

PROGRESSIVE ANTERIOR VERTEBRAL FUSION OR SPONTANEOUS ANTERIOR FUSION IN SCHEUERMANN'S DISEASE? A CASE REPORT

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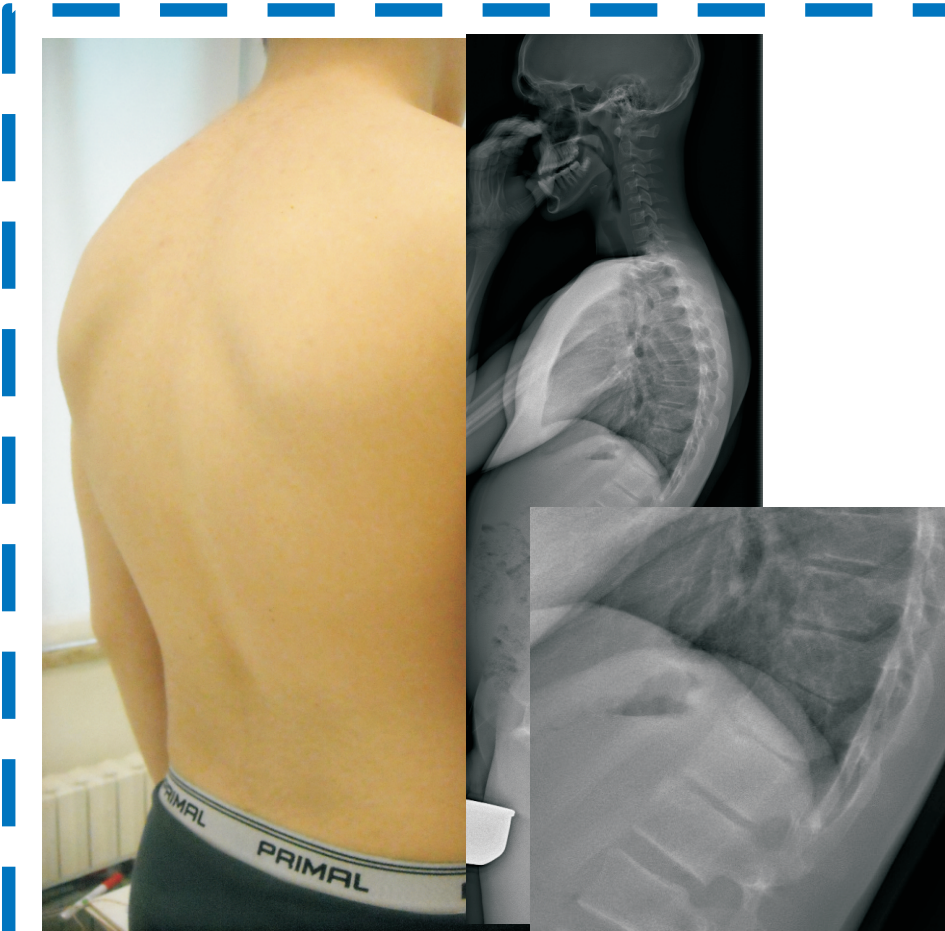
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1 Background

- Scheuermann's disease (SD) is the most common cause of progressive hyperkyphosis in adolescents aged 12-16 years.
 - SD prevalence is 0.4%-8.0% (1-3).
 - The natural history of Scheuermann's Disease is controversial. The condition tends to be symptomatic during the teenage years (1).
- A 12 years boy came for a visit because, the parents noticed a progressive worsening of the thoracic kyphosis.



◆ Even with good treatment results, fusion occurred

◆ What is the reason for the fusion?

