

CONGENITAL SCOLIOSIS: THE ROLE OF ANTERIOR AND POSTERIOR FUSION

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INTRODUCTION

From 1916 when Russell Hibbs of New York did the first spinal fusion for scoliosis until 1963 when Arthur Hodgson of Hong Kong did the first anterior spine fusion for congenital kyphosis, posterior spine fusion was the state of the art. Since 1963, anterior spine fusion has been utilized with increasing frequency. The ultimate expression of this philosophy has been the opinion by some surgeons that all congenital spines have both anterior and posterior surgery (1993).

THE BENEFITS OF ANTERIOR AND POSTERIOR FUSION

There are three main benefits of this combined approach: (1) a higher rate of fusion (lower pseudarthrosis), (2) a higher percentage of correction due to multiple disc excisions, and (3) prevention of late bending and torsion (the "crankshaft" phenomenon).

THE NEGATIVE ARGUMENTS AGAINST BOTH SURGERIES

Since most patients having fusion for congenital scoliosis are children, and the fusion rate is very high in children, it would seem excessively dangerous to add anterior fusion for a problem having a very low pseudoarthrosis rate.

As to higher percent correction, the facts of life are that most congenital scoliosis are quite rigid and adding an anterior discectomy does not significantly increase the flexibility.

As to the crankshaft problem, it is actually much less common in congenital scoliosis as compared to juvenile idiopathics or juvenile neuromuscular prob-

lems. To add an anterior fusion routinely for a rare problem is to invite problems where none exist.

WHAT IS THE TRUE ANSWER TO THIS CONFLICT?

As in all things in medicine, there is no simple, all-inclusive answer. Our patients have a multitude of problems, ranging from very simple to very complex.

There are many congenital scoliosis which are slowly progressive in lateral bend deformity, but are without simultaneous rotational deformity. This is very different from idiopathic and neuromuscular deformities. Torsional progression requires very healthy anterior growth plates and many congenitals are without those. A good rule is that the patient who progresses, but does not rotate, does not need an anterior fusion.

Patients needing a significant amount of correction usually need an anterior operation in order to make the spine more flexible. The ultimate example of this is hemivertebra excision or even corpectomy.

Patients with significant even lordosis or kyphosis almost always require both anterior and posterior surgery. Patients with lordosis need very much the anterior growth arrest and patients with kyphosis need anterior release and fusion in order to achieve a solid fusion, impossible by posterior surgery alone.

CONCLUSIONS

Combined anterior and posterior surgery is almost always necessary with congenital lordosis and kyphosis, but should be used in congenital scoliosis only on a limited basis for very specific problems.

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