

Title: VARIATIONS OF THE L₅-S₁ INTERLAMINAR SPACE IN SCOLIOSIS:
BEST APPROACH FROM THE CONVEX SIDE

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Introduction. Since the interlaminar space (ILS) between L₅ and S₁ is usually the largest^{1,2}, the paramedian approach to lumbar puncture (LP) is more likely to be successful at this particular level. However, significant deformities of the space may occur in scoliosis, making attempts to LP difficult by this route. A comparison was made between the ILS area of patients with scoliosis and patients with normal lumbar spines.

Methods. AP views of lumbosacral spines were obtained from 98 patients with idiopathic scoliosis of the lumbothoracic spine and 98 other patients with radiologically normal spines. All patients were between the ages of 18 and 71 years old. The area recognized as ILS L₅-S₁ was delineated on a cuadrangular transparent paper and measured in every case, with demarkation of the midline as to separate the areas of each half of the ILS. Statistical analysis was made comparing the ILS areas found in normal and scoliotic spines. In the latter group, the size of the areas of the concave and convex halves were also compared.

Results. The mean ages, surface area of ILS L₅-S₁, and standard deviations are shown in Table 1. Convexity to the right occurred in 79% of the patients with scoliosis. The mean surface area of the convex side averaged 128.13 mm² (S.D.±25.53), while the mean area on the concave half was 108.54 mm². Nevertheless, the correlation coefficient was 0.789. Greater irregularity of the ILS was noted in the scoliotic patients, that in those with normal spines that tended to have smoother, more rounded ILS.

Discussion. The paramedian approach to LP is thought to be easier to perform than through the midline, without requiring extreme spine flexion^{1,2}. Occasionally, in scoliotic patients, this approach is difficult. Depending on the severity of the lesions, ILS at the level of L₅-S₁ tend to be smaller and more irregular than in patients with normal lumbosacral spines. The halves on the convex side of the curvature tend to be wider. If available, an AP roentgenogram of the lumbosacral spine may be useful to determine access. All things considered, paramedian or lateral approaches to LP, in patients with scoliosis may be more successful if attempted from the convex side.

References.

1. Lee JA, Atkinson RS: Sir Robert Macintosh's Lumbar Puncture and Spinal Analgesia: intradural and extradural. Churchill Livingstone, Edinburgh, 1983, pp 164-172.
2. Ash WH: The lateral approach for spinal anesthesia. Anesthesiology 16:445-453, 1955.

	PATIENTS MEAN AGE	MEAN SURFACE AREA OF L ₅ -S ₁
NORMAL SPINES	34.65 (SD± 8.61)	304.74 mm ² (SD±27.61)
	N.S.	p = < 0.05
SCOLIOTIC SPINES	39.96 (SD±12.4)	232.67 mm ² (SD±23.46)