◆ If you had similar cases, let us know

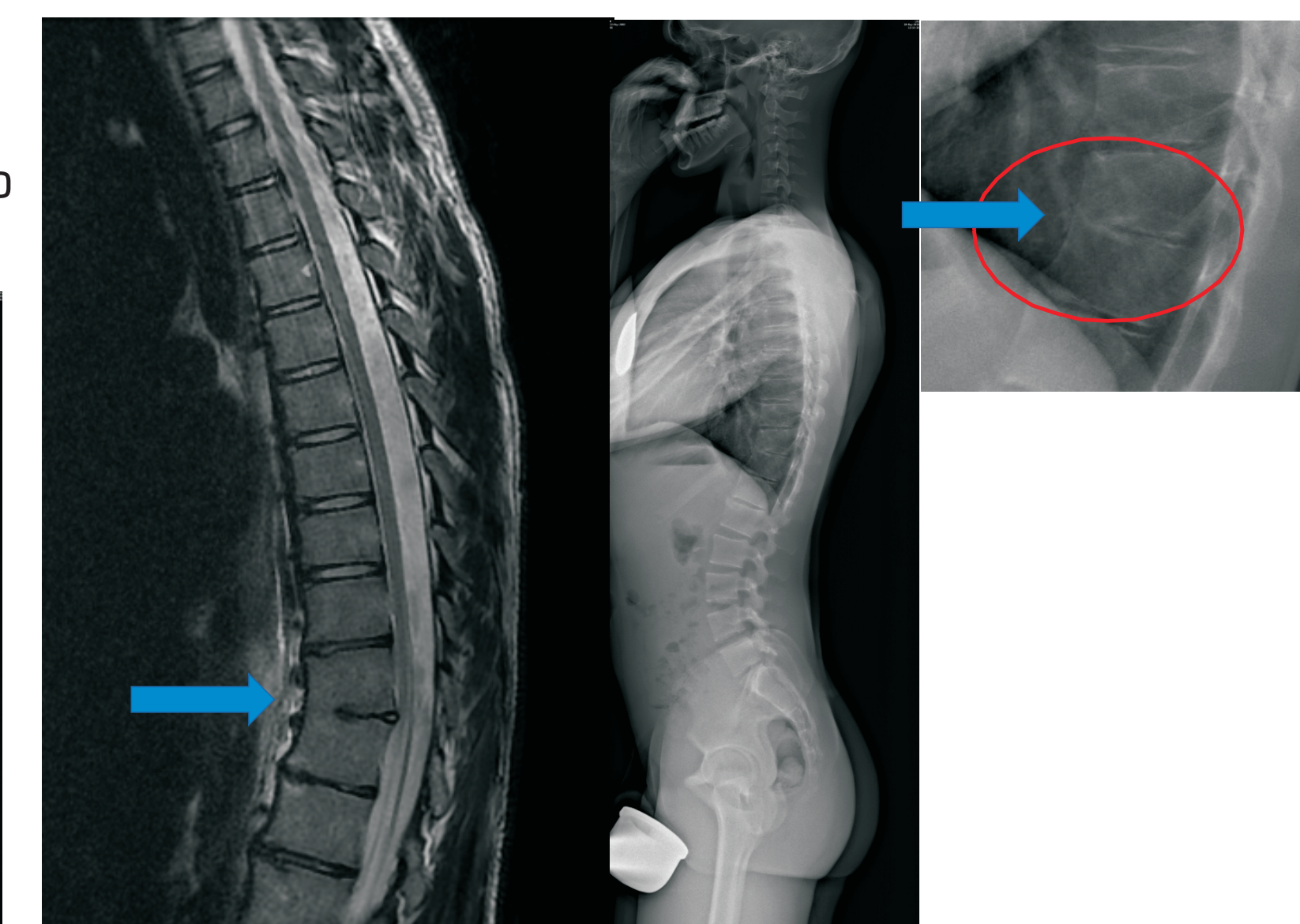
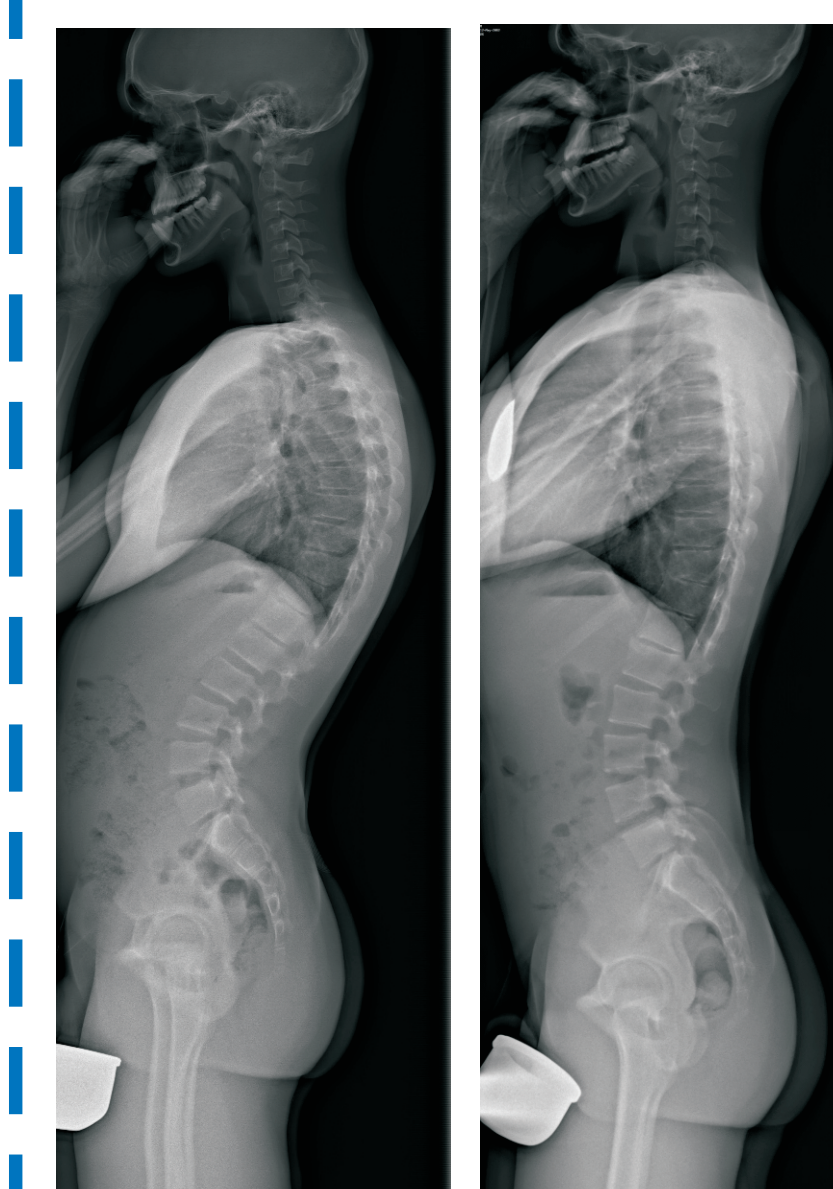


