

Posterior Instrumentation for Thorocolumbar Spine

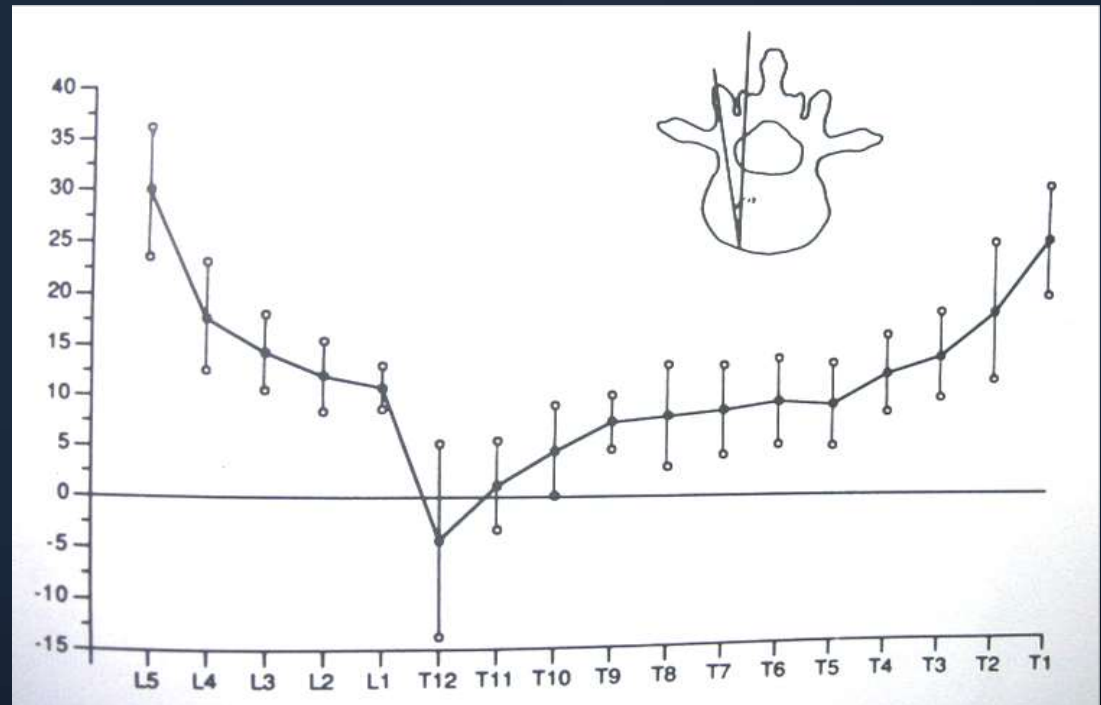
Wayne Cheng, MD

Bones and Spine

Morphometry

Transverse pedicle angles

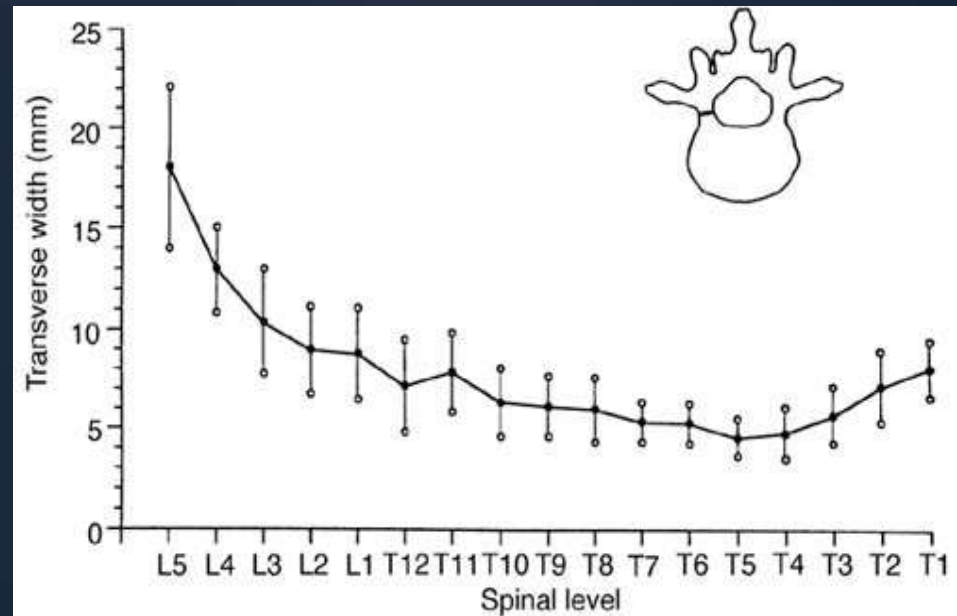
- Angle reversal at T12
- Highest at Lower lumbar



