SCOLIOSIS IN TWINS

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In pure lines comprising descendants obtained from self-fertilisation of a single homozygous parent, any variation is due to environmental factors. Because pure lines do not occur in man, twins afford the only opportunity to study the interaction of genotype and environment. Ideally the incidence of abnormalities occurring in a series of uniovular twins should be compared to that in a series of binovular twins, but this will be possible only if all such abnormalities in twins are reported.

Scoliosis secondary to anatomical spinal abnormality such as a hemivertebra has been reported in twins by Haffner (1936). Idiopathic scoliosis in identical twins has been described by Weiser (1947) and more recently by Esteve (1958) and H-Ros Codorniu (1958), with a close similarity in all three reports. In Weiser's pair, although the convexity was dissimilar, the

curves were of the same magnitude and situation, while in the twins of H-Ros Codorniu and Esteve the curves conformed in pattern, degree and convexity.

Another example of identical twins with a similar idiopathic scoliosis is reported here.

CASE REPORT

As in the previous reports mentioned, the twins were girls. There was no family history of scoliosis or other abnormality. There were no brothers or sisters and both parents were

alive and well. Twin D was slightly taller and heavier than her sister A, but in all other respects they were identical, including the colour, type and distribution of hair, the colour of eyes and skin, physical development and blood groups. This polysymptomatic similarity can be taken as proof that the twins were uniovular.

They presented at the age of sixteen. Each had a lower thoracic scoliosis, convex to the right (Figs. 1 and 2). The curves, which extended from the fifth to the eleventh thoracic vertebra in both girls, had an angulation of 46 degrees in A and 55 degrees in D (Fig. 3). There was no spina bifida, hemivertebra or other spinal abnormality. In both twins growth was completed without deterioration of the scoliosis.

The scoliosis in these girls is of the idiopathic thoracic type of late onset described by Ponseti and Friedman (1950), or the adolescent variety of James (1954).

DISCUSSION

This further example of a similar idiopathic scoliosis in identical twins supports the suggestion that this condition depends on hereditary factors. The need for reporting all twins with scoliosis, including the occurrence in one or both members of a pair of binovular twins, is clear. The exact nature of this hereditary factor is not known. Kleinberg (1926) observed the altered vascular patterns in scoliosis and more recently Trueta (1958) has pointed out that disturbances of blood flow to the epiphyseal plate may cause both over-activity or its transient or permanent arrest. Despite the work of Riddle and Roaf (1955) on the relationship of muscle imbalance to idiopathic scoliosis, it seems likely that Trueta's observations have a more direct bearing on any hereditary factor.

FIG. 3
Radiographs of the twins—A (*left*) and D (*right*)—
showing the similarity of the curves.

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