



6<sup>th</sup> International Anthropological Congress of Dr. Ales Hrdlicka 150<sup>TH</sup> anniversary of birth  
"All mankind is of one origin"

## THE EXPERIENCE OF REDUCTION "IRREVERSIBLE" LATERAL CUNEIFORM VERTEBRAL DEFORMATION IN PATIENTS WITH AIS

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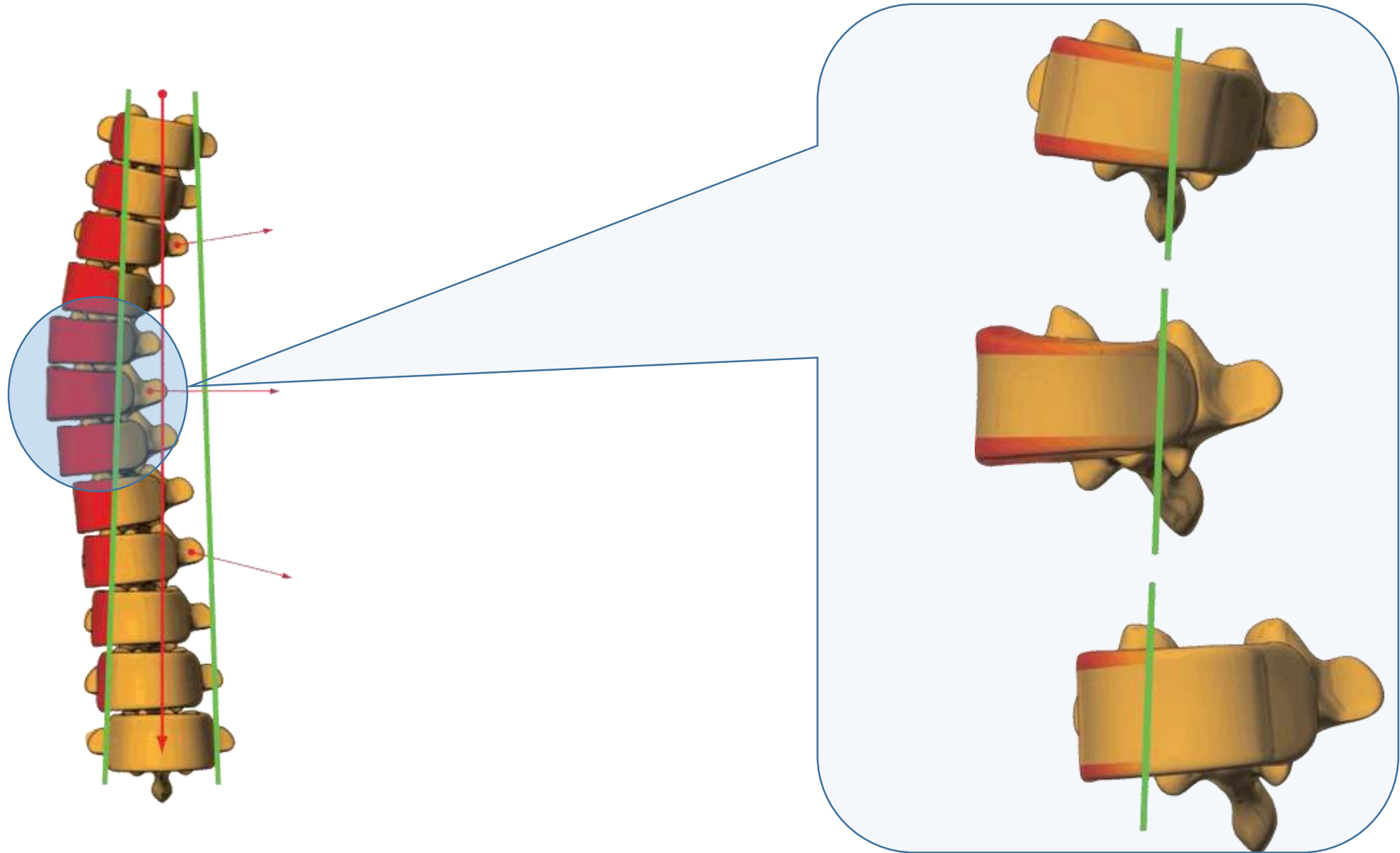
St. Petersburg, Russia

HUMPOLEC, 2019





# TYPICAL MORPHOLOGICAL CHANGES OF VERTEBRAE WITH THE FORMATION OF LATERAL WEDGE-SHAPED BODIES





# THE ORIGIN OF THE DEFORMATION IS FULLY EXPLAINED BY THE LAW DESCRIBED BY CARL HUETER (1838-1882) AND RICHARD VON VOLKMANN (1830-1889) IN THE MIDDLE OF THE XIX CENTURY



Richard von Volkmann (1830-1889)

In the area of reduced mechanical load, bone growth plates are activated, and in the area with increased mechanical load, the opposite phenomenon is observed - suppression of the activity of the growth process. As a result, a wedge-shaped vertebral body develops.