3 Discussion and conclusion

Congenital malformation, infection, serious direct or indirect injury, or other pathology were not considered as potential causes of the synostosis. A rare complication of SD with vertebral fusion has been reported once in 1949 by Knutsson and Kharrat, but also a rare non-infective progressive anterior vertebral fusion (almost 80 cases) has been described.

START to END of treatment

The TK passed from 52° to 27° Cobb angle



The last X-ray showed surprisingly a synostosis T10-T11, confirmed by MRI: in this area the curve remained stable during treatment. All previous x-rays have been checked again and the synostosis was never present before.

2 History

- no familiarities for spine deformities,
- Sport: competitive swim,
- 3 years ago, after a diving he reported a head injury with a vertebral fracture at T6-T7-T8 and T9 without vertebral wedging in the MRI.

Sagittal Index: C7+L3= 135 (C7+L3<90).

Severe stiffness of the thoracic kyphosis rigidity.

At X-rays, Scheuermann's disease signs at T9-T12.

TK = 52° Cobb

LL = 74°

PT = 21

SS = 36

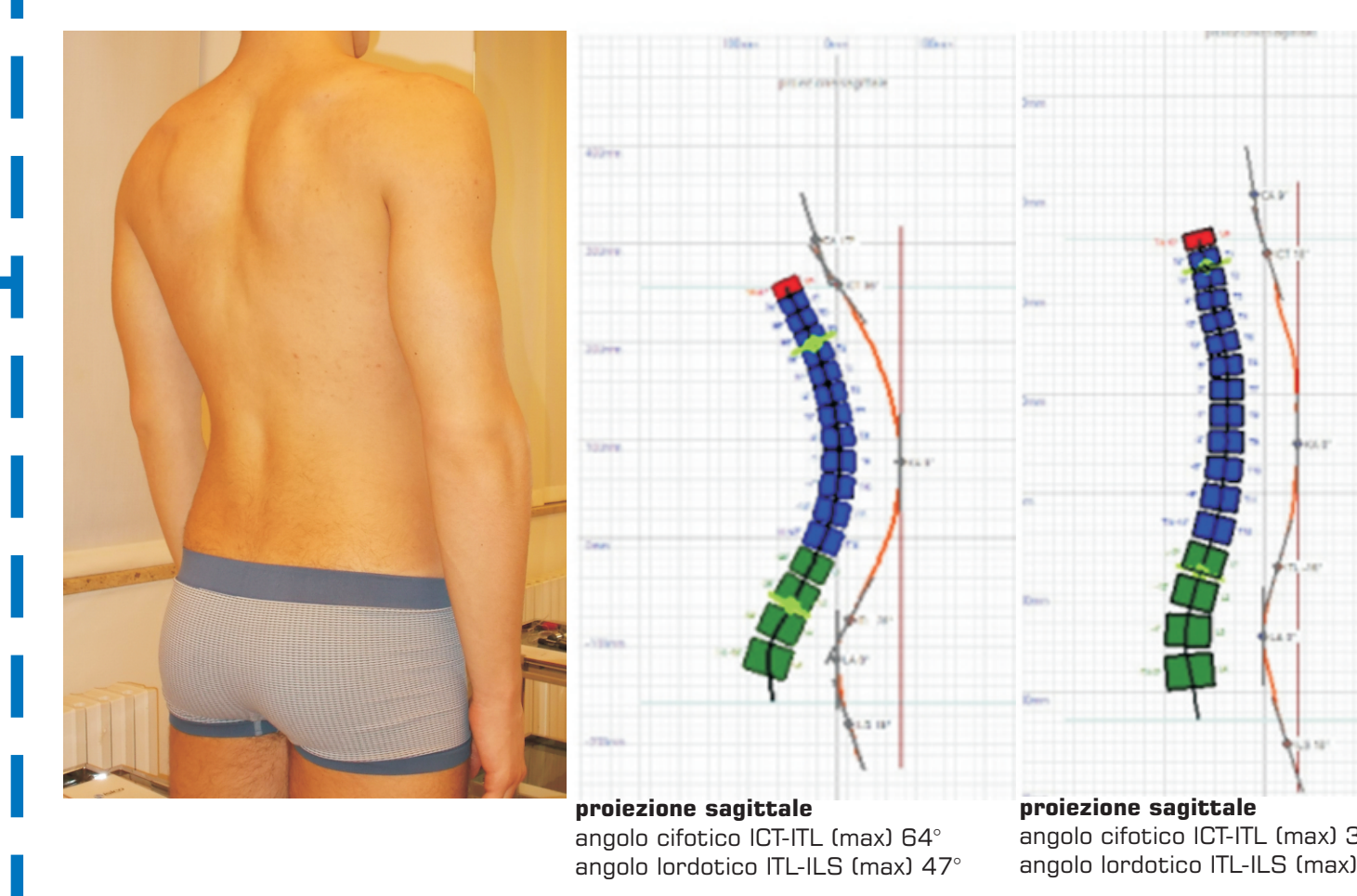
PI = 57

21 hours per day Sforzesco for Hyperkyphosis associated with specific exercise. Hours of brace wear were progressively reduced 2 hours every 6 months, and specific exercise were done 20 minutes a day.

The Real brace wear 100%± 11

(initially he wore the brace a little more than prescribed; a little less in last year).

At the end of treatment, the Thoracic kyphosis angle measured with rastereography passed from 64° to 38°; the curve in the Scheuermann area changed from 30° to 22°



References:

