Radiographic analysis of Hallux valgus. A study on foot arch by severity.
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Introduction/Purpose: X-ray measurement for hallux valgus has been conducted with various results in the evaluation. However, it was not quite clarified yet and it still remains questionable why a mild case shifts to a severe case during the course. We report about the difference between the severity and the foot shape.

Methods: The study subjects were 206 feet of 138 patients.
Mild case: 80 feet, mean age 53 y.o (A)
Moderate case: 61 feet, 62 y.o (B)
Severe case: 65 feet, 67 y.o (C)

For the examination items, HVA, M1-2 angle, and M1-5 angle were measured with the x-ray frontal radiograph for loading position, and First, Second, Fifth intermetatarsal angle (M1Y/M2Y/M5Y) on sagittal plane were also measured. We also evaluated the foot arch ratio with Yokokura Method, then compared/examined those results after dividing the cases into the mild, moderate, and severe group with age bracket.

Results: The age of Group C were older than Group A,B.
M1-2 angle: In younger generation, three is significant difference between Group A and B.
M1-5 angle: Significant in 60s between A and B. In 70s, significant: all group.
Navicular height: all group is low arch with aging. Significant between A and C.
It is becoming low arch at Lisfranc level with aging in all group.
There is significantly low height at M5 with aging in all group.
On sagittal plane, bone axis of M1 and M2 is lowered at 40s in Group A and B and 70s in Group C.

Conclusion: In hallux valgus, the foot shape was changed in coronal and sagittal plane.
It means the collapse of bone structure at foot and ankle.
It may possibly be shifting to a severe case with aging.
However, we could not find any result definitely suggesting such condition.

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