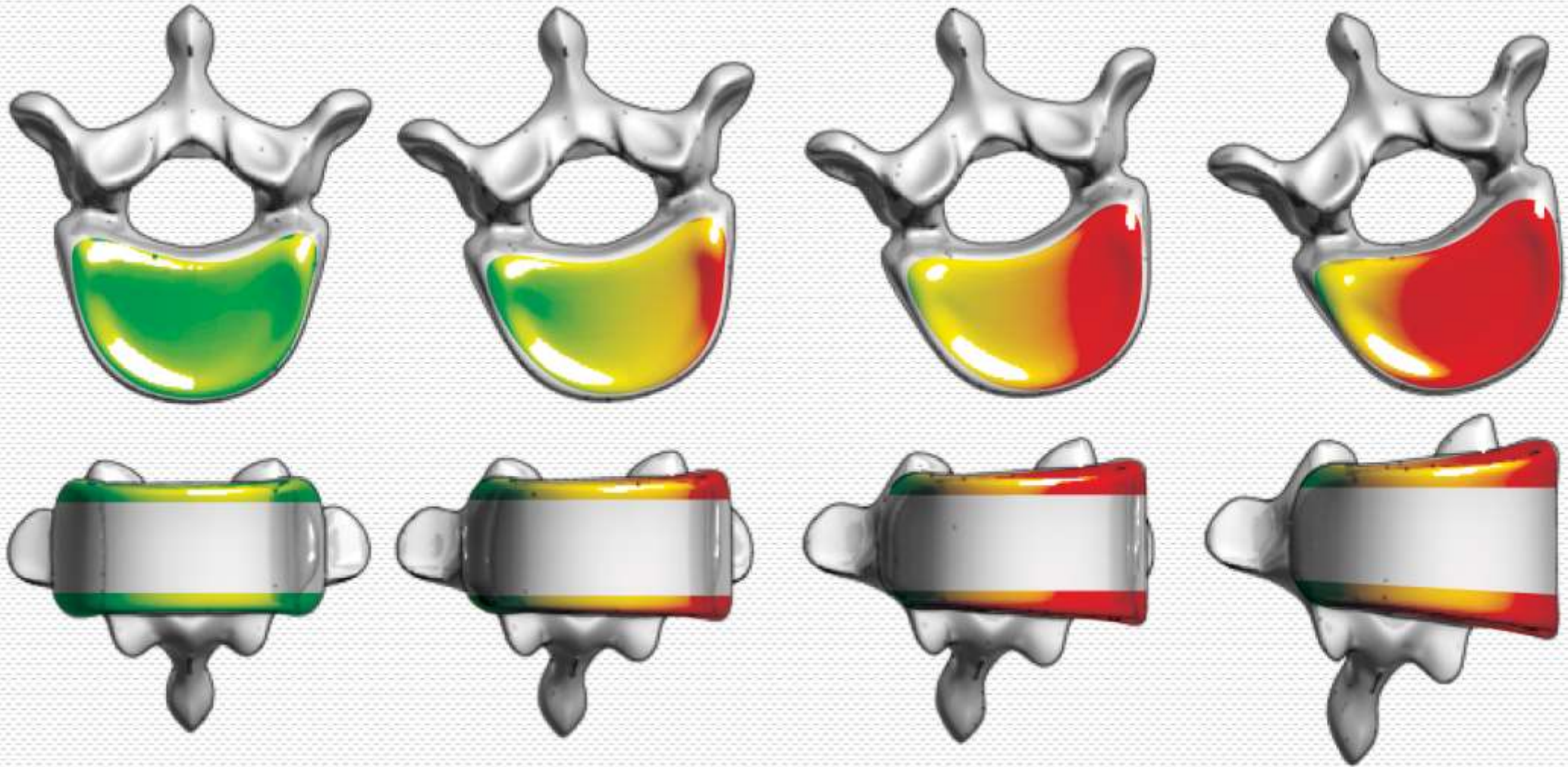


Carl Hueter (1838-1882)