•Sørensen KH. Scheuermann's juvenile kyphosis: clinical appearances, radiography, etiology and prognosis. Copenhagen: Munksgaard, 1964
•Gavin TM. The Ecology and Natural History of Scheuermann's Kyphosis. Prost Orth 2003; 15: 11-14 DOI: 10.1097/00008526-200310001-00003
•Jørgensen F, Engelb V, Andersen M, Kyvik KO, Thomsen K. Prevalence, concordance, and heritability of Scheuermann kyphosis based on a study of twins. J Bone Joint Surg Am 2006; 88: 2133-2136 (PMID: 17015588 DOI: 10.2106/JBJS.E.01302)
•Scheuermann HW. The classic: kyphosis dorsalis juvenilis. Clin Orthop Relat Res 1977; 128:5-7 (2) Sørensen K. Scheuermann's

•Bradford DS. Vertebral osteochondrosis (Scheuermann's kyphosis). Clin Orthop Relat Res 1981; 158:83-90.
•Gotwsky WT. Dithotic result in adolescent Kyphosis. Spine 1988
•Schmidt G. Die Pathogenese der juvenile Kyphose
•Bradford DS. Scheuermann Kyphosis: results of surgical treatment by posterior spine arthrodesis in twenty-two patients
•Bradford DS. The surgical treatment of patients with Scheuermann's disease...
•Bradford DS. Neurological complication in Scheuermann's disease. A case report and review of literature

•Ryan MD. Acute spinal cord compression in Scheuermann's disease
•Wilson JS. Thoracic cord compression in Scheuermann's disease.
•Butler R.W. Spontaneous anterior fusion of vertebral bodies
•Knutsson F. Fusion of vertebrae following non-infectious disturbance in zone of growth.
•Kharrat K, Duboussat J. Bloc vertébral antérieur progressif chez l'énfant...
•Cebulski A. Progressive anterior vertebral fusion: a report of three cases

•Smith J.R.G. Progressive non-infectious anterior vertebral fusion
•Wenger DR. Scheuermann Kyphosis
•Resnick D. Diagnosis of bone and joint disorders