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Reviews

IDIOPATHIC SCOLIOSIS: KEY IDEAS OF TRAFFICKING CONSERVATIVE LIE

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Abstract: Scoliosis is a deformity of the spine with a curvature in the coronal plane (ÿ 10º), fixed with area of rotation (axial plane) and a tendency to hypokyphosis (sagittal plane) with no known cause. It comprises 80% of scoliosis and represents a prevalence of 3% of the population. The first that we should always do, it is a detailed clinical history. It is important to rule out the presence of “red flags”. The assessment of Risser and Sanders makes it possible to determine the probabilities of progression of the curve. Brace treatment is initiated in the presence of a curve greater than 25º, is effective, and is depending on the hours that the patient wears it. Correct, close monitoring is important throughout the growth stage until the patient's complete skeletal maturity.

Keywords: "scoliosis", "idiopathic adolescent scoliosis", "conservative treatment", "brace", "diagnosis", "follow-up".

1. What is adolescent idiopathic scoliosis?

Scoliosis is a spinal deformity with a curvature in the coronal plane (ÿ10º), with a fixed area of rotation (axial plane) and a tendency to hypokyphosis (sagittal plane) with no known cause.

This term should not be confused with spinal asymmetry, whose definition encompasses those curves with a Cobb angle < 10º. [1]

Scoliosis has been classically classified as infantile (those with onset from birth to 3 years), juvenile (from 4 years to 10 years), and adolescent (>10 years).

This concept is currently giving way to that of “early onset scoliosis”, or early-onset scoliosis, which encompasses children <10 years of age, or “late onset scoliosis” or late-onset scoliosis, in which case it involves children > 10 years old with initial diagnosis of scoliosis. [2]

It comprises 80% of scoliosis and represents a prevalence of 3% of the population. There is a clear predominance of the female sex, and the curve that is most frequently observed is the right thoracic. Idiopathic scoliosis is not usually associated with pain. [3]

2. Basic exploration and without alarm sockets

Before every patient, and the first thing we should always do, is a detailed medical history. In it we will ask:

2.1 Reason for consultation: the most frequent is deformity

2.2 Clinical history:

- When and how the deformity was recognized.
- Associated symptoms: pain
- Developmental history: birth, growth pattern, maturity (menarche), history familial scoliosis teeth.

We will undress the patient and perform a **detailed clinical examination** and observe:

- Height
- Weight
- Waist creases
- Asymmetry
- Stigmata on the skin: café-au-lait spots, nevus, hemangiomas...
- We will assess laxity and gait. We will
- observe discrepancies and deformities in the feet.
- We will perform the Adams Test. If the Scoliometer shows us >7º, a study is indicated radiologic.
- Palpation of spinous processes

We must also perform a neurological examination:

- strength and sensitivity
- ROTs
- Abdominal reflex (syringomyelia)
- cuntaneoplantar reflex
- Clonus

We have to be careful with the symptoms and warning signs, which are not common in scoliosis and which force us to rule out other underlying pathologies in the child. The red flags of scoliosis are when there is an abnormality in the neurological examination, a history of atypical pain, the cavus or club foot deformities, excessively rapid progression curves, atypical curve patterns (left thoracic, hyperkyphosis, lack of rotation…) and children under 10 years of age with curves greater than 20º.

3. Complementary tests in scoliosis and parameters to be measured

In these cases we will request:

• Complete Rx PA/lat spine 30x90 in standing position • Lateral bending Rx, important to determine if the curve is structural or not. • Hand X-ray, useful for measuring bone age • MRI in the event that there are symptoms and warning signs (already described previously)

We must measure the following items in the radiographs when measuring them:

• Apex: vertebra that presents a greater degree of rotation

• Limit vertebra: they are the ones that delimit the extension of the curve, and the most inclined.

• Cobb angle: formed by the upper limit vertebra and the lower limit vertebra.

• Stable Vertebra (SV): most proximal vertebra divided in 2 by the CVSL (central vertebral sacral line).

• Neutral Vertebra (NV): vertebra with less rotational component.

After that, and depending on the location of the apex of the curve, we will say that the curve is:

• **Upper Thoracic:** T2-T6
• **Middle thoracic:** T6-T12
• **Thorcolumbar:** T12-L1
• **Lumbar:** L2-L4

Subsequently, we will make the bendings, which will help us to determine if that curve is flexible. ble or, if on the contrary, it is rigid. We consider that a curve is structural when in the bending we are presented with a curve > 25º, or a kyphosis > 20º. [4-6]