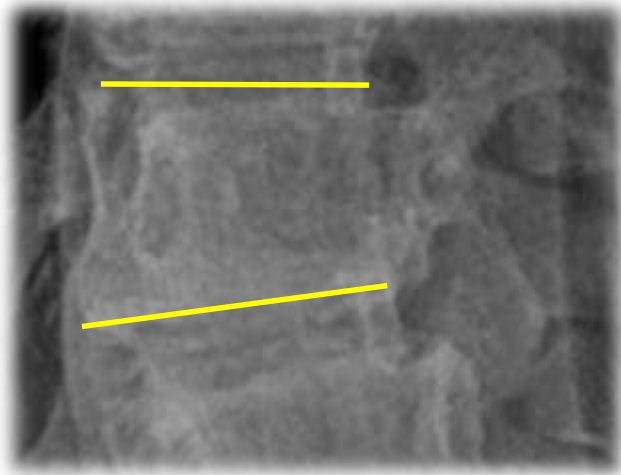


# TYPICAL CHANGE OF THE BODY OF A VERTEBRAL AT PROGRESSION OF SCOLIOSIS

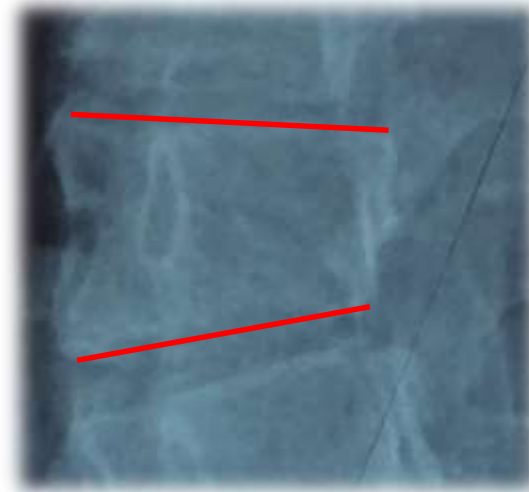




# EXAMPLE OF PROGRESSING SCOLIOSIS AND INCREASING LATERAL WEDGE-SHAPED Th10



2016



