

## OLIGODACTYLY

MEREDITH VAUGHAN JONES, PORT DINORWIC, NORTH WALES

*From the Royal Southern Hospital, Liverpool*

Although congenital anomalies of the hand are as common as they are varied, oligodactyly is relatively rare. It is regarded as a real aberration and not a reversal to type, because all our mammalian ancestors are said to have been pentadactylous. As a rule in cases of oligodactyly the radius or ulna is deficient or absent and there is a club hand appropriate to the deficiency. It has been said that the condition is usually familial. In the present instance



FIG. 1  
Photographs of the hand.

there was "no family history," but this is probably not of much significance and the case is presented rather from the point of view of its intrinsic interest as a rare type of congenital deformity.

The patient, an old lady of eighty-six years, was admitted to hospital on account of a left hemiplegia. Early progress was satisfactory but at the end of nine weeks she suddenly collapsed and died. The deformity of the right hand had nothing to do with her terminal illness. It had been present from birth and she had no other deformity.

The right hand consisted of a thumb and two digits, all three of normal appearance (Fig. 1). The metacarpals corresponding to the absent digits were also absent, and the palm of the hand was correspondingly narrow. She had not undergone any surgical operation. She wrote with this hand and she carried out all her domestic duties. The movements of

the thumb and the two fingers were normal. Sensation was normal, and the grip was of average strength (the hemiplegia prevented valid comparison with the left hand). The radial pulse was palpable in the usual position, the circulation of the hand appeared good, and the condition of the skin was normal.

Radiographs of the right hand (Fig. 2) and wrist showed that the three metacarpals and phalanges were normal. All the carpal bones were present, but the lunate and triquetral bones were fused and the shape of the individual carpal bones was unusual though not grossly so. The first metacarpal articulated with the trapezium, the second with the trapezium and capitate, and the third with the hamate. The trapezoid was small. It was situated posteriorly and was not apparently articulating with the adjacent metacarpal though close to it. Comparing the bones present in the right hand with those of the left, the right trapezium



FIG. 2  
Radiograph of the wrist and hand.

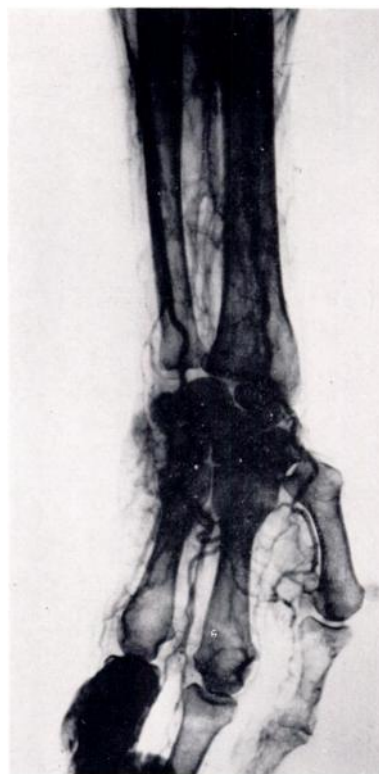


FIG. 3  
Post-mortem arteriograph.

was the smaller, whereas the two right finger metacarpals were larger than those of the normal hand. The radius and ulna appeared normal.

After death arteriographs were taken of the right forearm (Fig. 3). The ulnar and radial arteries were shown to be normal. Their terminations were as follows.

*Radial artery*.—At the base of the first metacarpal the radial artery gave off a small branch which passed along the radial side of the thumb. The main branch of the artery crossed the base of the first metacarpal to its ulnar side, and, after giving off a small branch across the base of the second metacarpal which anastomosed with the ulnar artery, it passed distally along the ulnar side of the first metacarpal and divided at its distal end. The main branch at this division passed along the ulnar side of the thumb, and the other much smaller branch along the radial side of the first finger.

*Ulnar artery*—At the base of the third metacarpal the ulnar artery divided into a large and a small branch. The latter passed distally on the ulnar side of the third metacarpal; the larger branch crossed to the radial side of the base of this metacarpal and passed distally between it and the second. At this point it gave off a small branch which crossed the base of the second metacarpal and anastomosed with the radial artery. The main branch continued to the level of the metacarpo-phalangeal joints and then divided into a digital artery on the radial side of the second finger and a similar artery on the ulnar side of the first finger.

#### DISCUSSION

It is of interest that the ulna and radius were normal. Articulations at the wrist suggest that the metacarpals were the first, third and fourth. This hand would therefore combine a central and marginal oligodactyly. Presumably the metacarpals were called upon to transmit a little more stress than those of the normal hand, and this would explain why they were slightly larger than normal. The arteriograph shows the presence of a palmar arch, and the picture of the arterial arrangement generally suggests ablation of part of a normal pattern rather than a primary rearrangement of vessels. The small size of the vessels on the radial side of the first digit and the ulnar side of the second suggests that they may have suffered from whatever factor it was that caused suppression or absence of the second and fifth metacarpals and phalanges.

#### SUMMARY

The skeletal and arterial changes in a somewhat unusual case of oligodactyly are described.