Dermatoglyphic findings in Poland's syndrome

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SUMMARY The dermatoglyphs of four cases of Poland's syndrome were investigated and compared with those of previously reported cases.

Poland's syndrome is a condition consisting of ipsilateral aplasia of the sternal head of the pectoralis major muscle and symbrachydactyly.

In 1973, Freire-Maia *et al*¹ first found gross distortions of the dermatoglyphs in Poland's syndrome. Then, David and Saad² and Gnamey³ reported the dermatoglyphs of cases of the same syndrome without syndactyly.

An additional four cases of Poland's syndrome will be presented here from the dermatoglyphic point of view.

Case reports

Case 1, a male, had normal ridge arrangements on the left hand. In contrast, on the right hand, with marked hypoplasia, microdactyly of the 2nd digit, and symbrachydactyly of digits 3 to 5, the arrangement of the ridges was strikingly distorted. There was a radial loop on the thumb, a whorl over the area normally covered by the nail of the third digit, a 'ridges-off-the-end' or 'cuspal' pattern on the fifth finger tip, and arches on the second and fourth finger tips. The pattern intensity was low. There was no flexion crease on the thumb. There was an interdigital or zygodactylous triradius (z) between the second and third digits. One of the radiants of this triradius terminated on the ulnar border of the hand. There were interdigital triradii typical of syndactyly between the third and fourth fingers and under the fourth and fifth digits. One of the radiants of these triradii was associated with the pattern observed on the right third finger. The distal radiant of the other was connected with the 'ridges-off-the-end' pattern. There was a large loop opening towards the ulnar side of the hand and associated with an extra interdigital triradius on the distal part of the palm. There were no digital triradii a, b, c, and d. There was a distally displaced axial triradius (t'') and a simian line. The pattern intensity was low on both feet (fig 1).

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FIG 1 Digital type and main lines of case 1.

Case 2, a male, had normal alignment of the ridges on the right hand. There was a distally displaced axial triradius (t'') associated with a hypothenar pattern on the same hand. On the left hand, with hypoplasia of both hand and thumb, microdactyly of the second digit, and symbrachydactyly of digits 3 to 5

FIG 2 Digital type and main lines of case 2.

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the arrangements of the ridges were distorted in the distal palm. There were no b, c, and d triradii. In addition, there was a radial loop on the thumb, an interdigital triradius, a triradius on the apex of the symbrachydactylous digits, and a more distally displaced axial triradius (t'') (fig 2).

Case 3, a female, showed normal arrangements of the ridges on the right hand, but the alignment of the ridges in the distal palm of the left hand, with hypoplasia and symbrachydactyly of digits 2 to 5, was distorted. There were no digital triradii a, b, c, and d. There was a radial loop on the thumb, an arch on the second digit, an extra triradius over the apex of the fourth digit, a more distally displaced axial triradius (t''), and a simian line on the palm (fig 3).

FIG 3 Digital type and main lines of case 3.

Case 4, a male, had a normal alignment of the ridges on the right hand. There was a hypothenar

FIG 4 Digital type and main lines of case 4.

oop associated with an axial triradius and a t' triradius. On the left hand, with marked hypoplasia and symbrachydactyly of digits 2 to 5, there were arches on the thumb and fifth finger tips, and a distal loop over the apex of the third symbrachydactylous digit. The proximal radiant of this loop terminated on the ulnar border of the hand. There was a large thenar loop opening towards the same area of the hand and a simian line. There were no digital triradii a, b, c, and d or axial triradius t (fig 4).

Discussion

Freire-Maia *et al*¹ reported the dermatoglyphs of two cases of Poland's syndrome. Both of the cases showed zygodactylous triradii associated with a loop, distally displaced axial triradii, and simian lines on the abnormal hands. The dermatoglyphic findings of our cases show a great similarity to their findings.

David and Saad² investigated the dermatoglyphs of the hand of a case of the syndrome without syndactyly, but with shortness of all phalanges, particularly the second ones. The case showed radial loops on the thumbs, index, and middle fingers, distally displaced b and c triradii, medially displaced d triradius, t' triradius, and absence of the radial crease. Gnamey³ reported the dermatoglyphs of four cases of Poland's syndrome without syndactyly. The cases had distal axial triradii, increased loops in the hypothenar areas, increased whorls on the fourth finger tips, and high total finger ridge counts.

Interestingly, some of the dermatoglyphs seem to be peculiar to the syndrome with or without syndactyly. There are radial loops on the thumbs and distally displaced axial triradii on the hands of the cases of this syndrome. It should be noted that the gross distortions of the ridge arrangement in the

FIG 5 Digital type and main lines of a case of ectrodactyly.

distal palm result from symbrachydactyly which is a common malformation in the syndrome, and gross distortions are also observed in various hand and foot deformities such as ectrodactyly (fig 5).

References

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