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Radiographic parameters of normality and their application in compression-type fractures ("nutcracker") of the cuboid bone

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Introduction: Cuboid fracture is associated with Lisfranc lesions, which may present with a lateral crushing pattern ("nutcracker") and lead to complications such as arthrosis and abduction deformity. The study ought to establish normal radiographic parameters of the cuboid, with assistance in therapeutic decision-making for fractures and deformities.

Methods: Selected 516 adult patients (516 feet) between 18 and 70 years (258 of each gender), without a cuboid lesion. Internal oblique radiographs were taken, and two parameters were evaluated: the measurement of the alpha angle formed between the distal and proximal articular surfaces of the cuboid and the ratio between the length of the lateral and medial walls. Fifteen patients with cuboid fracture-compression were evaluated, and their results were compared with those of the control group.

Results: Radiographic parameters were evaluated, and the results by gender and age group were divided into groups (18 to 50 and 50 to 70 years). The angle of the control group ranged from 21.6 to 49.2 degrees, with a mean of 35.62 degrees. The cortical ratio of the cuboid ranged between 0.37 and 0.69, with a mean of 0.52, and there was no difference between genders. There was a difference between the findings, with an increase in the alpha angle in males (35.11 degrees to 36.13 degrees). Patients with fracture-compression presented changes in the angle, with values between 38 and 48.5 degrees, a mean of 42.27 ($p = 0.000$), and in the relationship between the cortical, with values between 0.37 and 0.48, a mean of 0.43 ($p = 0.000$).

Conclusion: The radiographic parameters studied may be useful for the anatomical definition of the cuboid and in the treatment of several diseases.

Keywords: Bone, cuboid; Fractures, bone; Radiography.

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