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Original Article
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Dynamic Changes of the Ligamentum Flavum in the Cervical Spine Assessed with Kinetic Magnetic Resonance Imaging

The purpose of this article is to quantify changes in thickness of the ligamentum flavum (LF) associated with motion of the cervical spine and to compare the thickness of the LF at each cervical level using kinetic magnetic resonance imaging (kMRI). Two hundred fifty-seven symptomatic patients (129 men; 128 women) underwent kMRI in neutral, flexion, and extension positions.

Midsagittal images were digitally marked and electronically analyzed by spine surgeons. Thickness of LF in the cervical region from C2-3 to C7-T1 was measured in all three positions. LF at C7-T1 was significantly thicker than C2-3 to C6-7 in neutral, flexion, and extension positions ($p < 0.05$). LF was significantly thicker in extension than in flexion at C3-4 to C6-7. LF thickness increases with extension and decreases with flexion. LF is uniquely thick at C6-7 and at C7-T1 in the extension position, which may predispose these levels to cord compression syndromes and associated neuropathies.

以動態磁共振成像評估頸椎黃韌帶的動態變化

這篇文章的目的是以動態磁共振成像（kMRI）量化與頸椎活動相關的黃韌帶（LF）厚度變化和比較 LF 在每個頸椎節段的厚度。257 名有症狀的患者（129 名男性; 128 名女性）進行中性，前屈和伸直位置的 kMRI。脊柱外科醫生為正中矢狀面圖像進行數碼標記和電子分析。頸椎 C2-3 至 C7-T1 的 LF 的厚度會在三個位置進行量度。C7-T1 的 LF 明顯地比 C 2-3 至 C 6-C7 在中性，屈曲和伸直位置厚（P <0.05）。在 C3-4 至 C6-7 ，LF 在伸直位置明顯地比屈曲位置厚。 LF 的厚度會隨著伸直而增加和隨著屈曲而減少。在 C6-7 和 C7-T1 節段，LF 在伸直位置是獨特的厚，這可能會使這些節段容易患上脊髓壓迫症狀及相關的神經病變。