Scoliosis

Did You Know?

Scoliosis

Take-home message

- The risk of developing scoliosis is greater in women than in men.
- Idiopathic scoliosis affects 2.5% of the population.
- The evolutionary risk of scoliosis persists as long as pubertal growth is not complete.
- Scoliosis may be the result of a congenital malformation, or a consequence of a neuromuscular or bone disease.

Complications

- Back or lumbar pain.
- Chest deformity which may lead to respiratory failure and cardiovascular complications.
- Aesthetic burden.

Possible treatment

- Drug and hormonal therapies must ensure the best bone strength.
- Rehabilitation to maintain the best flexibility.
- Conservative orthopedics including lambostats and braces in order to block the evolution of scoliosis.
- Surgery of scoliosis (the surgery is prescribed only in severe cases because it is cumbersome and very difficult).

Cobb measurement with MRI : with total spine MR imaging the lordotic aspect of the thoracic deformation in scoliosis can be reliably measured.

Because of the absent radiation exposure deformation in scoliosis can be reliably measured.

In Olea Sphere®?

In Olea Vision the CPR (curvilinear reconstruction) functionality allows to reconstruct a new plane following a path defined by the technician. In the case of scoliosis, this will allow better analysis in a corrected image. Indeed, the exaggeration of the curvature can sometimes interfere with the classical interpretation of images because of the anatomical deformities caused by scoliosis, as well as by the lack of classical anatomical reference.

A 3DT2 acquisition is necessary to ensure a high-quality curvilinear reconstruction.

This reconstructed image is systematically compared with the native images in order to avoid the interpretation of artifacts related to the image reconstruction.

Figure 1: native images of 3DT2 acquisition.
Figure 2: curvilinear reconstruction showing the spine in the sagittal plane, showing on the same plane all the structures of the thoraco-lumbar spine (curvature "corrected" by the reconstruction).
Figure 3: visibility of the curvature in a «corrected» coronal plane thanks to a curvilinear reconstruction following the spine in the sagittal plane.

Sources: [1] Scoliosis Cobb angle measurement to scoliosis with MRI whole spine imaging. [2] Anca M. via Riken Center study showed a new gene associated with adolescent idiopathic scoliosis. It is located on Chromosome 6 (GPR126). This gene delays the growth and formation of bone tissue.

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