

Sonographic evaluation of Sciatic Nerve in individuals with S1 radicular symptoms

Simona Kurková^{1,2}, Stanislav Machač^{1,2}, Martin Kynčl^{1,2} and Kamal Mezian¹

¹Charles University, Czech Republic

²Motol University Hospital, Czech Republic

Purpose: This study aimed to evaluate the morphological changes of the sciatic nerve in the dorsal thigh in terms of its Cross-Section Area (CSA) in patients with unilateral S1 radicular symptoms.

Methods: This observational study was performed in fifteen participants (12 females, 3 males; mean age 46.9±9.9 years; mean body mass index 26.5±4.7 kg/m²) diagnosed with unilateral S1 radiculopathy. The CSA of the sciatic nerve was measured and evaluated bilaterally by ultrasound imaging at three levels of the dorsal thigh; at the Gluteal Fold (GF), Proximal Quarter-Thigh (PQT), and Mid-Thigh (MT). The values for the symptomatic and asymptomatic sides of each patient were compared.

Results: The mean CSA values of the symptomatic (39.6 ± 15.6 mm²) and the asymptomatic (32.9 ± 11.2 mm²) sciatic nerves at the level of the GF were measured. A significant increase of the CSA at this level on the patients' symptomatic side was observed (p = 0.02; d = 0.49, i.e. medium size of the effect). At PQT and MT levels, the side-to-side difference did not reach a level of significance.

Conclusion: An enlargement of the nerve CSA at the gluteal fold level was observed on the side symptomatic of sciatica, while those changes were generally present during the period when the patient has complained of the subjective symptoms. Ultrasound imaging may be a useful, available tool to assess morphological changes of the sciatic nerve in S1 radicular symptomatic patients.



Figure 1. Transverse ultrasound image of the sciatic nerve and muscles in the dorsal thigh ST; semitendinosus muscle, BF; biceps femoris muscle, AM; adductor magnus muscle, arrow; sciatic nerve.

Biography

Simona Kurkova is a PhD student in the Department of Rehabilitation and Sports Medicine, Second Faculty of Medicine, Charles University in Prague. Her current scientific research deals with the differential diagnosis of Radicular Syndrome S1 and Deep Gluteal Syndrome using clinical examination, electromyography, and advanced imaging methods (MRI neurography, Diffusion-Weighted Imaging and Diffusion Tensor Imaging of lumbosacral plexus and peripheral nerves). She works as a Physiotherapist in the Center of Movement Medicine, participates in teaching Physiotherapy students at the Faculty of Medicine, and teaches Musculoskeletal Sonography courses.

e: kurkova22@gmail.com