Morphometry

Transverse Pedicle Isthmus width

- Below T10, avg > 7mm.
- L4, L5 all >8mm.
- T4-T9 = very narrow

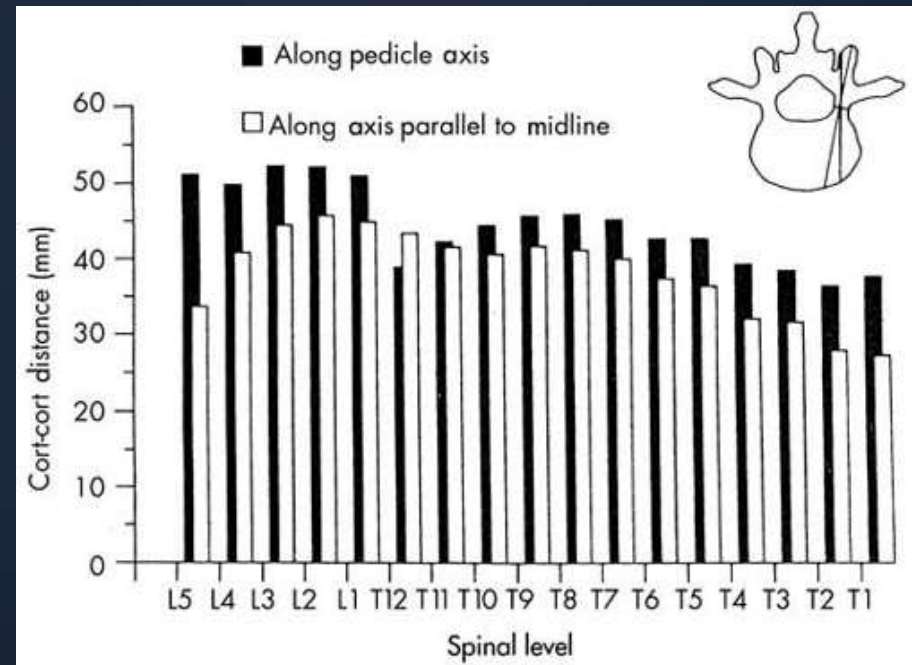


• Zindric, Wiltse: Spine, Vol. 12, 2, 1987

Morphometry

pedicle length and cord length

- L1 – L5 average cord length is 50mm at 15 degree angulation.

