Segmental variations in the elastic fiber content of the lateral costotransverse ligaments in the vervet monkey (Cercopithecus pygerythrus aethiops).

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Abstract:

The segmental and zonal variations in the quantitative relationships between elastic and collagen fibers within the lateral costotransverse ligaments have been investigated in the vervet monkey. The lateral costotransverse ligaments of the caudal segments have a largely elastic structure in contrast to those of the cranial segments, which are characteristically collagenous. In the transitional zone extending from the 4th through to the 6th costotransverse joints, the lateral costotransverse ligaments show a zonal differentiation into a superficial collagenous portion and a deep elastic portion. It is noted that the craniocaudal structural differentiation in the lateral costotransverse ligaments corresponds with similar changes in the vertebral ligaments in that the ligamenta flava gradually extend into the interspinous spaces from the 1st thoracic vertebra (T1) so that at T5 the ligaments occupy 50% of the interspinous space and at T7 the elastic fibers almost completely replace the interspinous ligament. Functionally, however, the regional differences in the elastic fiber content of the lateral costotransverse ligament may have no collateral relationship with the morphology of the ligamenta flava, but are conditioned by movements of the ribs. Whereas movements of the upper six joints are limited by virtue of the configuration of their articular surfaces, which are reciprocally curved, on the 7th to 10th joints the articular facets are almost flat and, therefore, allow considerable movements between the ribs and the corresponding transverse processes