

Normal anatomical location of distal fibula within the syndesmotic joint in true lateral ankle radiograph : A measurement ratio of distal fibula within the syndesmotic joint

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INTRODUCTION:

Ankle syndesmotic joint is frequently involved in ankle fractures. There is lack of studies regarding the use of true lateral view ankle radiographs in the evaluation of this condition. This study formulates a ratio of the position of distal fibula within the syndesmotic joint on sagittal plane.

MATERIALS & METHODS:

120 lateral view ankle radiographs were evaluated. Measurements were taken for distance of anterior cortex of tibia to centre of fibula and posterior cortex of tibia to centre of fibula at a level of 1cm proximal to the tibia plafond. Data obtained were used to formulate the study ratio.

RESULTS:

The mean ratios in male participants were 1.88 and 1.85 for right and left ankles respectively, while in female participants, the mean ratios were 1.84 and 1.85 for right and left ankles respectively. No significant variations between gender and laterality were found.

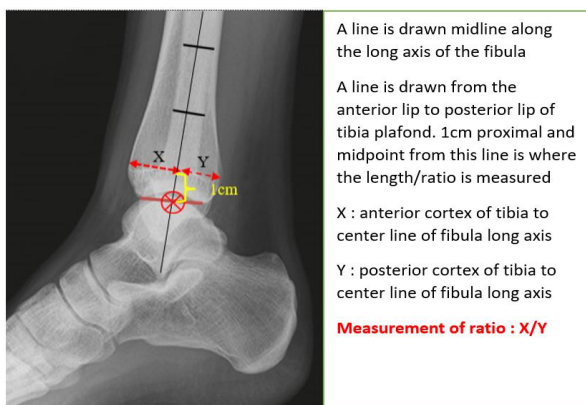


Figure 1: True lateral view ankle radiograph labelled with lines for measurements

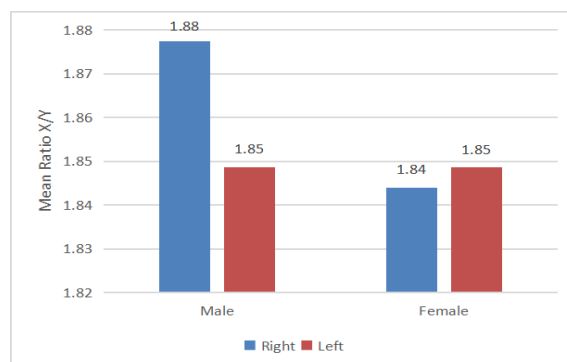


Figure 2: Mean measurements of Ratio X/Y for right and left ankle joints in both genders

DISCUSSIONS:

The distance of anterior cortex of tibia to centre of fibula is estimated to be almost double the distance of posterior cortex of tibia to centre of fibula. This info can be utilized to achieve anatomical surgical reduction even in absence of sterile digital measuring tools.

CONCLUSION:

This study demonstrates that the position of distal fibula within the syndesmotic joint on sagittal plane can be projected more accurately by using the ratio obtained from this study.

REFERENCES:

1. Croft S, Furey A, Stone C, Moores C, Wilson R. Radiographic evaluation of the ankle syndesmosis. Can J Surg. 2015 Feb 1;58(1):58–62.