



Early Onset Idiopathic Scoliosis

Cause

Spinal curvatures can occur in children for no known reason. Whereas some of these curvatures will go away without treatment, others will increase rapidly to produce a severe abnormality.

Diagnosis

When scoliosis arises at a young age (also known as infantile idiopathic scoliosis) the parents will often be the first to notice a child's curvature. Early signs of scoliosis in babies may be a bulge on one side of the baby's back or chest or the baby may consistently lie curved to one side. It is very important to find out quickly whether a child has a curve that will progress, so if a parent notices the signs they should make an appointment with their GP to confirm the diagnosis. If confirmed the GP will then refer the child to a scoliosis specialist. If treatment is given at the earliest possible moment, even worsening curvatures can be helped to grow straight, permanently.

A quick forward bend test (see image below) will screen out almost all potentially troublesome curvatures. The test is very easy to do and children should be examined bare-backed. The child should bend over from the waist while keeping the legs and arms straight and the palms together. From the rear, a clear rib bulge will be visible if the child has scoliosis. A common sign of the problem is one shoulder blade being more prominent than the other, with the child tending to lean a little to one side. Also, the hips may be uneven. The condition will not go away as the child gets older, and the earlier the scoliosis is detected and treated, the better.



Treatment

There are four main types of treatment for early onset idiopathic scoliosis. Which treatment is advised will depend on the type of curvature present in the child. When scoliosis occurs at a very young age, there are several important implications for management and treatment. The normal route of treatment for scoliosis is spinal fusion. In a young child, however, such surgery would almost certainly stunt their growth leading to complications in adult life. For this reason, other techniques have been developed for management of infantile idiopathic scoliosis. These techniques take into account growth of the spine as well as growth of the rib cage and the lungs.

- Monitoring

In some cases no intervention will be necessary and the child will simply be monitored by a scoliosis specialist until the curve has straightened during the child's natural growth.

- Casting

In many cases of early onset idiopathic scoliosis the child's spine might need to be guided into its normal position as the child grows. This positioning is currently done by applying an external brace to the torso made out of a lightweight combination of plaster-of-Paris and modern casting materials. The cast is worn constantly and cannot be removed, but is changed to allow for growth and remodelling. Casts need to be made in a very specific way with a hole in the chest area to allow for the lungs to expand; so ensuring that the child sees an infantile scoliosis specialist is essential.

In children aged less than 2 years, in whom the goal is curing scoliosis, the cast will be changed under anaesthesia every 2-3 months with the aim of achieving a straight spine. Despite extensive casting, a removable brace may still be needed after the preceding treatment.

- Bracing

If the curve is progressive, and the child is still growing, the specialist may want to place the child in a cast or brace. Rarely does a brace permanently correct scoliosis; instead the aim of bracing is to allow the child to grow before a more definitive procedure, such as surgery, is done. Braces generally need to be worn 23 hours per day and are usually removed only for bathing and special occasions. As the child grows, new braces will need to be made. A permanent brace can sometimes be fitted, and is known as a plaster cast. Many parents find the cast preferable to braces, eliminating problems of compliance and the difficulties of donning braces in uncooperative young children.

- Surgery

If the child's curve continues to progress despite bracing or casting, an operation may be necessary. This will probably be an operation whereby a scoliosis specialist will insert growing rods. The theory of the growing-rod procedure is to allow for continued controlled growth of the spine. In general, the rods are attached to the spine above and below the curve, usually correcting the curvature by 50% at the time of the first operation. The child then returns every 4-6 months to have the rods lengthened by about 1 centimeter to keep up with the child's growth. This procedure is usually done through a small incision, and takes place in an outpatient clinic. Most children will have to wear a brace to protect the instrumentation. When the child becomes older and the spine has grown, the doctor will remove the instrumentation and undertake a final spinal fusion operation.

Prognosis

For a baby, if the curve is treated early the outlook is good because in the first year of life babies' bones are very flexible and the spine can be corrected and grow straight. If neglected, however, a progressive scoliosis will get worse all the time the child is growing, which could mean years of hospital visits and probably major spinal surgery in adolescence.

In a child, curves that reach 30 degrees tend to continue to worsen without treatment. Bracing is often used to manage these curves, but nearly 95% of children in the juvenile age range go on to require surgical treatment.