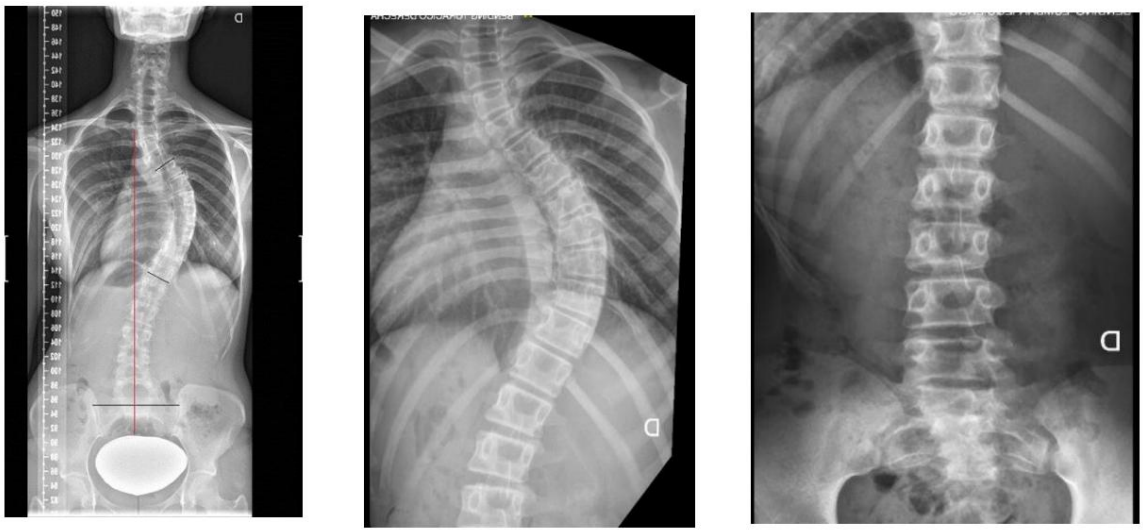

Figure 1: A pattern of right thoracic curve with non-structural lumbar curve is shown, the more frequent in adolescent idiopathic scoliosis

We will also measure the sagittal balance, important to determine if the scoliosis kyphosis is normal or if there is hypo or hyperkyphosis.

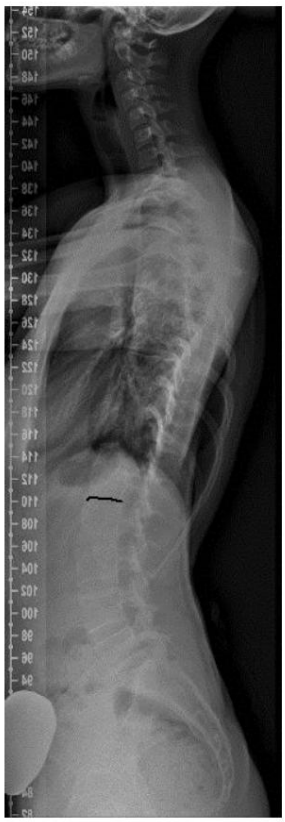

Figure 2: hypokyphosis in scoliosis

4. Progression factors and assessment of growth

It is very important to determine if we are dealing with a patient who still has growth ahead of him. To do this, there are different methods that allow us to estimate whether there is still a period of growth.
I lie. [7]

Among the most used is the Risser, a classic method used for years that determines the ossification of the iliac wing and that varies from 0 to 5, 5 being complete ossification. Re Risser + has recently been described, which divides grade 0 between 0- and 0+, depending on whether there is no ossification of the triradiate cartilage (Risser 0-) or there is ossification of the triradiate (Risser 0+).
[8]

Another classic system is the Sanders, which makes it possible to determine skeletal maturation through X-rays of the hand. It is a scale that varies from 1 to 8, with 8 being the maximum maturity. The period of greatest growth usually occurs in Sanders 3, and is determined by an increase in the epiphysis with respect to the metaphysis. [9]

Among the factors for the progression of scoliosis are [10,11]:

-Skeletal immaturity
-Risser 0-3
-Open triradiate cartilage
-Women
-Double curves
-Severe curves: the greater the magnitude, the greater the risk of progressing.

5. How and when do we use conservative treatment? Follow-up

5.1 Observation

The observation is made with curves <20º.

Alternative treatments to prevent curve progression or prevent curve progression such as chiropractic medicine, physical therapy, yoga, etc., have not shown any scientific value. fico in the treatment of scoliosis. [4]

5.2 Brace treatment

The indications are:

1- **Cobb angles ÿ25-45º**
2- Curves in full growth (Risser 0-3; Sanders <3) 3- Cobb angle of lesser magnitude (20º) **whenever there is a documented progression of the curve.**

4- < 1 year postmenarche at the start of brace treatment [2,12,13]

Among the different and multiple types of corset are the Cheneau type corset (it adapts to the curve of each patient), or the Boston type preformed corsets (apex of the curve equal to or below T7) or Milwaukee (apex of the curve above T7).

The use of the **corset is effective.** In those patients who wear it, it prevents progress to a surgical curve in up to 72% of patients. [14] Wear as many hours as possible, since the benefit increases if >18 hours a day. During monitoring and control, it is necessary to carry out
X-rays with a brace. [fifteen]

5.3 How often will we make an appointment with the patient? [eleven]

It will depend on whether our attitude is observation or whether he is wearing a corset.

If there is an attitude of observation, the following must be cited:
- Every 4 months if riser <2 or <20º.
- Every 6 months if Riser >2 or >20º

If you have corset treatment:
- Every 3-4 months if Risser <1
- Every 6 months if Risser = or > 1

If in the conservative treatment with the corset we determine an increase in the curve, we must
determine if the corset has become too small, if it is properly placed, and we will look for signs of use (marks on the skin of the corset, wear on the straps, ect). In the event that the use has been correct, an X-ray must be performed without a corset.

The end of the treatment with the corset is determined by skeletal maturity, and therefore there will be a Risser > 4, a Sanders 6 to 8, a height growth of less than 1 cm in 6 months or the passage of 18-24 months after the menarche in girls. [13]

Yes, it has been seen that there are two moments of risk of curve growth after the removal of the corset: in pregnancy and in postmenopause. In these cases, radiographs should be taken.
later to determine if the curve has increased or not.[16]

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