

BILATERAL CONGENITAL DEFORMITY OF THE
ASTRAGALOCALCANEAN JOINT. — BONY
COALESCENCE BETWEEN OS TRIGONUM AND THE
CALCANEUS?

BY

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Gudrun L., aged 20, came to the clinic for the first time on January 9, on account of pain in the right foot and impaired gait. Has no sisters and brothers. Nothing is known about congenital deformities in the family. The patient is slightly imbecile, has not been able to attend the ordinary school education but can, however, be employed in bookbinding; it is in this employment, in which the patient has to stand the greater part of the time, that the pain in the right foot, localized chiefly to the part round the scaphoid bone, has developed. She is of a stout frame and rather fat; height 159 cm, weight 77,8 kgm. Apart from the feet nothing is found on objective examination. Clinically either foot is a marked flat-foot, but there is no valgus position of the heels. The deformity is much more marked on the right side than it is on the left. Pronation and supination movements of the feet have disappeared completely. In the right foot there is tenderness on pressure, distinctly localized to the astragaloscaphoid joint, otherwise no tenderness on pressure. As the completely lacking mobility sub talo causes the supposition of a bony anomaly X-ray examination of the feet is made (stereoscopic pictures with varying projections). In the side-view pictures a very peculiar shape of the posterior part of the calcaneus and the overlying part of the astragalus is seen.

The X-ray findings are almost — but not completely — symmetrical on either side. On either side, starting from the upper surface of the proc. post. calcanei just behind the astragalus, a bony prominence of a broad, triangular shape is seen. In the

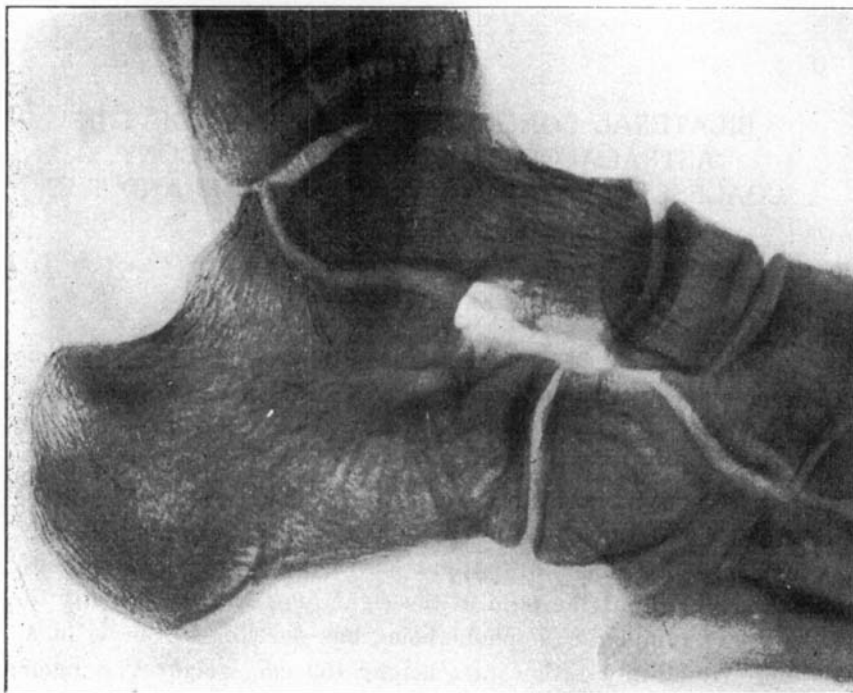


Fig. 1. Left foot.

left foot this bony element reaches with its point up to the talocrural-joint, thus occupying the space normally filled by the proc. post. tali, which is lacking in this foot. In the right foot the abnormal bony prominence from the calcaneus is of the same shape and size as in the left foot, but quite a well-developed proc. post. tali is found in the former. In the stereoscopic picture it will be seen that the proc. post. tali passes to the lateral of the bony prominence of the calcaneus (see figs. 1 and 2). These anomalies of the calcaneus and the astragalus will

obviously cause the posterolateral articulation between these two bones to assume a quite abnormal shape. Normally (Fig. 3) this articulation displays a regular upwardly convex articulation line, the shape of the articulating surfaces allowing the supina-