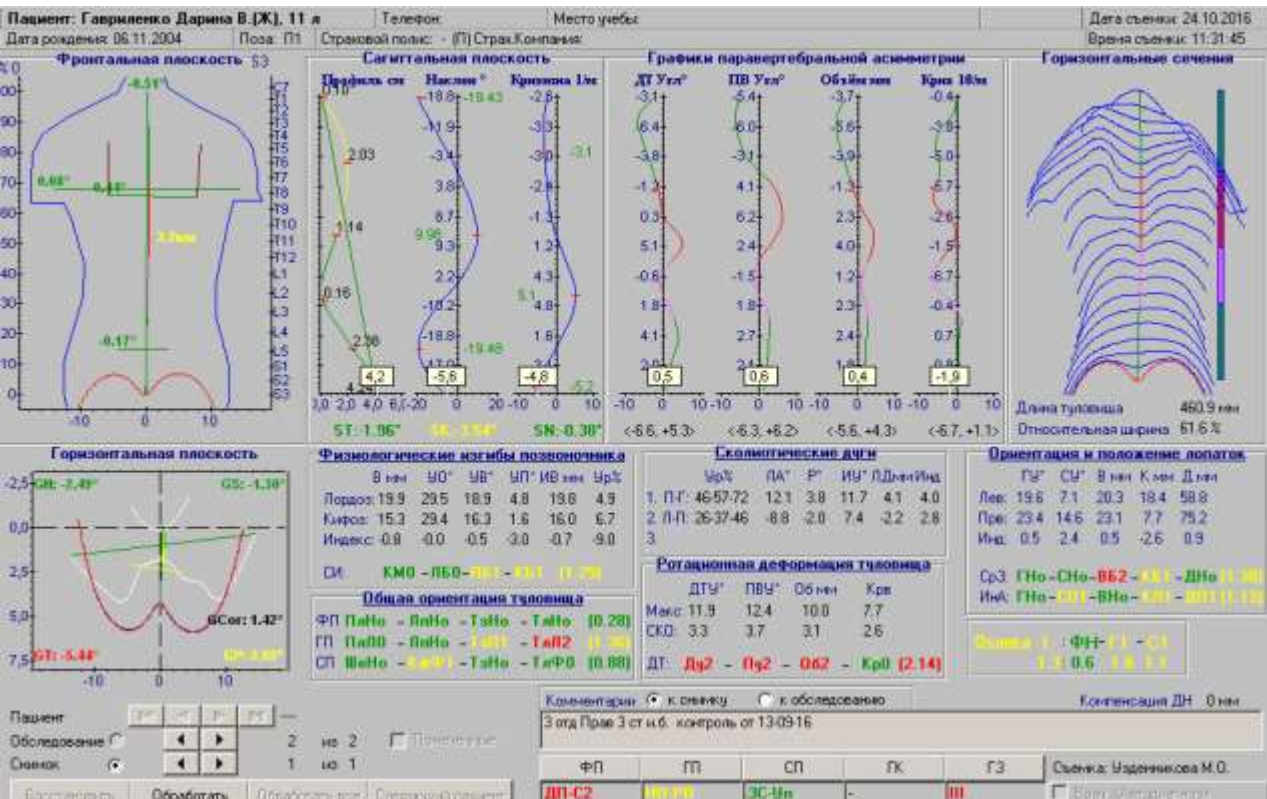
2018



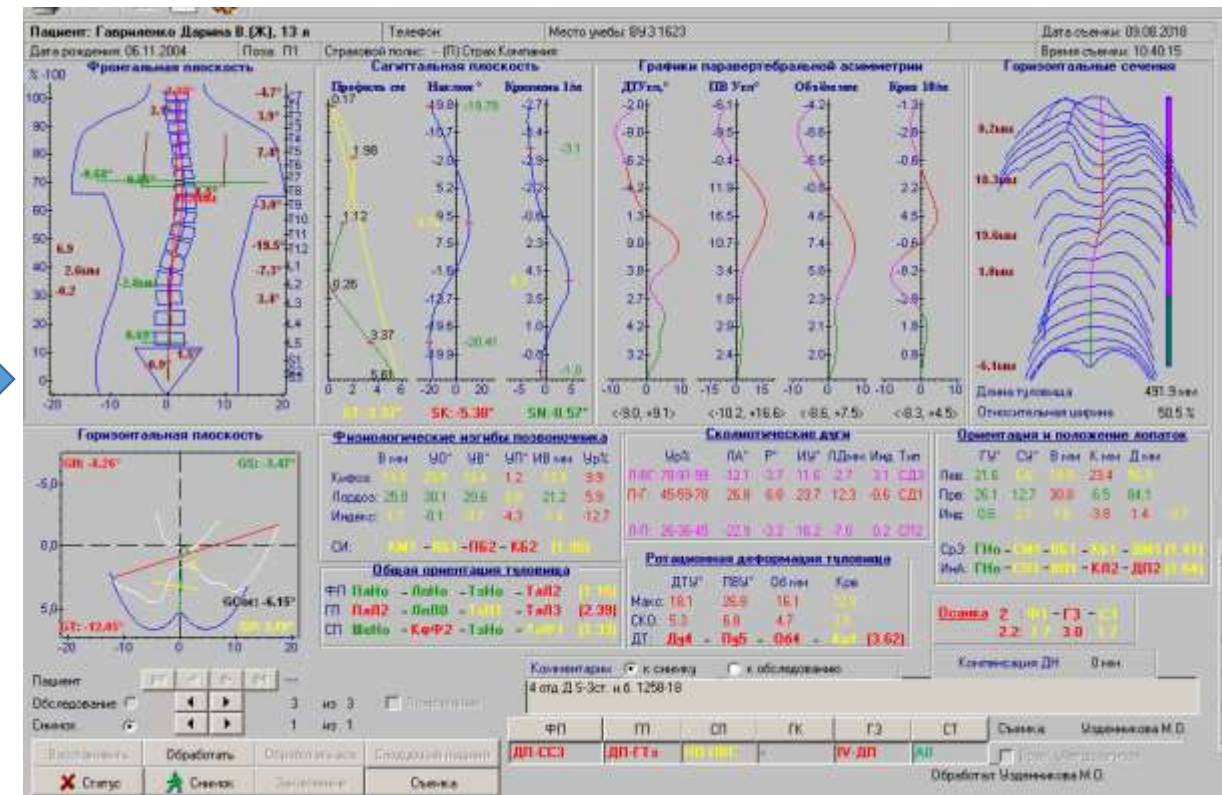




# CHANGE OF COMPUTER TOPOGRAPHY RESULTS IN THIS SAME PATIENT



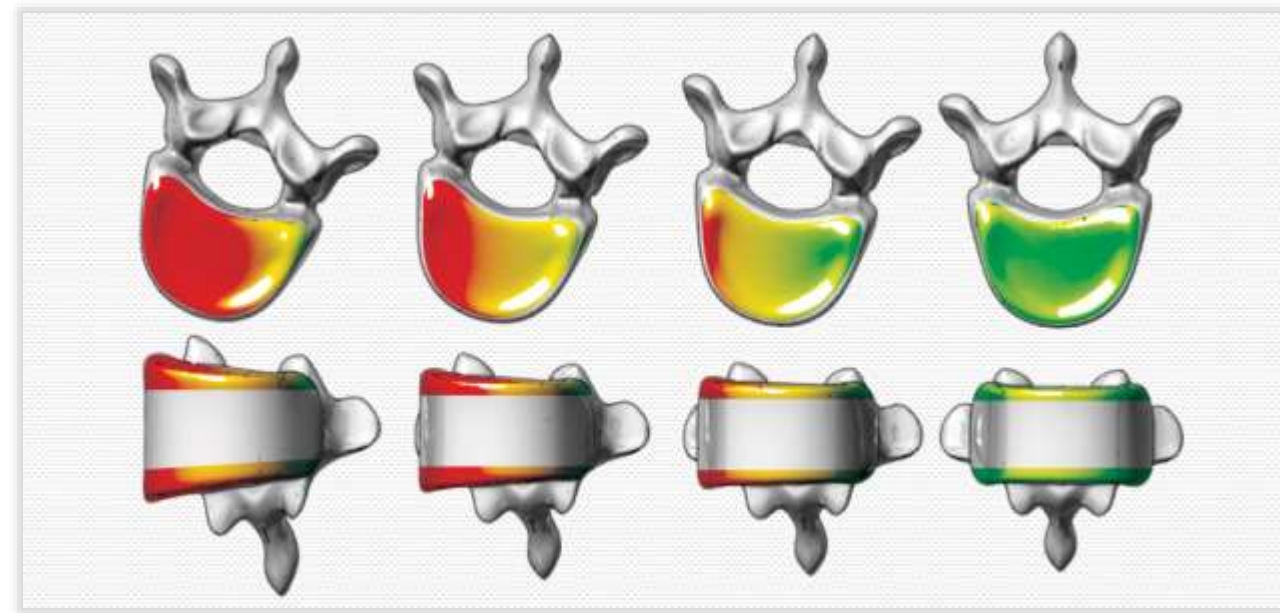
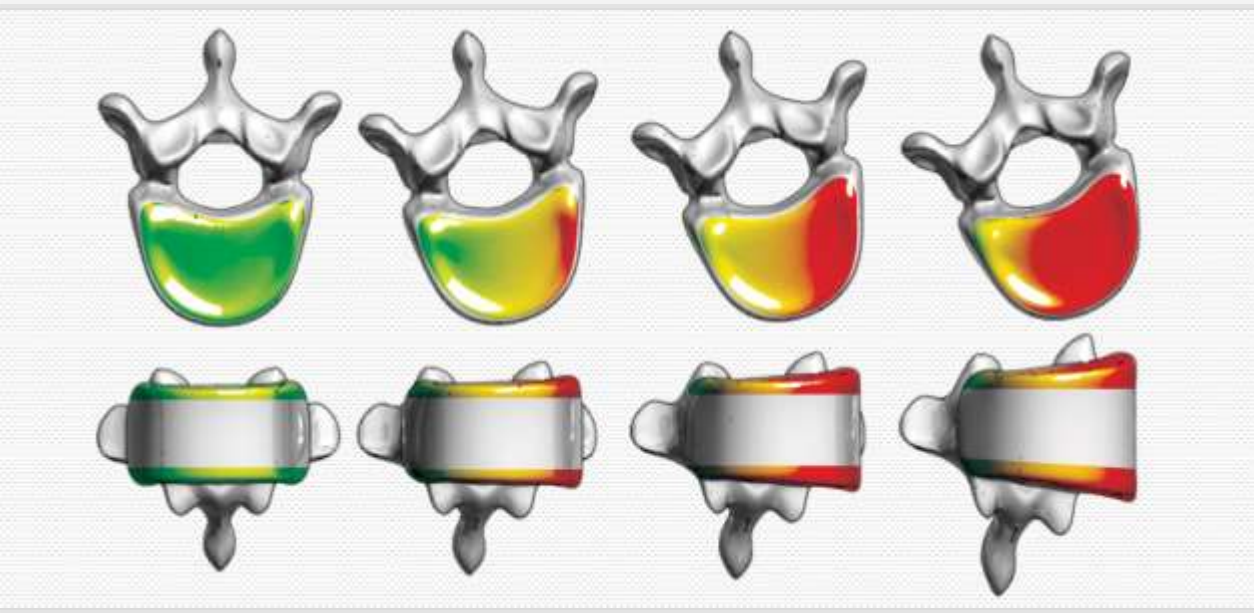
2016



