

EDITOR'S PAGE SCIWORA

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This October issue of *Spinal Cord* contains interesting studies on animal research, physiotherapy, FES, pain, pulmonary and urologic function, cardiology, imaging, outcome, epidemiology, quality of life. It also contains a study on SCIWORA.

SCIWORA is, as you know, a group of spinal injury characterized by clinical findings of spinal cord dysfunction without the presence of any fracture, dislocation or ligamentous injury on plain radiographies. SCIWORA constitutes around 30–40% of all paediatric spinal injuries. This may be explained because ligamentous structures of children are more elastic and their osseous structures immature. The flexibility of the spine decreases with age. SCIWORA happens in $< \pm 10\%$ of adult SCI. Segmental subluxations resulting from high velocity accidents (mainly motor vehicle accidents and falls) cause severe injuries to the spinal cord and are spontaneously reduced afterwards. Compression of the cord during such sudden hyperflexion occurs anteriorly with posterior longitudinal ligament and mildly protruded discs and posteriorly with the laminae and ligamentum flavum. Spinal stenosis and intervertebral disc disease are thus important conditions for the development of adult SCIWORA, which is more frequent in the male middle and advanced age groups. As there is no osseous or ligamentous injury, there are no abnormalities on plain radiographies or computed tomography. Magnetic resonance imaging (MRI) reveals SCL.

There is a list of publication on SCIWORA published in *Spinal Cord* over the years describing the clinical picture, the causes, the pathophysiology and the role of MRI:

- Gupta, S K; Rajeev, K; Khosla, V K; Sharma, B S; Paramjit; Mathuriya, S N, *et al.* Spinal cord injury without radiographic abnormality in adults. *Spinal Cord* 1999; 37: 726-729.
- Ergun A and Oder W. Pediatric care report of spinal cord injury without radiographic abnormality (SCIWORA): case report and literature review. *Spinal Cord* 2003; 41: 249-253.
- Neva MH, Roeder CP, Felder U, Kiener B, Meier W, Perler M, *et al.* Neurological outcome, working capacity and prognostic factors of patients with SCIWORA. *Spinal Cord* 2012; 50: 78-80.
- Mohanty SP, Bhat NS, Singh KA, Bhushan M, *et al.* Cervical spinal cord injuries without radiographic evidence of trauma: a prospective study. *Spinal Cord*, 2013; 51: 815-181.
- Boese CK and Lechler P. Cervical spinal cord injuries without radiographic evidence of trauma: a prospective study. *Spinal Cord* 2014; 52: 84.
- Sun LQ, Shen Y, and Li YM. Quantitative magnetic resonance imaging analysis correlates with surgical outcome of cervical spinal cord injury without radiologic evidence of trauma. *Spinal Cord* 2014; 52: 541-546.
- Liu Q, Liu Q, Zhao J, Yu H, Ma X, and Wang L. Early MRI finding in adult spinal cord injury without radiologic abnormalities does not correlate with the neurological outcome: a retrospective study. *Spinal Cord* 2015; 53: 750-753.
- Boese CK and Lechler P. Early MRI finding in adult spinal cord injury without radiologic abnormalities does not correlate with the neurological outcome: a retrospective study. *Spinal Cord* 2015; 53: 778.
- Carroll T, Smith CD, Liu X, Bonaventura B, Mann N, Liu J, *et al.* Spinal cord injuries without radiologic abnormality in children: a systematic review. *Spinal Cord* 2015; 53: 842-848.

Both the inclusion of precisely classified early MRI findings as well as the presentation of the American Spinal Injury Association Impairment Scale grades at admission, discharge and final follow up on individual level should be the minimum standard for future reports on SCIWORA.

We consider SCIWORA publications in *Spinal Cord* as a good example of proper description of a rare but important entity, critically commented and increasing the general understanding of the condition.