threatening condition in which there is a separation of the vascular wall of the aorta. This enables blood flow both within the original and an additional, so-called false lumen of the vessel. Dissections are classified based on the location of their origin. According to the Stanford classification, Type A involves dissection of the ascending aorta, while Type B does not involve dissection of the ascending aorta. It is crucial to recognize signs such as severe chest pain that radiates along the dissection. Various diagnostic procedures are required to confirm the diagnosis, determine the site of the dissection, the involvement of aortic branches, and the possible impairment of coronary arteries. Computed tomography and magnetic resonance imaging are the main imaging techniques for diagnosing and monitoring aortic dissection. The purpose of this article is to review existing literature and present the technical challenges in diagnosing aortic dissection.

Methods: A descriptive and literature review method was used. Using the dLib online platform, Google Scholar, and PubMed Central, I searched for Slovenian and foreign articles using keywords such as aortic dissection, diagnosis, and computed tomography.

Results: Computed tomography and magnetic resonance imaging provide excellent spatial and contrast resolution, allowing for a more precise assessment of the aorta. Protocols for diagnosing with computed tomography suggest imaging in native or non-contrast phases, followed by arterial and late phases of the entire aorta. The use of electrocardiogram-gated imaging techniques is recommended to provide images with fewer artifacts from heart and aortic pulsations. Late-phase imaging is performed when ischemia of organs or limbs excluded from blood flow is expected. Magnetic resonance imaging serves as an alternative to computed tomography in monitoring chronic dissection, offering the advantage of measuring aortic flow and avoiding ionizing radiation.

Discussion and conclusion: Detecting aortic dissection requires rapid and accurate diagnostic procedures. It is important to adhere to guidelines and recommendations that alert us to potential challenges in performing examinations and guide us towards obtaining the highest quality diagnostic images possible.

Keywords: aortic dissection, diagnosis, and computed tomography

LITERATURA / REFERENCES

- Fleischmann D, Afifi RO, Casanegra AI, et al. (2022). Imaging and Surveillance of Chronic Aortic Dissection: A Scientific Statement From the American Heart Association. *Circ Cardiovasc Imaging*. doi: 10.1161/HCI.0000000000000075. <https://pubmed.ncbi.nlm.nih.gov/35172599/>.
- Klemen L, Koželj M (2008). Disekcija aorte. *Medicinski razgledi*, letnik 47, številka 2, str. 151–159. URN:NBN:SI:DOC-XQI30DYH from <http://www.dlib.si>.
- Ko P J, Goldstein M J, Latson A L Jr (2021). Chest CT Angiography for Acute Aortic Pathologic Conditions: Pearls and Pitfalls *RadioGraphics*. 41:2, 399–424. <https://pubs.rsna.org/doi/epdf/10.1148/rg.2021200055>.
- Shen J, Mastrodicasa D, Tse JR, Fleischmann D (2022). Imaging Challenges in Chronic Dissection. *Semin Roentgenol*. 57(4):345-356. doi: 10.1053/j.ro.2022.06.002. Epub 2022 Jul 30. <https://pubmed.ncbi.nlm.nih.gov/36265986/>.
- Wang J, Xie J, Meng X, Gong X (2022). Comparison of CT and MRI in imaging diagnosis of aortic dissection. DOI: <https://doi.org/10.1590/fst.23621>. <https://www.scielo.br/j/cta/a/FZPKtJTPYsKkyvqmHjdktdBD/#>.