2018



# IS REVERSABLE DEVELOPMENT POSSIBLE ???

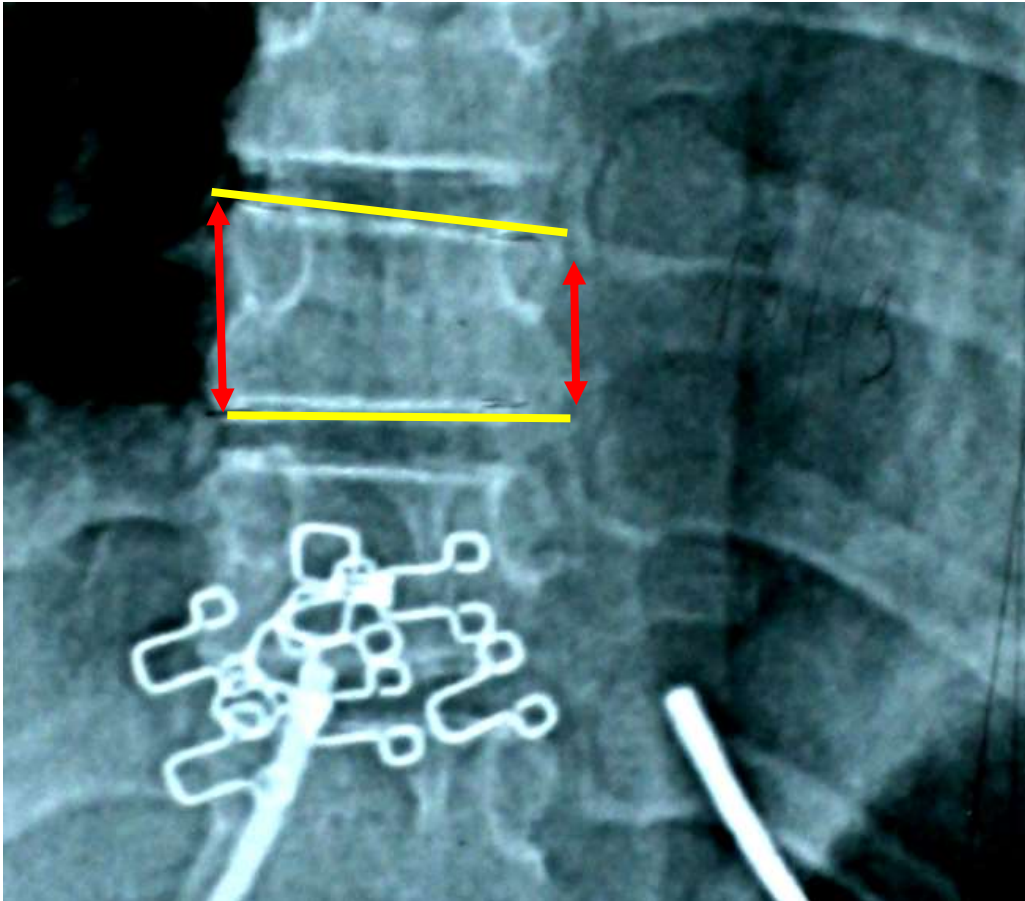






2014 YEAR.

## THE BEGINNING OF THE TREATMENT OF THE PATIENT



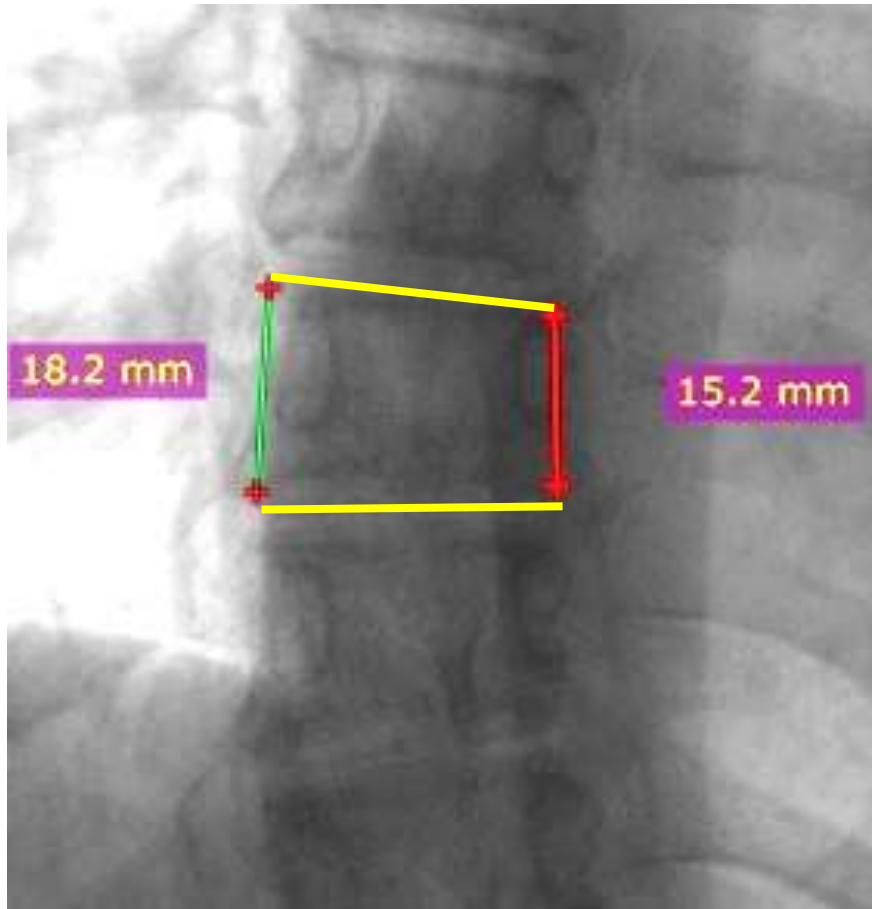
During the initial treatment, the patient revealed characteristic changes in the shape of Tn8 at the top of the arc. His vertebral body had a lateral wedge-shaped deformation of 18.75%





LATER 4 MONTHS.