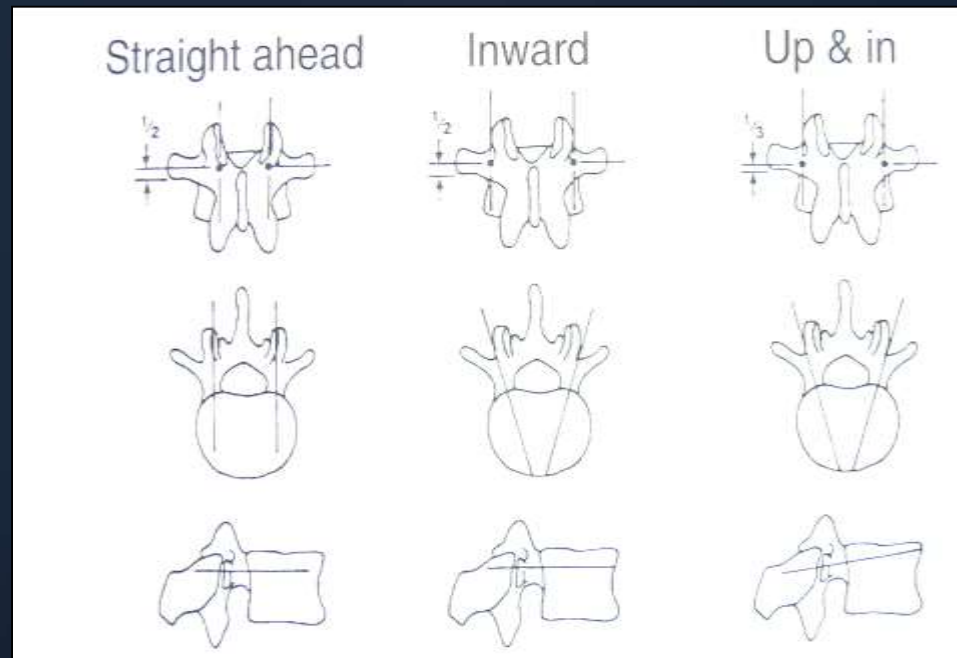


• Zindric, Wiltse: Spine, Vol. 12, 2, 1987

Pedicle screw entry point

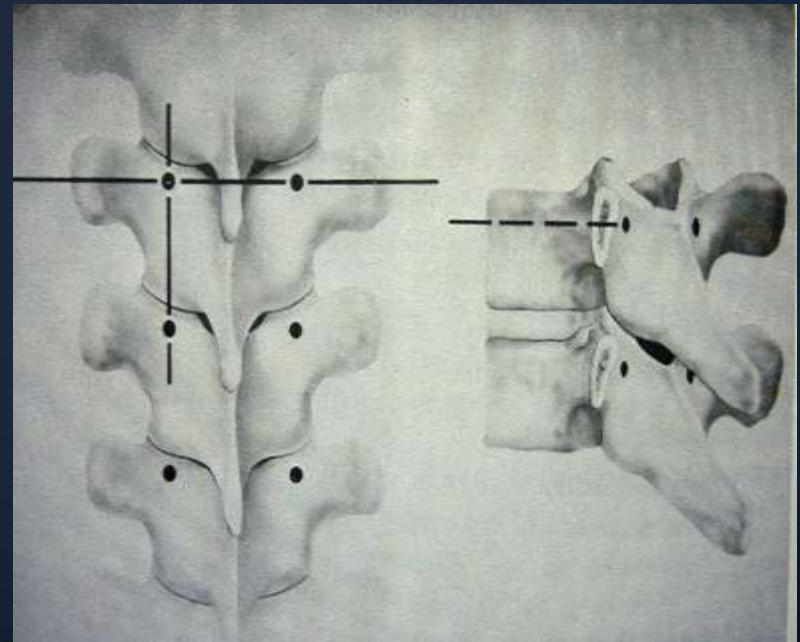
Lumbar spine

- Straight ahead – Roy Camille
- Inward – Magerl
- Up & In – Levine and Edwards



Pedicle Screw Entry Point Thoracic Spine

- Roy-Camille
 - Junction between mid inf. Facet and mid-TP
- Vaccaro
 - T4-T9 : superior boarder of TP
 - Caudal to T9: transition to Mid TP



QuickTime™ and a
decompressor
are needed to see this picture.

STARTING POINT

Lower Thoracic (T10-T12) - down slope of bisected t.p. at junction of t.p. and lamina at same level as lateral pars



Mid-Thoracic (T4-T9) - junction of
*down slope of proximal t.p. and
lamina at base of superior facet,
medial to lateral pars*



