

CONGENITAL FUSION OF THE LUNATE AND TRIQUETRAL

P. KOSSICK, M.B., CH.B., D.M.R.D., *Senior Radiologist, Livingstone Hospital, Port Elizabeth and Provincial Hospital, Uitenhage*

Under normal circumstances the lunate is crescentic in shape and lies between the scaphoid and triquetral in the middle of the proximal row of carpal bones. The proximal surface, which is smooth, articulates with the radius and the disc of the inferior radio-ulnar joint. The lateral surface articulates with the scaphoid, while the medial surface articulates with the triquetral and is almost square. When the hand is adducted, the distal surface, which is deeply concave, articulates with the medial part of the hamate. The triquetral, which is pyramidal in shape, has a distally placed articulation for the pisiform, anteriorly. The proximal part articulates with the disc of the inferior radio-ulnar joint when the hand is fully adducted. Laterally and below it articulates with the hamate and medially with the lunate.

The distal radio-ulnar joint is usually distinct from the wrist joint, which is formed by the articular disc of the radio-carpal joint and the lower end of the radius proximally, and the scaphoid, lunate and triquetral distally, the whole joint being surrounded by an articular capsule,

strengthened by anterior and posterior radio-carpal ligaments and the medial and lateral ligaments of the wrist joint.

The proximal row of carpal bones is held together and fixed to the distal row by the dorsal, palmar and interosseous ligaments. The spaces between the bones are lined by synovial membranes and thus constitute true joints. The lunate and triquetral are held together by an interosseous ligament and the scaphoid and lunate by a similar ligament.¹

Congenital fusion of the lunate and triquetral has been reported previously (the first time in 1903).² It is very uncommon and is said to occur most frequently in the Negro.³ Wetherington⁴ has reported a case in a Japanese in whom there was no evidence of a line of fusion. He suggests that there is fusion of the cartilaginous zones in the developing carpus, followed by fusion of the centres of ossification.

In other cases recorded by Dean and Jones⁵ and Minnaar,⁶ a line of fusion is visible and these authors suggest

that there is a pseudoarthrosis followed by fusion. Wetherington⁴ suggests that his case is the first one recorded in a child showing complete fusion, with maturation of the lunate and triquetral beyond that which one would expect as normal for the chronological age.

Another suggestion is that the triquetral elongates abnormally, making it easier to fuse with the lunate. This may be of anthropological significance tending to stabilize the hand. Minnaar⁶ described 4 types:

1. Incomplete, resembling a pseudoarthrosis. Here one should be careful of describing a fracture.
2. Incomplete with a notch, which may be on both sides or on one side, at

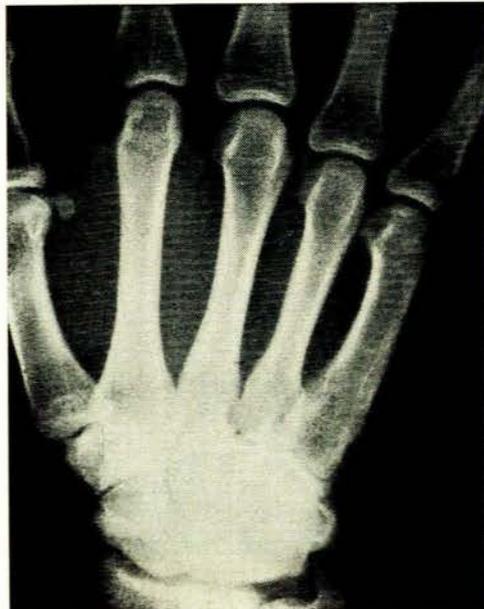


Fig. 1. See text.



Fig. 2. See text.

the site of normal fusion of the bones.

3. Complete fusion.
4. Complete fusion with other anomalies of the carpal bones.

In Negroes it is said to be invariably bilateral, and unilateral left-handed fusion has not been described before in the literature in the Negro. An example of unilateral right-handed fusion in a Bantu is shown in Figs. 1 and 2.

The condition is of no clinical significance and is discovered accidentally by radiography.

CONCLUSION

1. Congenital fusion of the lunate and triquetral is discussed.

2. A review of the literature and some illustrations are presented.

Thanks are due to Mr. D. Proctor, F.R.C.S., for the photographs and to the Medical Superintendent of the Livingstone Hospital, for permission to publish.

REFERENCES

1. Johnston, T. B. and Willis, J., eds. (1946): *Gray's Anatomy*, 29th ed., pp. 370 - 374. London: Longmans, Green & Co.
2. Kohler, A. (1956): *Borderlands of the Normal and Early Pathological in Skeletal Roentgenology*, 10th ed. London: Grune & Stratton.
3. Shanks, S. C. and Kerley, P., eds. (1959): *Textbook of X-ray Diagnosis*, 3rd ed., vol. 4, p. 9. London: H. K. Lewis.
4. Wetherington, R. K. (1961): *Amer. J. Phys. Anthropology*, **19**, 251.
5. Dean, R. F. A. and Jones, P. R. M. (1959): *Ibid.*, **17**, 279.
6. Minnaar, A. B. de V. (1952): *J. Bone Jt Surg.*, **34-B**, 45.