FIRST CONTROL SURVEY AFTER THE FIRST COURSE OF CONSERVATIVE TREATMENT



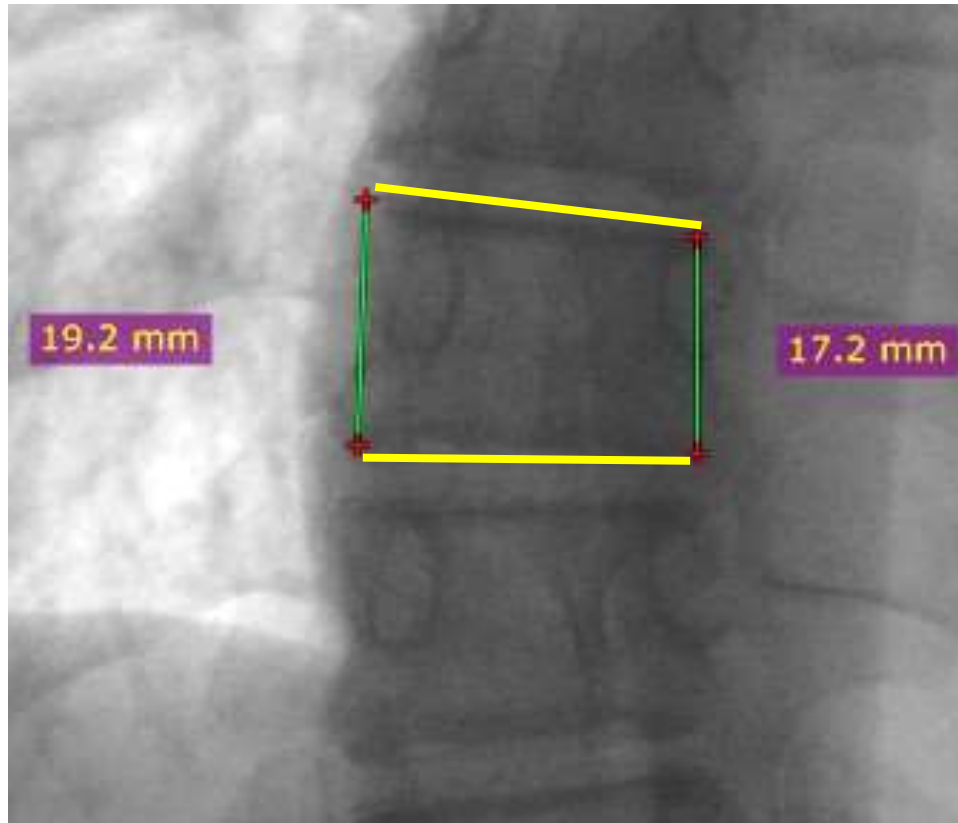
The growth of the patient for 4 months + 4 cm.  
On the control spondylograms, the lateral  
wedge-shaped deformations of Tn8 were  
determined, decreased to 16.49%

18,75% → 16,49%



2015 YEAR.

## SECOND STAGE EXAMINATION AFTER TWO COURSES OF CONSERVATIVE TREATMENT



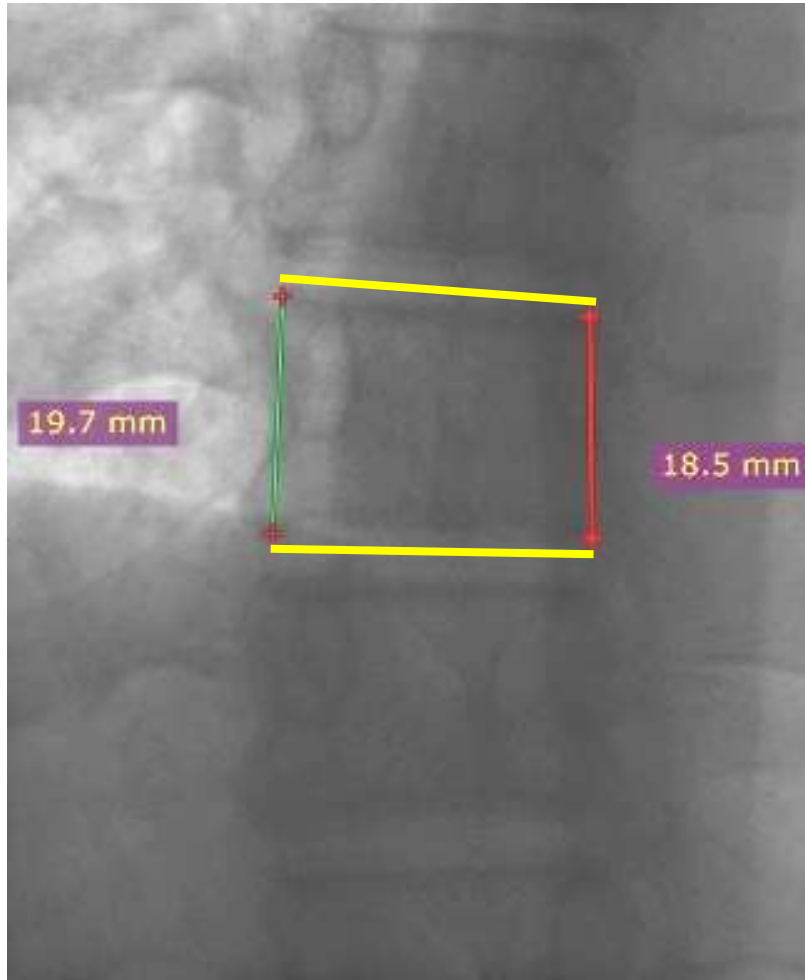
The increase in patient growth over the past 6 months was 3cm. According to the set of clinical and radiological signs, a decrease in scoliotic deformation was noted. In this case, the lateral wedge-shaped deformation of the body of Tn8 was 10.42%