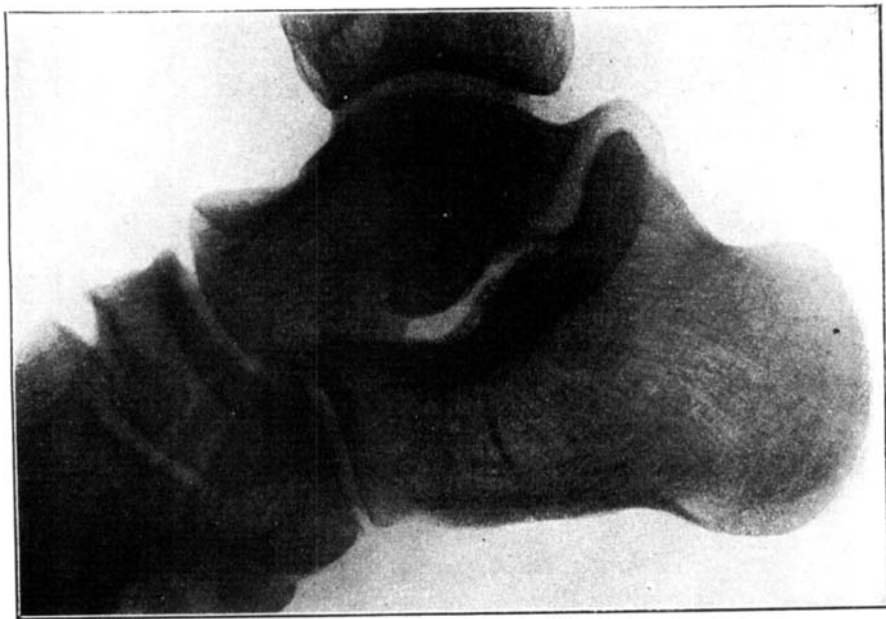


Fig. 2. Right foot.

tion and pronation movements, which — as is known — take place round an axis which runs obliquely in an anterosuperior-posteroinferior direction. In this patient the articulation line has an irregular S-shape, and the movements that can take place in such a joint will never become identical with normal pronation and supination; also the coordination between this joint and the other joints taking part in this movement (the intermediate and the anterior astragalocalcanean joints, and the astragaloscaphoid joint) is inevitably bound to fail.

The complete fixation of the pronation and supination movements of the feet was thus anatomically explained through the result of the X-ray examination. Corresponding to the astragalo-

scaphoid joint marked osteo-arthritic alterations were seen in the skiagram of the right foot, whereas such pathologic alterations could not be seen in the left foot, and neither the right nor the left astragalocalcanean joint displayed these secondary

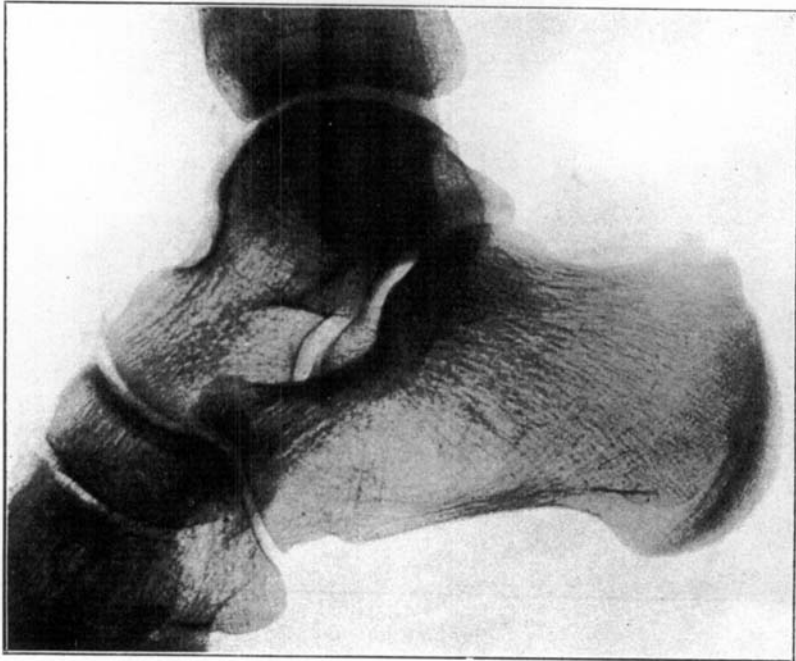


Fig. 3.

pathologic alterations. In this respect, too, the skiagram corresponds to the clinical symptoms, the patient only feeling pain round the scaphoid bone of the right foot.

