

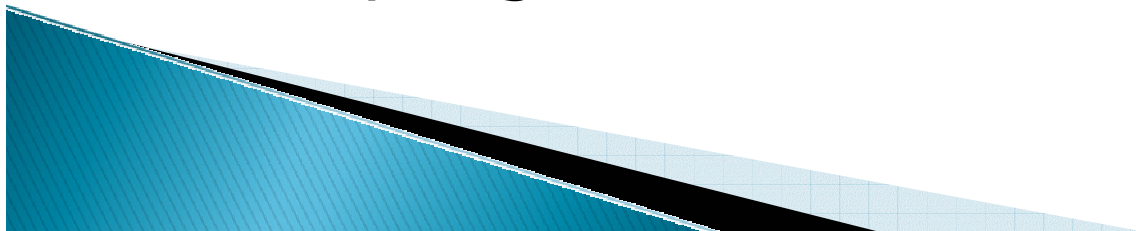


Aetiology of scoliosis

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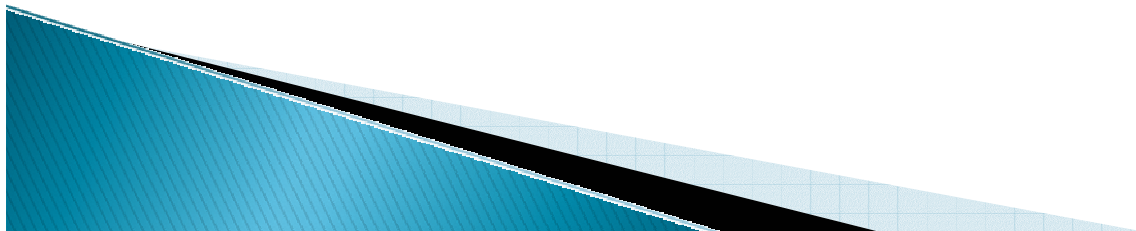
Congenital scoliosis

- ▶ Early in pregnancy developmental abnormalities in mesenchyme can occur
- ▶ These abnormalities later cause a lateral longitudinal imbalance of growth
- ▶ This growth imbalance causes scoliosis
- ▶ Congenital scoliosis can therefore be a misleading term as the scoliosis is often not present at birth but develops later from the congenital abnormalities
- ▶ Scoliosis diagnosis is usually made at times of rapid growth



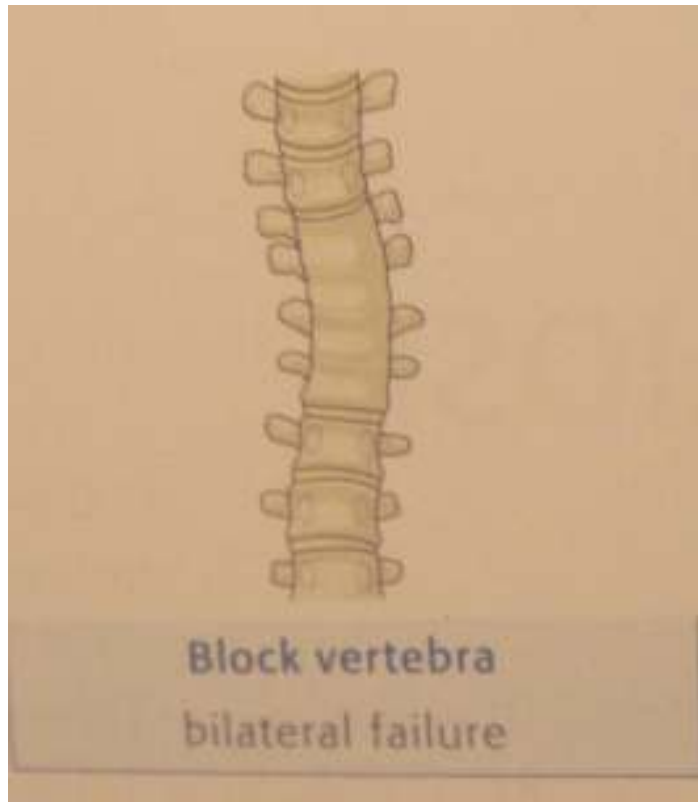
Classification (Winter)

