CONGENITAL FUSION OF THE LUNATE AND TRIQUETRAL BONES IN THE SOUTH AFRICAN BANTU

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Congenital fusion of the lunate [semilunar] bone with the triquetral [cuneiform] is an abnormality which has been considered to be rare, even in negroes, who have been regarded as specially subject (Shanks 1950). Smitham (1948) estimated its incidence in a series of West African natives to be one in seventeen (5·9 per cent), and if his experience is typical it is certainly much commoner in some negro peoples than has been supposed. It is a very widespread abnormality, which has been described in American negroes (Paterson 1893, Derry 1906, Dwight 1907, Lönnertlad 1936, Alexander and Johnson 1941, Smitham 1948), in the Sudanese (Elliot Smith 1903, Lönnertlad 1936), and even in Australian aboriginals (Smith 1907).

The Bantu, with whom this paper is concerned, have this type of carpal fusion fairly frequently. They are a group of negro peoples who form a native population of southern Africa, to which they appear to have migrated from equatorial Africa. Their original habitat was probably the Nile Basin, which is believed to be the original home of all the negro races. The West African peoples, who migrated south of the Sahara Desert also from the Nile country, provided the ancestors of the American and West Indian negroes, and it is considered that even the Australian aboriginals can be traced back to the Nile, for the East Asiatic Papu-Melanesians are a branch of the negroid division of mankind. It is, of course, to be expected that any abnormality which occurs in negro peoples would have a world-wide distribution.

It is not claimed that fusion of the lunate and triquetral are peculiar to the negro races. It has been described in white persons by Curr (1946), by McConnell (1907) and by Hammond (1947), and in several patients whose race and colour were not mentioned by the reporters.*

SIGNIFICANCE

The anthropological significance of this anomaly has been the subject of interesting speculation, especially by Smitham (1948) in his intensive study of it in West Africans. It may represent an advance towards specialisation of the hand, or it may signify an attempt to stabilise the post-axial border of the hand, in which case it is probably a primitive adaptation which has persisted. This latter is the favoured view, for in most cases in negroes the fusion is bilateral, yet the negro is seldom other than right-handed. Indeed, left-handed unilateral fusions appear to have been reported only in white people (Lönnertlad 1936, Curr 1946, Hammond 1947). It can be argued, perhaps a little teleologically, that any characteristic appearing to increase the stability of the weaker, post-axial border of the hand could well be usefully retained in the evolution of a race which has provided most of the world’s slaves and whose members, slave or free, have had to fend for themselves with a minimum of even the simpler mechanical aids.

Lunate-triquetral fusion never causes symptoms. It is always found by accident. It may run in families (Mestern 1934). It does not appear to be associated with congenital anomalies in the feet.

* Three such cases were described by Lönnertlad (1936), two by Grashey (1917) and by Bogart (1932), and one each by Canigiani (1936), Reiss (1936), Belot and Nahan (1936), Lemarque and Betoulères (1939), McGoey (1943) and Hudson (1943).
TYPES OF FUSION

The writer has met twelve examples of carpal lunate-triquetral fusion in Bantu patients who were undergoing radiography for recent injuries. All were manual labourers. One was an amateur boxer of ability.

Fig. 1
Bilateral incomplete fusion of lunate and triquetral bones resembling pseudarthrosis.

Fig. 2
Bilateral fusion of lunate and triquetral bones with notch in distal border of the complex bone.

Fig. 3
Fusion with notches in proximal and distal borders of complex bone. Right hand not radiographed.

The fusions were of four types: 1) *Incomplete fusion resembling a pseudarthrosis* in the radiograph. This type (Fig. 1) was found in both hands of a patient who had a fracture of the lower end of the right radius, but who had no other disability and who would admit to no other previous injury. The left wrist was normal in appearance and power. 2) *Fusion with a notch of varying depth* at the site of the usual division between the two bones. This notch
may be found at the distal contour of the compound bone (Fig. 2) or at both contours (Fig. 3). 3) Complete fusion of lunate and triquetral alone (Fig. 4). 4) Complete fusion associated with other carpal anomalies. This fourth type was seen only once in the present series (Fig. 5), in a wrist in which the hamate [unciform] was fused to the capitate bone [os magnum] and the trapezium [os multangulum majus] to the trapezoid [os multangulum minus]. The incidence of these four types and that of other carpal fusions has not yet been established. Bogart (1932) found three complete and three incomplete fusions of the capitate and the hamate in a series of 1,452 wrists, and in one of the latter three there was also fusion of the trapezoid and trapezium. These other fusions have been recorded by Dwight (1907).
and by Hudson (1943), but Smitham (1948), in a series of 680 wrists, found that in only one of six cases of hamate-capitate fusion was there a lunate-triquetral fusion as well.

SUMMARY

Twelve cases of congenital fusion of the lunate and triquetral bones have been found in South African Bantu patients. The fusion occurs in four types, an incomplete "pseudarthrosis," bony fusion with a dividing notch at one or both surfaces, or as a complete compound bone with or without other carpal anomalies.

The suggestion favoured is that this fusion represents the persistence of a primitive characteristic in African (negro) peoples.

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REFERENCES


