RESOLVING SCOLIOSIS

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It has usually been accepted as a working hypothesis in scoliosis that, once a curve with structural changes is present in a growing child, it will increase. The extent of the increase will depend on various factors, the most important single one being the length of the growth period still ahead of the patient. In the continuing search for the factors influencing the increase in the deformity it has become evident that things other than growth, and other mechanical factors, influence the behaviour of the curve. Furthermore it has become possible, by careful charting and curve analysis, to give a fairly accurate prognosis in many types of curve. Some of the unknown factors can be exemplified by the markedly different types of curve in poliomyelitis—the paralytic type—and the type which I call “idiopathic” (Figs. 1 and 2). No reliable evidence is available yet as to what is responsible for this strikingly different curve pattern. The conception that once a curve has started it will inevitably increase is the logical conclusion of a mechanical approach to the problem. It might be called the “vicious circle” concept of scoliosis.

In the study of the factors concerned, and the variety of curve patterns and progress, it became evident that this gradual increase with varying speed does not always take place. It was also pointed out (Scott 1956) that there was a high proportion of infants (80 per cent at six months) having a definite lateral curve of 10 degrees or more, that this had decreased without treatment to 7 per cent by eighteen months, and that none of these children had a measurable deformity by the age of two years. This state of affairs was considered to be a natural infantile alignment of the spine, and the disappearance of the curve was attributed to the assumption of the erect posture. A resolving type of infantile scoliosis was also described in which curves of 20 degrees with structural changes gradually disappeared over anything up to four years (Scott and Morgan 1955).

The purpose of this paper is to describe four patients whose curve patterns and progress suggest that “resolving” types may be much more frequent and variable than is at present appreciated.

CASE REPORTS

Case 1—Child born in March 1947. First seen at age six months with curve of 25 degrees. The curve extended from T.6 to T.11 and was convex to the left. He was seen at intervals of six months. The curve remained about the same for three years, and then rapidly decreased. There was no other abnormality to be found, and the child was healthy in every other way (Figs. 3 to 7).

Case 2—Child born in December 1946. A spinal curve was noticed in the nursery. It extended from T.6 to T.11 and was convex to the left. The child was otherwise normal, and there had not been any abnormality in pregnancy or delivery. The curve has gradually decreased from 48 degrees at the age of two to 10 degrees at the age of eleven (Figs. 8 to 12).

Case 3—Child born in January 1950. Seen at age one month. There was a congenital abnormality of both arms, with partial absence of the left humerus and dislocation of the head of the right radius. A lateral curve of the spine was first present at eighteen months. It extended from T.6 to T.12 and was convex to the left. There was no evidence of a congenital abnormality of the spine. After remaining about the same till the age of five the curve gradually decreased, and at the age of eight has virtually disappeared (Figs. 13 to 17).
Severe paralysis at seven months, with gross muscle imbalance of trunk and limbs. Curve increase from 15 degrees to 55 degrees in eight years. Apex of curve at T.7; convex to the left.

Paralysis at age seven, with almost full recovery. Lateral curve first detected at age twelve. Curve increase from 56 degrees to 110 degrees in four years. Apex of curve at T.7; convex to the right.
FIG. 3
Case 1—Chart showing the regression of the curve.

FIG. 4
Case 1. Figure 4—Initial radiograph, at age six months. Figure 5—At age two years.
FIG. 6
Case 1. Figure 6—Radiograph at age four and a half years. Figure 7—At age ten years.

FIG. 7

FIG. 8
Case 2—Chart showing the gradual regression of the curve.
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Case 2. Figure 9—Radiograph at age two years. Figure 10—At age four years.

Case 2. Figure 11—At age six years. Figure 12—At age eleven years.
Fig. 13
Case 3—Chart showing regression of the curve.

Fig. 14
Case 3. Figure 14—Radiograph at age one and a half years. Figure 15—At age two and a half years.
Case 3. Figure 16—At age four years. Figure 17—At age eight years.

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Supine ········
Erect x·x·x

Case 4—Chart showing progress and regression of the curve.
Case 4. Figure 19—Radiograph at age one year. Figure 20—At age three years.

Case 4. Figure 21—At age four and a half years. Figure 22—At age ten years. Figure 23—At age thirteen years.
Case 4—Child born in December 1944. No abnormality in pregnancy or delivery. A lateral curve was recognised at ten months. It extended from T.6 to T.11 and was convex to the left. The child was otherwise normal, and reached a height of 5 feet at the age of thirteen. After increasing from 20 degrees to 42 degrees in the first six years of life the curve gradually decreased during the next six years (Figs. 18 to 23).

COMMENT

These cases are of particular interest in that they all fall into the infantile idiopathic group, and all might have been expected to proceed to severe deformity. They were recognised at a time when full spinal growth was ahead, and all had the type of structural changes so often seen in the early stages of the progressive curve. It is of interest that the curve pattern was the same in the four patients. The significance of this is slight in so small a number—many of the severe curves occupy this same area—but in the progressive type the apex tends to be higher and the curves shorter.

None of these patients had any treatment which could have affected the outcome in any way. Repeated radiography was the most active step taken in any of them.

These are challenging observations. There can be little doubt that they carry a message which should be of assistance in the solution of this baffling problem. Speculation as to what the corrective force is, and how it operates, is of little value at this stage, but reports of all the cases of this type may well add vital information.

SUMMARY

Four cases are reported in which infantile idiopathic structural scoliosis gradually decreased during the period of active growth.

I wish to thank all my colleagues at the Nuffield Orthopaedic Centre who have sent me their patients, and also Miss Craib, clinical photographer at the Centre.

REFERENCES