18,75% → 16,49% → 10,42%



2016 YEAR.

## THIRD STAGE EXAMINATION DURING THE RECEIPT OF THE FOURTH COURSE OF CONSERVATIVE TREATMENT



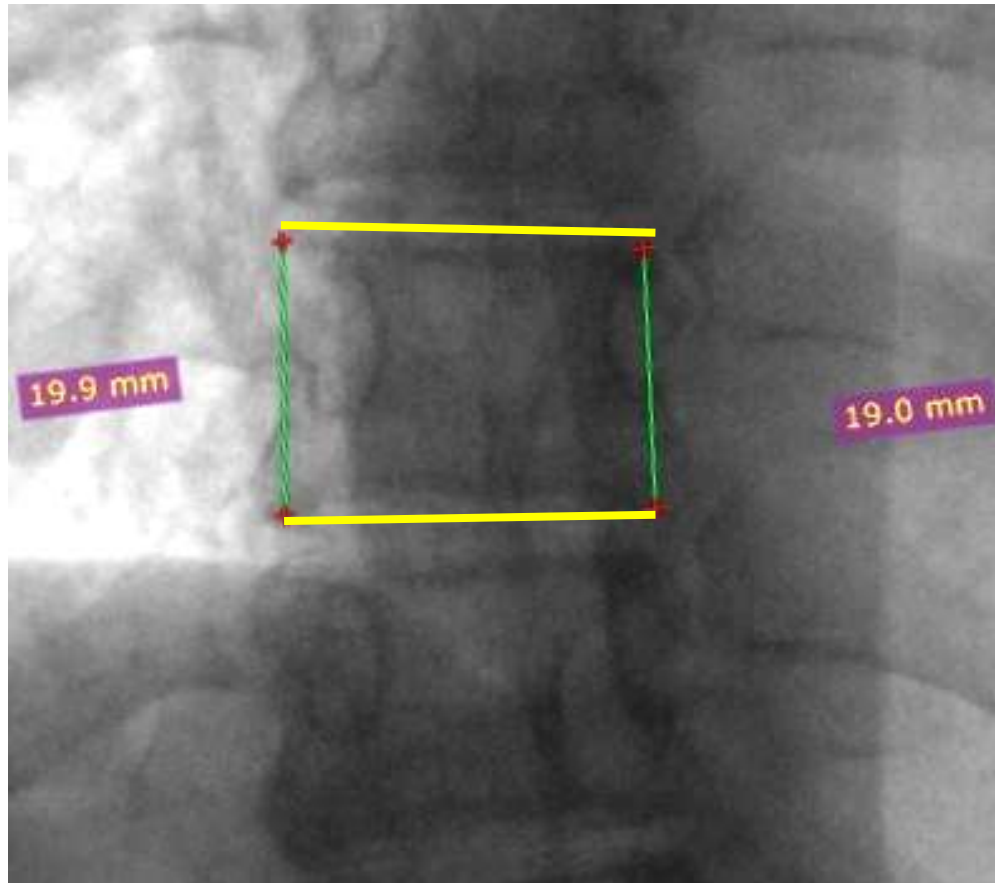
The fourth course of conservative was carried out after 7 months. The patient's growth rate continued to decrease and amounted to 2.5 cm over the indicated period. The lateral wedge-shaped deformation of the body of Tn8 was only 6.1%

18,75% → 16,49% → 10,42% → 6,1%





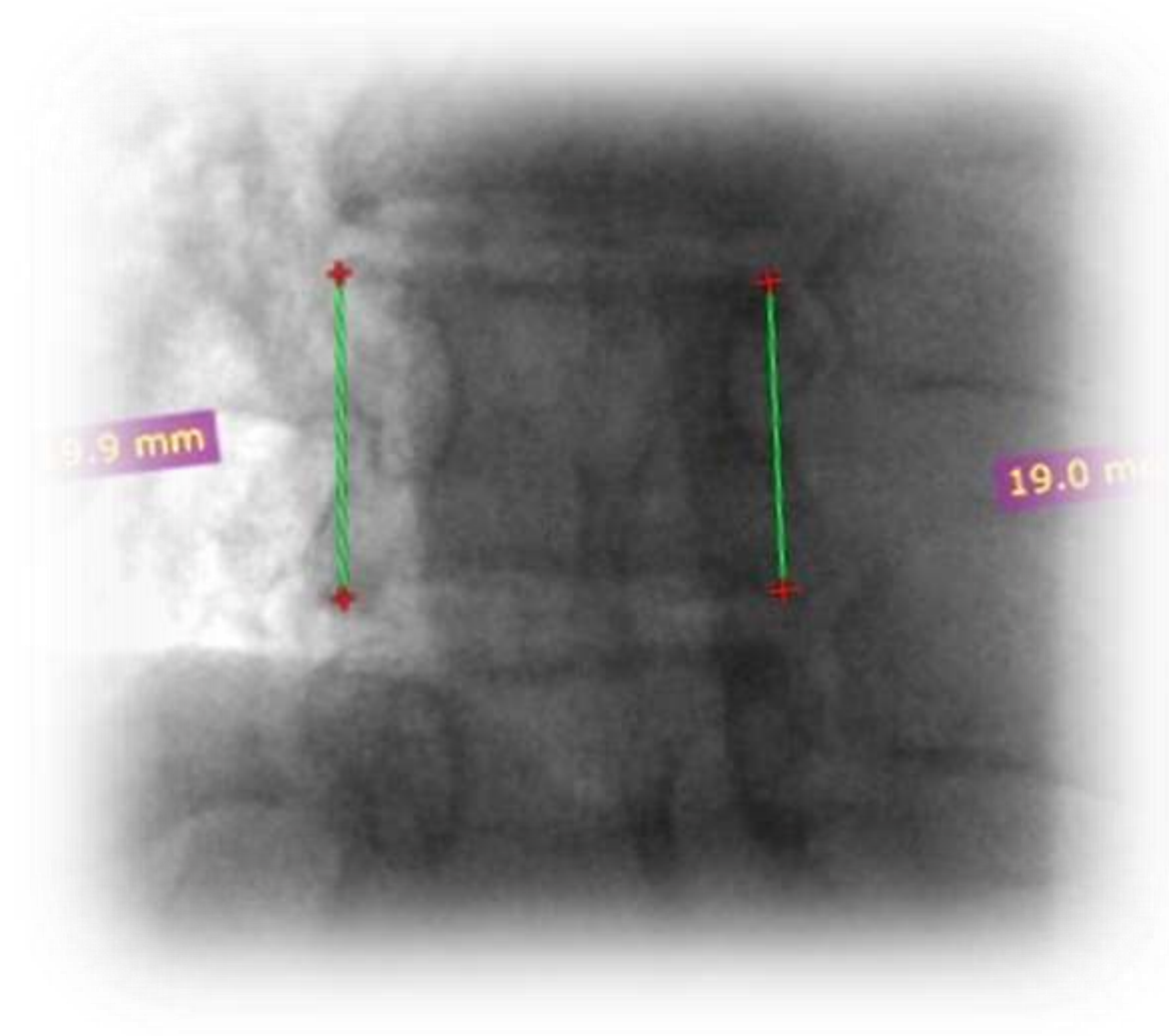
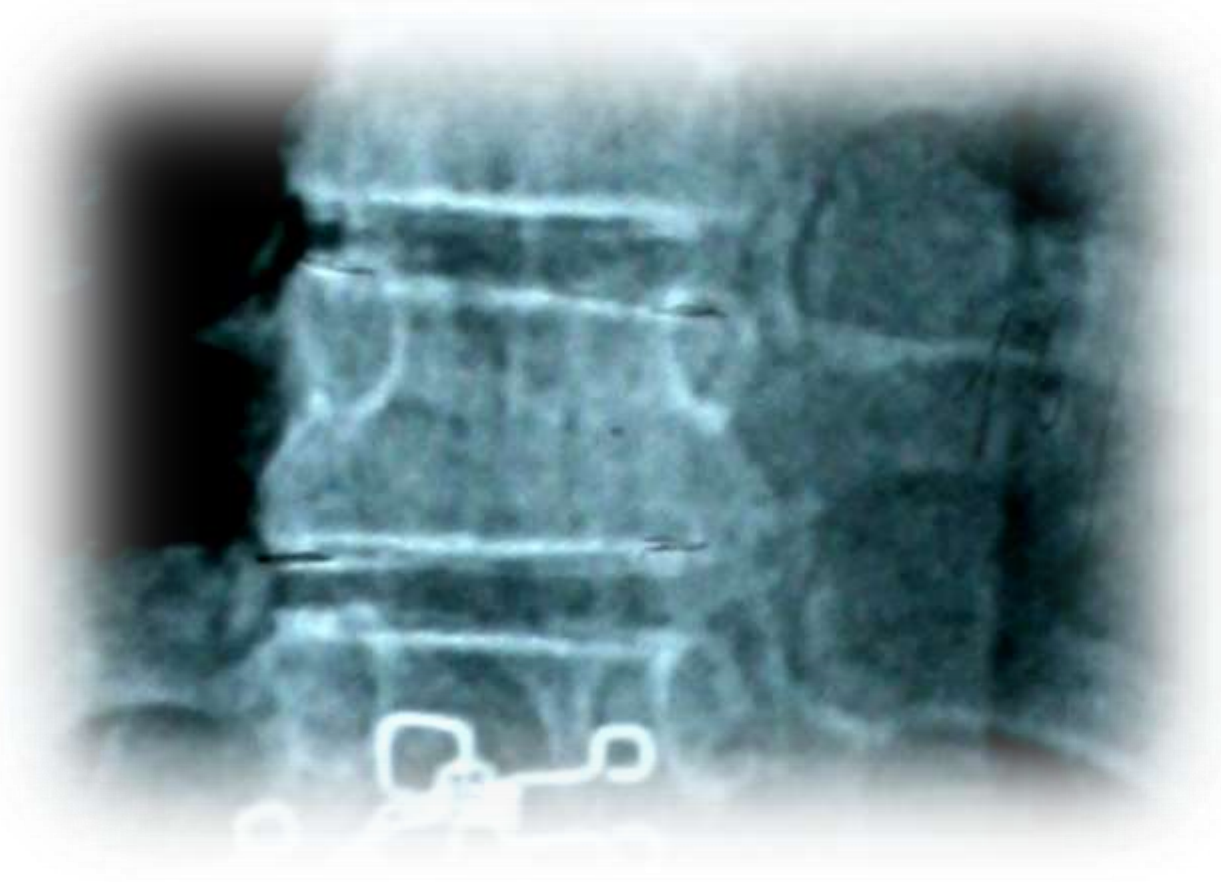
## 2017 YEAR. AGE OF A PATIENT 16 YEARS OLD. NEXT EXAMINATION DURING RECEIVING THE FIFTH COURSE OF CONSERVATIVE TREATMENT