Considering the fact that it was impossible to establish normal mobility sub talo and that it would only be possible therapeutically to endeavour to bring about a better position of the feet and to render them painless arthrodesis of the right astragaloscaphoid joint was performed. By this means the planus deformity could be considerably reduced and the patient got rid of her pain. The left foot, which did not display subjective

symptoms, was treated as an ordinary flat-foot with supinating splints to be worn during night and insets.

It is, however, not as an object of orthopedic treatment that this case is interesting, but — as far as I can say — because it is a new variation of the numerous congenital deformities of

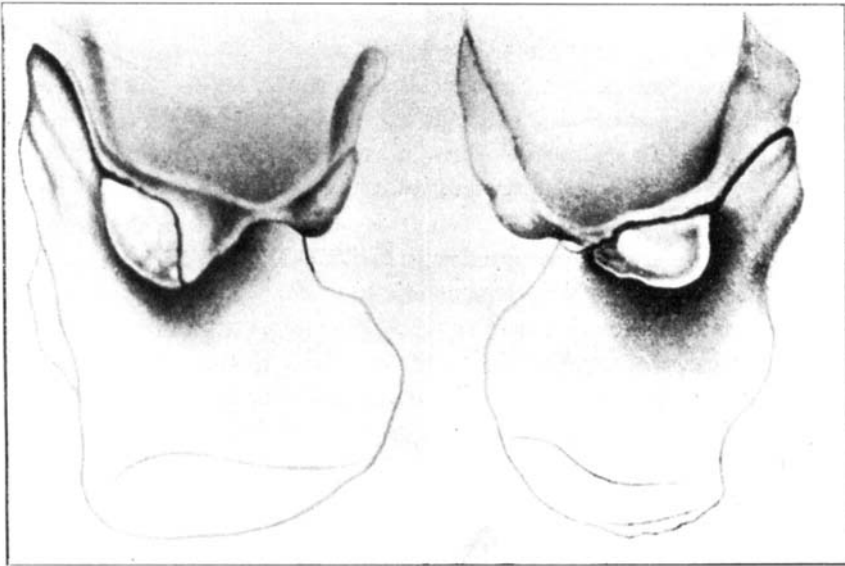


Fig. 4.

After Pfitzner.

Fig. 5.

the skeleton of the foot. I have not been able to find a similar case in the medical literature; nor is this anomaly mentioned in Pfitzner's large work on structural variations of the skeleton of the foot.

How should it be explained? I consider it the most reasonable to regard the bony prominence on the calcaneus as an os trigonum which, instead of being synostosed with the astragalus, has become fused with the calcaneus. In the original skiagrams a suspicion of a dividing line between the triangular bony element and the calcaneus can be seen. From this view the case must be referred to the abnormal bony coalescences occurring rather frequently in the tarsus. — When the deformity is con-

sidered an abnormal coalescence between an os trigonum and the calcaneus it may seem difficult to understand that, *besides* the bony prominence on the calcaneus, there is a rather well-developed processus posterior tali of the patient's right foot. It is presumably the generally accepted view that an os trigonum replaces the proc. post. tali. Pfitzner's anatomical examinations of these things (*Morphologische Arbeiten*, 1896, vol. VI), however, show that this is not always the case. Fig. 5, which has been taken from Pfitzner's work, shows an os trigonum of the most common shape, and in this case it looks as if the bone has replaced — or displaced — the proc. post. tali; but fig. 4 from the same work shows how an os trigonum can lie *beside* the proc. post. tali. In case an os trigonum that is placed in this manner becomes fused with the calcaneus, conditions will be such as are seen in the patient's right foot. — In publishing this case it is, however, not my intention to try to undertake an exhaustive treatment of the problems which it may involve, but to ask for similar observations which perhaps might give more secure information as to the nature of this deformity.