

The Role of Dynamic and Pseudodynamic Magnetic Resonance Research in the Diagnosis of Temporomandibular Joint Diseases

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Abstract

Diseases of the temporomandibular joint in recent years are increasingly common in the population. Magnetic resonance imaging (MRI) in the position of open and closed mouth is a routine examination of these patients. The article presents a study of a group of orthopedic patients using an additional dynamic protocol, which allows to evaluate both morphology and the sequence of movements in the joint. Variants of the position of the intraarticular disk and its form in patients with various stages of dysfunction are considered, and the indisputable importance of pseudo-dynamic MRI and real-time studies for patients with intraarticular meniscus adhesion and hypermobility of articular condyle of the mandible are given.

Key words: Temporomandibular Joint, Temporomandibular Dysfunction, Real-Time Magnetic Resonance Imaging, Pseudo-Kinematous Magnetic Resonance Imaging.

References

1. *Yaremenko A. I., Korolev V. O.* Low-invasive surgical techniques of treatment of diseases of a temporal and mandibular joint. Review of scientific literature Messenger of the Novgorod state university. 2015. No. 2 (85). P. 93–95 (in Russian).
2. *Alarabawy R. A., El Ahwal H. M., El Sergany M. A. E. S., Mehrez W. W.* Magnetic resonance imaging evaluation of temporo-mandibular joint disorders, criterial analysis and significance in comparison with arthroscopy. The Egyptian Journal of Radiology and Nuclear Medicine. 2016. V. 47. No. 2. P. 467–475.
3. *Devaraj S. D., Pradeep D.* Internal Derangement of temporomandibular joint – a review. IOSR Journal of Dental and Medical Sciences. 2014. V. 13. No. 3. P. 66–73.
4. *Tatli U., Machon V.* Internal derangements of the temporomandibular joint: diagnosis and management. Temporomandibular joint pathology-current approaches and understanding. Ed. by Emes Y. Intech Open. 2017. P. 436–476.
5. *Litko M., Berger M., Szkutnik J., Różyło-Kalinowska I.* Correlation between direction and severity of temporomandibular joint disc displacement and reduction ability during mouth opening. J. Oral. Rehabil. 2017. V. 44. No. 12. P. 957–963.
6. *Sun Q., Dong M. J., Tao X. F., Yu Q., Li K. C., Yang C.* Dynamic MR imaging of temporomandibular joint: an initial assessment with fast imaging employing steady-state acquisition sequence. Magnetic Resonance Imaging. 2015. V. 33. No. 3. P. 270–275.
7. *Hasan M. A., Abdelrahman T. E. F.* MRI evaluation of TMJ internal derangement: Degree of anterior disc displacement correlated with other TMJ soft tissue and osseous abnormalities. The Egyptian Journal of Radiology and Nuclear Medicine. 2014. V. 45. No. 3. P. 735–744.

8. *Kowalchuk R. M., Kowalchuk R. O., Kaplan-List K., Caplash J. M., Block P.* Temporomandibular joint internal derangement score (TIDS): novel magnetic resonance imaging assessment score and its relation to invasive treatment in patients with clinical temporomandibular joint pathology. *Heliyon*. 2018. V. 4. No. 11. P. e00916.
 9. *Ikeda R., Ikeda K.* Directional characteristics of incipient temporomandibular joint disc displacements: a magnetic resonance imaging study. *Am. J. Orthod. Dentofac. Orthop.* 2016. V. 149. No. 1. P. 39–45.
 10. *Barchetti F., Stagnitti A., Gloriosos M., Al Ansari N., Barchetti G., Pranno N.* Static and dynamic MR imaging in the evaluation of temporomandibular disorders. *Eur. Rev. Med. Pharmacol. Sci.* 2014. V. 18. P. 2983–2987.
 11. *Vogl T.J., Lauer H.C., Lehnert T.* The value of MRI in patients with temporomandibular joint dysfunction: correlation of MRI and clinical findings. *Eur. J. Radiol.* 2016. V. 85. P. 714–719.
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