Over the past 7 months, patient growth has not changed. Scoliotic deformation decreased by almost 2 times (18 degrees Cobb).

Reduction of the lateral wedge-shaped body of Th8 to 4.53%

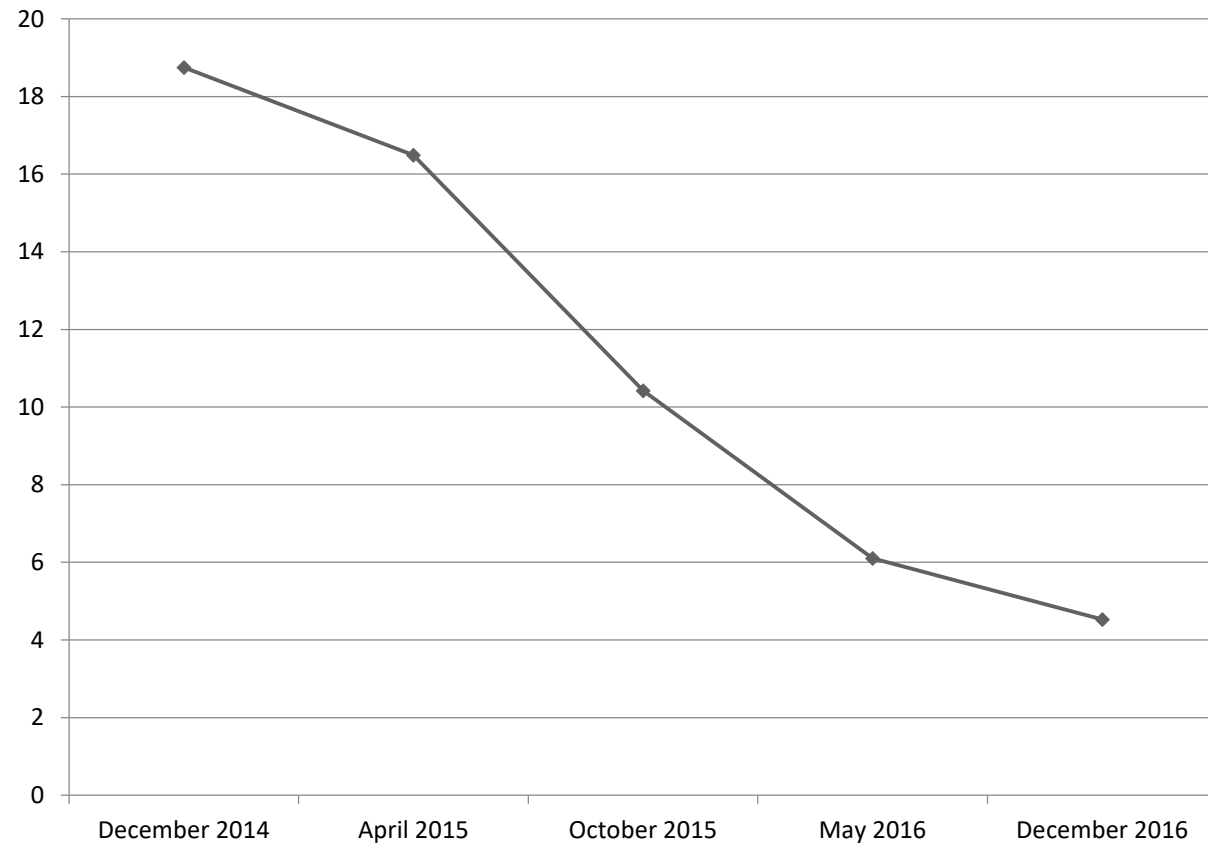
18,75% → 16,49% → 10,42% → 6,1% → 4,53%



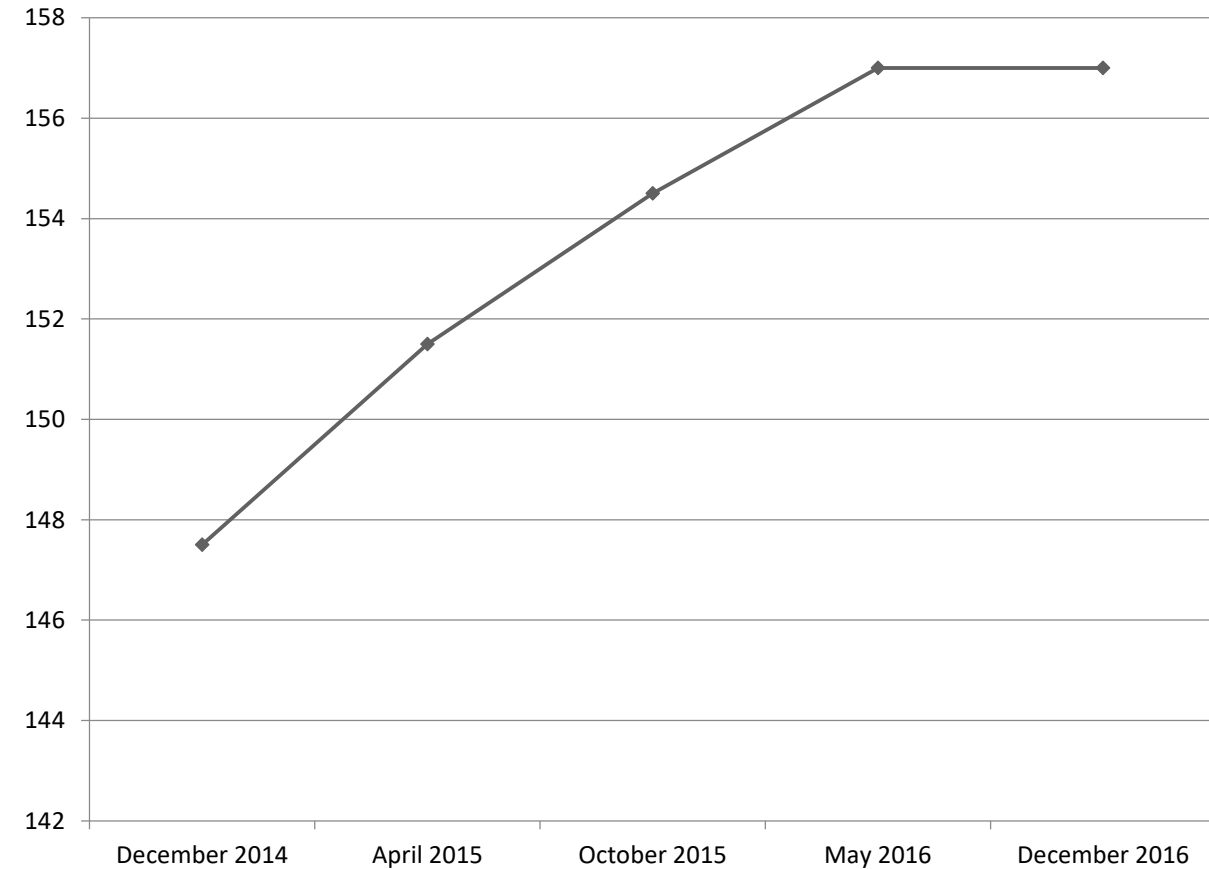


# SCHEDULE OF CHANGE OF WEDGE-SHAPED DEFORMATION OF TN8 AND GROWTH OF THE PATIENT FOR THE WHOLE PERIOD OF OBSERVATION (24 MONTHS)

## The change in the lateral wedge-shaped Th8 (%)



## Change in patient height (cm)







## PATIENT EXTERNAL APPEARANCE



2014



2015



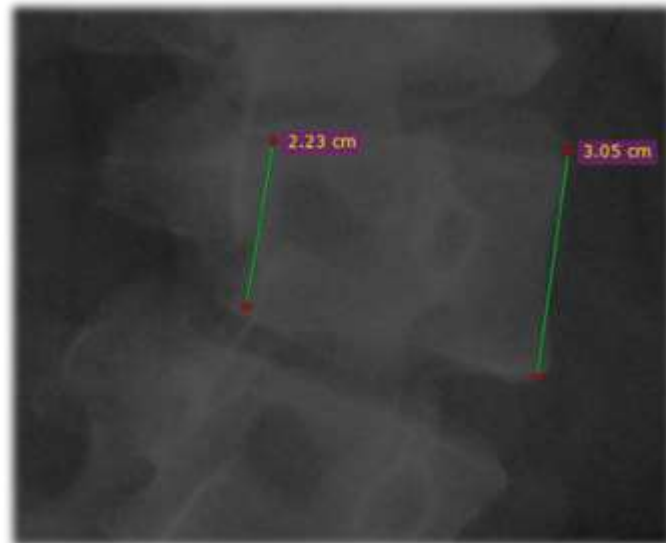
2016



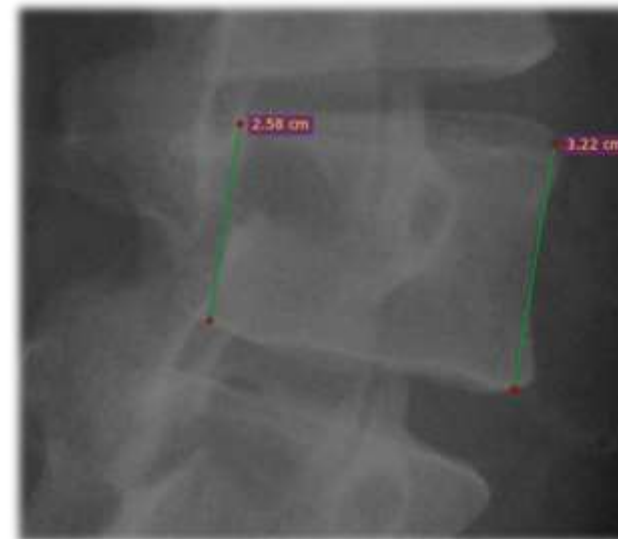
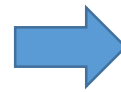
## RELATED OBSERVATION



2015



73,1%



80,1%



2018



## PATIENT EXTERNAL APPEARANCE



2015



2018





# EXAMPLE OF RESULTS OF TREATMENT OF A PATIENT WITH SIGNIFICANT WEDGE-SHAPED DEFORMATION OF CALLS ON THE TOP OF THE ARC



2016



2017



## CONCLUSION

Lateral wedge-shaped deformation of the vertebra in patients with AIS is quite persistent.

A systematic integrated approach to the conservative treatment of patients with AIS helps to achieve results even with "irreversible" anatomical changes.

The result of treatment is more significant with the patient retained growth potential.



*DĚKUJI  
ZA POZORNOST!*

*THANK YOU FOR YOUR  
ATTENTION!*