- ▶ About 80% of congenital scoliosis can be classified using Winters classification
- ▶ 2 main groups
 - Failures of segmentation
 - Failures of formation



Failure of segmentation

1. Block vertebra



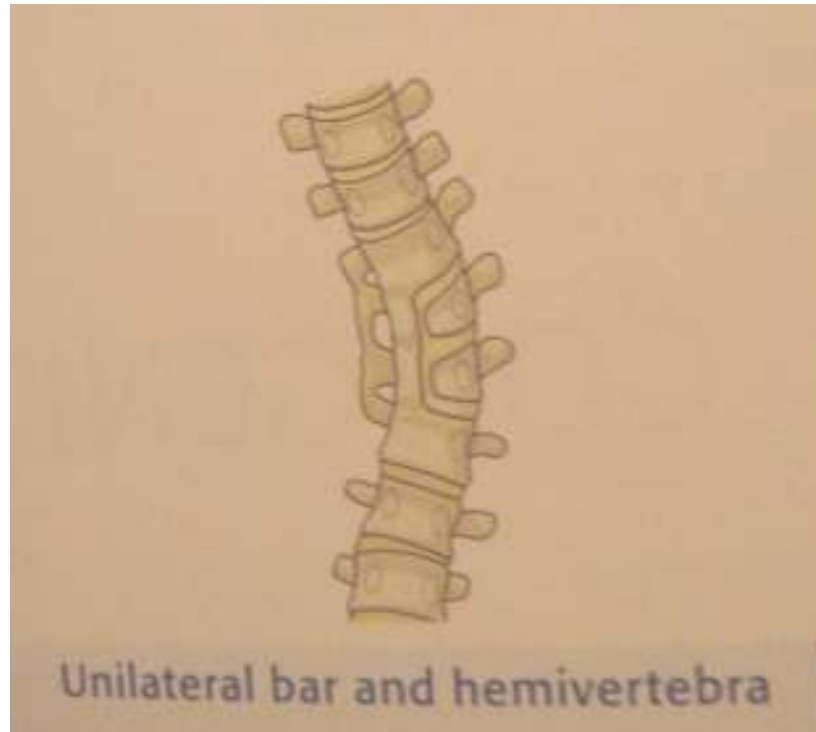
- ▶ Bilateral failure of growth
- ▶ Little or no deformity caused

2. Unilateral unsegmented bar



- ▶ Unilateral failure of growth
- ▶ Growth on convexity depends on amount of end plate available
- ▶ Average deterioration 5 degrees per year
- ▶ Most > 50 degrees by 10 years

