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Standing (Weight Bearing) Extremity CT Scans (SECT Scan) – Part II Foot and Ankle -

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As we saw last month, the SECT scanner is a new scanner that allows us to evaluate the extremities in the erect and standing position.

While it has many uses, none are more written about than the weightbearing scans of the foot and ankle in developmental and acquired diseases, including flat foot, hallux rigidus, valgus and subtle trauma.

Acquired adult flat foot (Figs 1, 2)
This is where specific measurements are required that have to be in the weightbearing position to simulate what happens in real life. And often when combined with an MRI depending on the situation (Fig. 2B), a complete diagnosis can then be given.

Hallux rigidus (Fig. 3)
A condition where again measurements and the visualization of the anatomy becomes paramount.

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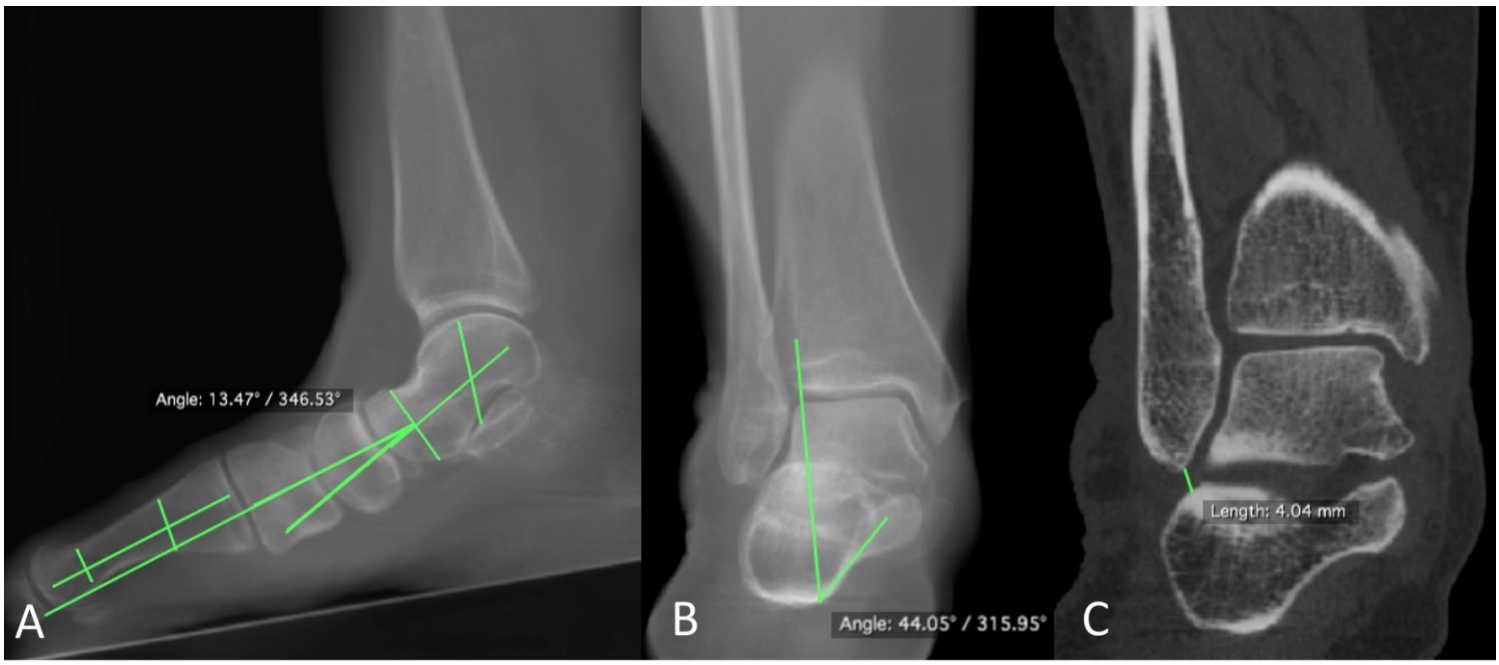

Fig. 1 (A-C): 51-years lady for evaluation of adult acquired flat foot (AAFD). The sagittal reconstructed image with thick slab, simulating a lateral X-ray shows collapse of the longitudinal arch of the foot with the long axis of the talus, angled plantarward in relation to the first metatarsal bone and with increased Meary angle, measuring 13.4 degrees (A). The reconstructed coronal views also clearly show the associated hindfoot valgus (B) as well as the subfibular impingement (C).

SECT Scan - Part II
Foot and Ankle

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At a glance:

- The SECT scanner is a cone-beam scanner for standing, weightbearing CT scans of the extremities.
- Beyond last month's indications, the more specific are in the foot and ankle
- These include flat foot, trauma, hallux rigidus / valgus and similar pathologies.

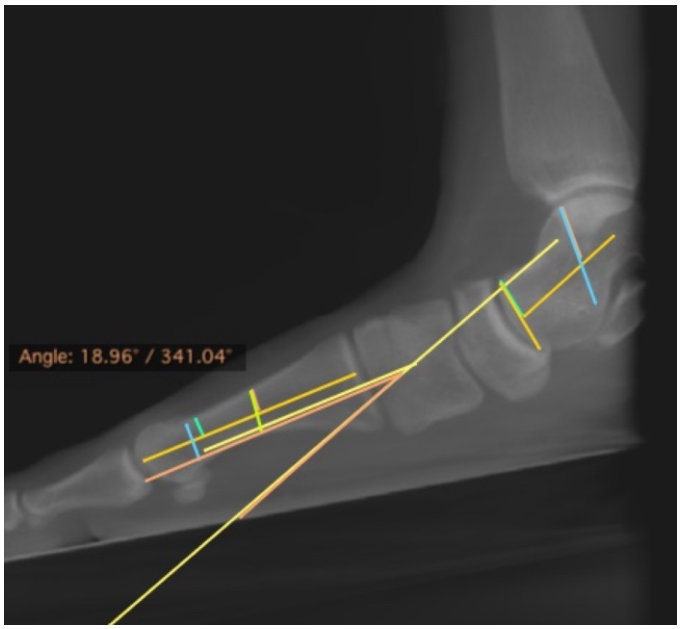

Fig. 2 (A, B): 20-years old lady for evaluation of adult acquired flat foot deformity (AAFD). The sagittal reconstructed image with thick slab, simulating a lateral X-ray shows collapse of the longitudinal arch of the foot with the long axis of the talus, angled plantarward in relation to the first metatarsal bone and with increased Meary angle, measuring 18.9 degrees. The MRI (B) of the same patient shows an aberrant slip from the abductor hallucis muscle extending towards and inserting within the fascia in the subcutaneous fat.

Fig. 3: 73-years old man with pain in the great toe. Hallux rigidus. The sagittal reconstructed X-ray like image (A) and the sagittal reconstruction (B) clearly show severe narrowing of the first metatarsophalangeal joint space with subchondral changes and peripheral osteophytes (circle in A and arrow in B). A prominent dorsal spur and a tiny loose body along the plantar aspect are seen. Severe narrowing of the medial metatarsosesamoidal joint space is also seen on the coronal reconstruction (C) with the location of the sesamoid (arrow) with respect to the crista also well seen.

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