THE VALUE OF MR NEUROGRAPHY FOR EVALUATING ABNORMALITIES OF THE LUMBOSACRAL PLEXUS: A 5-YEAR CLINICAL EXPERIENCE.

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Introduction
MR Neurography (MRN) of the lumbosacral plexus is a relatively new technique offering an accurate evaluation of nerve abnormalities.

Methods
We retrospectively studied 81 cases performed in a 5-year period. MR protocol included 2D T1W, T2W Fat-Saturated (FS), and 3D isotropic STIR sequences. T1W-FS images, post gadolinium administration, were acquired in most cases. Imaging findings suggestive of an abnormality were signal changes, nerve enlargement, deviation, or discontinuity, disruption of fascicular pattern (Fig. 1) and contrast enhancement. Acute and chronic muscle denervation was also evaluated assessing the localization of the level of nerve abnormality.

Results
Detailed depiction of the anatomy of L2-S4 nerve roots, lumbosacral plexus and branches was achieved in vast majority of patients.
Nerve/plexus compression was noticed in 12 patients due to pelvic lesions, or primary peripheral nerve tumors. Radiation induced malignant transformation (Fig. 3) was noticed in one case.
Nerve injuries were noticed in 11 patients, whilst Wallerian degeneration and neuroma formation in 6 and 3 of these cases respectively.
Inflammation (Fig. 2) was noticed in 17 patients, multiple plexus involvement in 4 cases of Chronic Inflammatory Demyelinating Polyneuropathy and regression in follow up exams in 4 patients.

Discussion
MRN of the lumbosacral plexus and its branches supplements clinical evaluation and electrodiagnostic testing, comprising a reproducible and objective technique for the localization and the evaluation of peripheral nerve abnormalities.

Conclusion
MRN of the lumbosacral plexus is a valuable tool in depicting nerve pathologies, including compression, trauma, tumor, or inflammation.

Fig. 1 Normal nerve fascicular pattern
Fig. 2

64y.o. F ovarian cancer, post surgery, chemo-radiation plexitis

Fig. 3

Post radiation neuroma (and eventually malignant transformation)