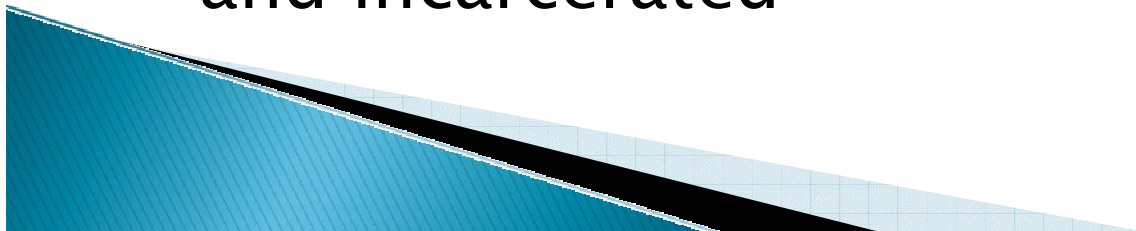
3. Unilateral bar+hemivertebra



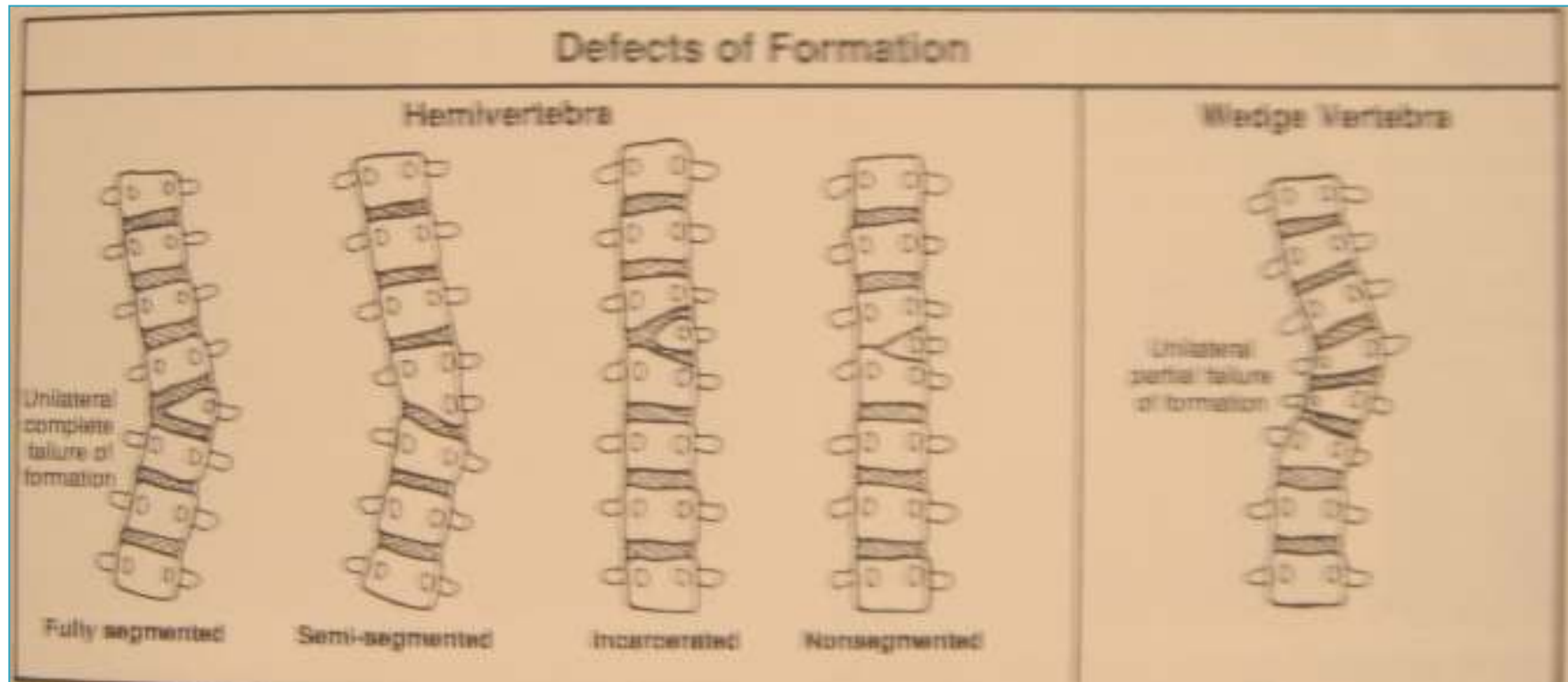
- ▶ Curves severe and rapidly progressive
- ▶ Hemivertebra has more growth potential than the convexity in unilateral bar
- ▶ 6 degrees per year
- ▶ Most >60 degrees by 4 years

Failures of formation

- ▶ Lateral failures of formation can be
- ▶ Incomplete resulting in wedge vertebra—occasionally need surgery especially when multiple
- ▶ Complete causing a hemivertebra
- ▶ Hemivertebra are further subdivided into fully segmented, semi-segmented, non segmented and incarcerated



