

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.elsevier.com/locate/pjnns>

Letter to Editor

Three-dimensional fast imaging employing steady-state acquisition magnetic resonance imaging for lumbar synovial cysts



Keywords:

Magnetic resonance imaging

3D-FIESTA

Synovial cysts

Spine

Dear Editor,

A 48-year-old woman, with 3 months history of right leg pain and paresthesias, was admitted to our department. Neurological examination showed sensory loss on lateral surface of the right leg. Magnetic resonance imaging (MRI) revealed the presence of a cystic round-shaped lesion at L4-L5 level (Fig. 1A and B). Because of some doubts about the extra-intradural location, the MRI was completed with three-dimensional fast imaging employing steady-state acquisition (3D-FIESTA) that confirmed the extradural origin of the lesion (Fig. 1C and D). The patient underwent an interlaminar microsurgical approach with the complete removal of the

cyst. Post-operative course was uneventful with complete recovery within 2 weeks.

To our knowledge, we report the first 3D-FIESTA image of a synovial cyst. In our case 3D-FIESTA sequences were useful to confirm the extradural origin of lesion and the diagnosis of synovial cyst. Synovial cysts commonly arise from degeneration of the spinal facet joints and are usually extradural in location. Sometimes they can be difficult to differentiate from cystic neurofibromas and from perineural or arachnoid cysts [1]. Recently, it has been reported that 3D-FIESTA was useful for studying the anatomy and pathology of cranial nerves and spinal cord [2,3]. Application of these sequences to peripheral nerve such as lumbar nerve roots was investigated by Nemoto et al., who showed that 3D FIESTA sequences offer an excellent view of the nerve root from foraminal to extraforaminal space providing more precise information of the lumbar nerve root entrapment in the foraminal zone, compared to conventional sequences [4].

We confirm the usefulness of 3D-FIESTA sequences to better define the intra-extradural location of a spinal lesion. This data is useful in the pre-operative differential diagnosis

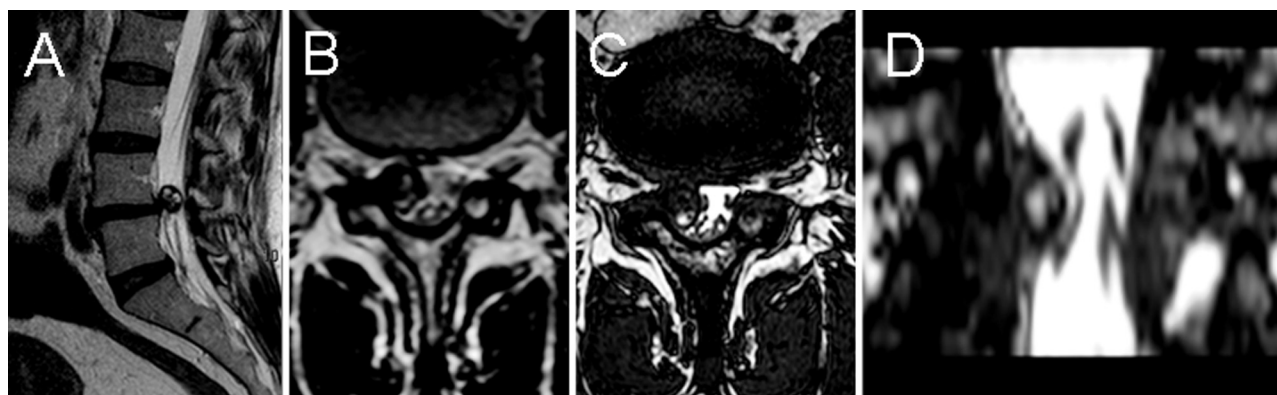


Fig. 1 – Sagittal (A) and axial (B) T2-weighted magnetic resonance images showing a hypo-hysointense cystic round-shaped lesion adjacent to the L4-L5 right facet joint. Axial (C) and coronal (D) 3D-FIESTA acquisitions, confirming the extradural origin of the lesion and the severe compression of the right L5 nerve root and of the dural sac.

and is crucial to plan the correct surgical approach. Obviously further studies are needed to confirm our first observation.

Conflict of interest

None declared.

Acknowledgement and financial support

None declared.

Ethics

The work described in this article has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to Biomedical journals.

REFERENCES

- [1] Hoover J, Pirris S. Synovial cyst mimicking an intraspinal sacral mass. *Case Rep Neurol Med* 2014;2014:953579.
- [2] Amemiya S, Aoki S, Ohtomo K. Cranial nerve assessment in cavernous sinus tumors with contrast-enhanced 3D

fastimaging employing steady-state acquisition MR imaging. *Neuroradiology* 2009;51(7):467–70.

- [3] Shishido H, Takashima H, Takebayashi T, Akatsuka Y, Imamura R, Nagahama H, et al. Visualization of the foramen intervertebral nerve root of cervical spine with 3.0 Tesla magnetic resonance imaging: a comparison of three-dimensional acquisition techniques. *Nihon Hoshasen Gijutsu Gakkai Zasshi* 2014;70(7):670–5.
- [4] Nemoto O, Fujikawa A, Tachibana A. Three-dimensional fast imaging employing steady-state acquisition MRI and its diagnostic value for lumbar foraminal stenosis. *Eur J Orthop Surg Traumatol* 2014;24(Suppl 1):S209–14.

Nicola Montano*

Alessandro Izzo

Institute of Neurosurgery, Catholic University, Rome, Italy

*Corresponding author at: Institute of Neurosurgery, Catholic University, Largo Agostino Gemelli, 8, 00168 Rome, Italy.

fax: +39 063051343

E-mail address: nicolamontanomd@yahoo.it (N. Montano)

Received 22 July 2016

Accepted 8 August 2016

Available online 18 August 2016

<http://dx.doi.org/10.1016/j.pjnns.2016.08.002>

0028-3843/

© 2016 Polish Neurological Society. Published by Elsevier Sp. z o.o. All rights reserved.