21. Neumann P, Nordwall A, Osvalder A-L (1995) Traumatic instability of the lumbar spine. A dynamic in vitro study of flexion-distraction injury. *Spine* 20: 1111–1121
22. Neumann P, Osvalder A-L, Nordwall A, Lövsund P, Hansson T (1992) The mechanism of initial flexion-distraction injury in the lumbar spine. *Spine* 17: 1083–1090
23. Panjabi MM, Duranceau JS, Oxland TR, Bowen CE (1989) Multidirectional instabilities of traumatic cervical spine injuries in a porcine model. *Spine* 14: 1111–1115
24. Pearcy M, Portek I, Shepherd J (1984) Three-dimensional x-ray analysis of normal movement in the lumbar spine. *Spine* 9: 294–297
25. Reid OC, Henderson R, Saboe L, Milles IDR (1987) Etiology and clinical course of missed spine fractures. *J Trauma* 27: 980–986
26. Rennie W, Mitchell N (1973) Flexion distraction fractures of the thoracolumbar spine. *J Bone Joint Surg Am* 55: 386–390
27. Smith WS, Kaufer H (1969) Patterns and mechanisms of lumbar injuries associated with lap seat belts. *J Bone Joint Surg Am* 51: 239–254
28. Stagnara P, DeMAuroy JC, Dran G, Gonon GP, Costanzo G, Dimnet J, Pasquet A (1982) Reciprocal angulation of vertebral bodies in a sagittal plane: approach to references for the evaluation of kyphosis and lordosis. *Spine* 7: 335–342
29. White AA III, Panjabi MM (1990) *Clinical biomechanics of the spine*, 2nd eds. JB Lippincott, Philadelphia

REVIEWER'S COMMENT

The more severely ill or injured is the patient, the less time and opportunity will be available for a full radiological examination, and the greater the need for surgeons and radiologists to extract all available information from the scanty initial radiological material, and not to miss unexpected yet essential diagnostic information. The authors

of this paper remind us of the importance of looking at interspinous distances on AP projections of the spine, and they provide the reader with practical information on how to reliably distinguish between normal and abnormal distances. Their examples convincingly demonstrate that diagnosis of pathologically increased interspinous distance may provide a timely warning of serious disorder of the spine, which may otherwise be overlooked, with sometimes irreversible consequences.

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