Failures of formation



Fully segmented hemivertebra



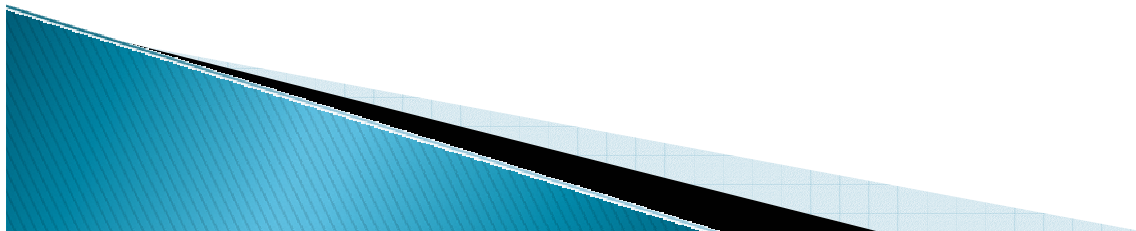
Commonest type of hemivertebra

Curves generally progress by 1–2 degrees per year

Low thoracic and T/L are most likely to progress

Assessment of congenital scoliosis

- ▶ Need to rule out associated congenital abnormalities
- ▶ Cardiac– echocardiogram
- ▶ Renal–US
- ▶ Spinal cord abnormalities – Chiari, syrinx, diastomatomyelia and tethered cord – MRI
- ▶ CT scans are essential for bony detail if considering surgery



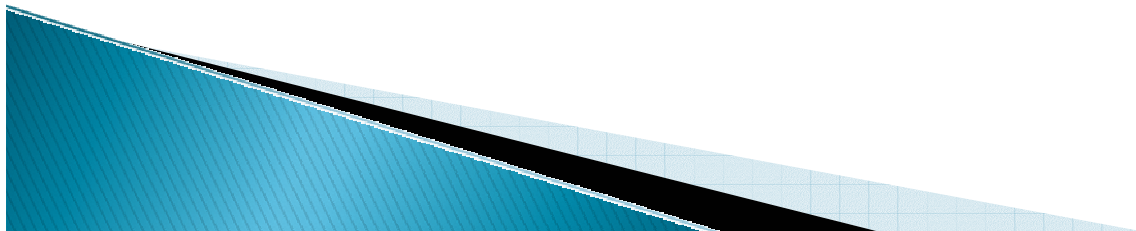
Congenital scoliosis

Outcomes+treatment

- ▶ 50% progress rapidly
- ▶ 25% progress slowly
- ▶ 25% do not significantly progress

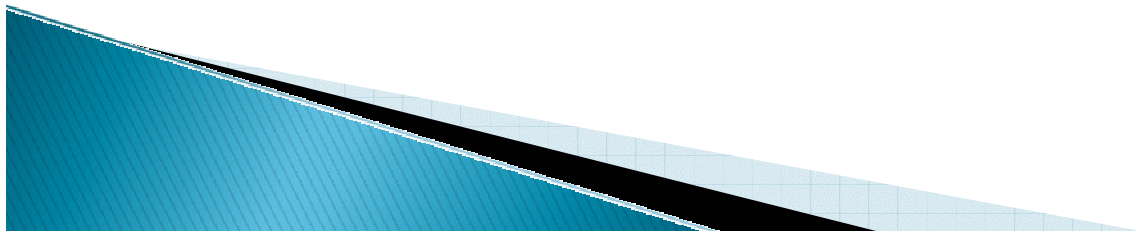
Use information on age, site and type of vertebral anomaly to predict progression

If poor prognosis treatment is often carried out early before a major deformity develops.



Treatment

- ▶ Growth arrest– Needs to be done early so growth can correct deformity. Poor outcome if performed too late
- ▶ Excision of abnormality and correction deformity



Example