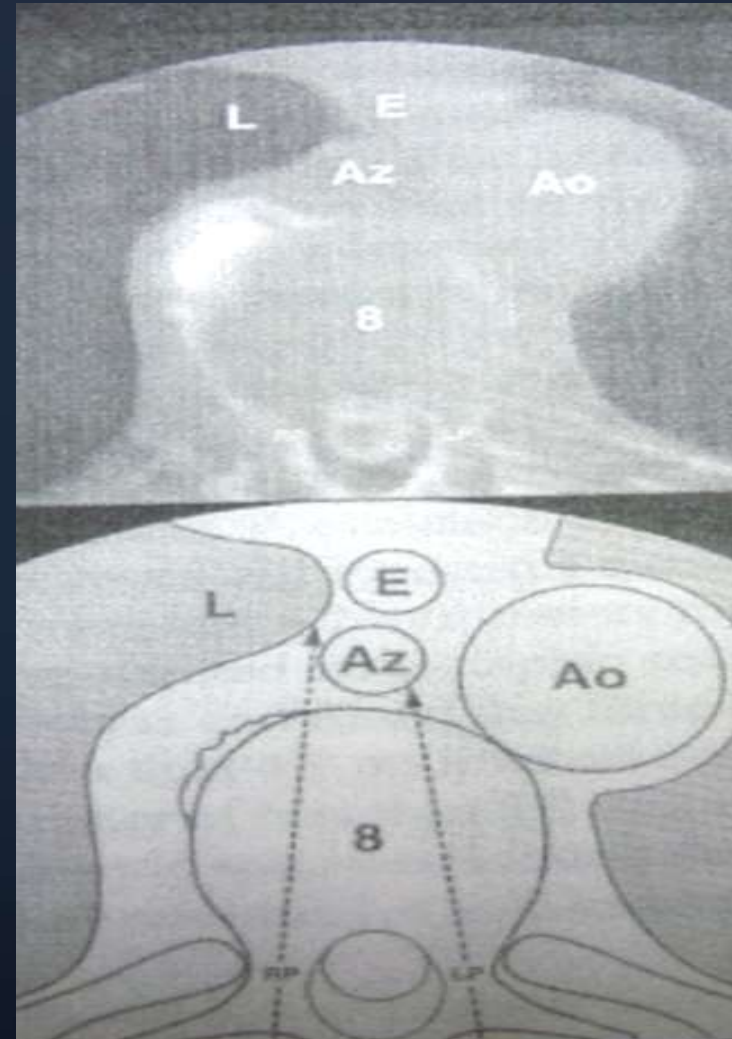
Proximal Thoracic (T1-T13)

*junction of proximal t.p. and lamina
medial to lateral pars*

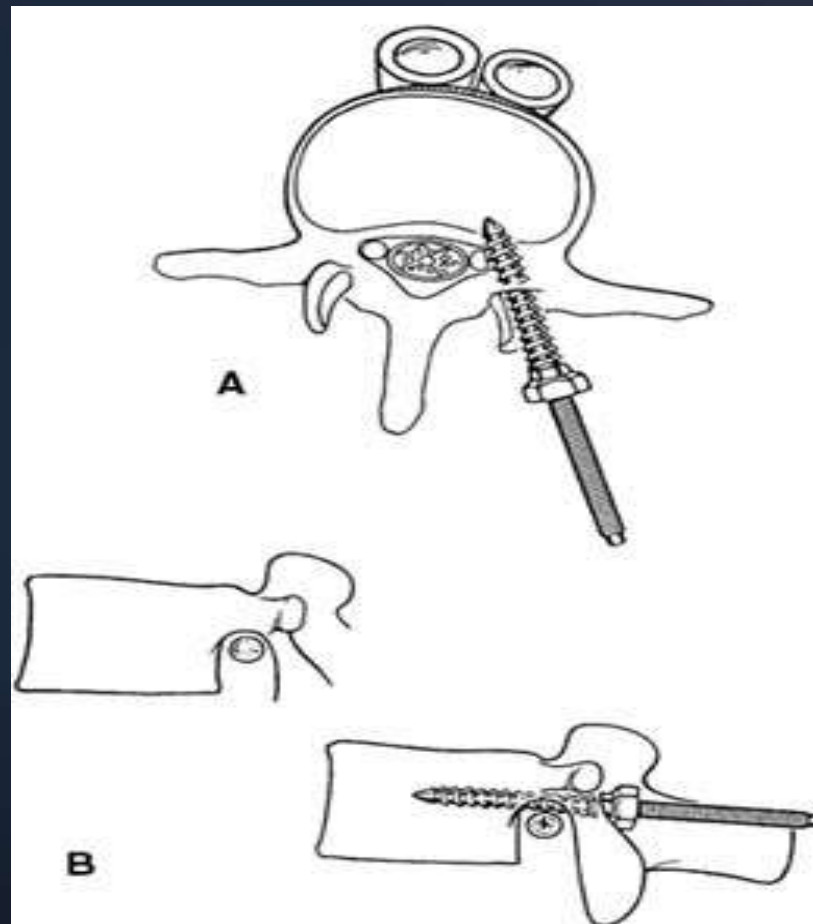


Complication

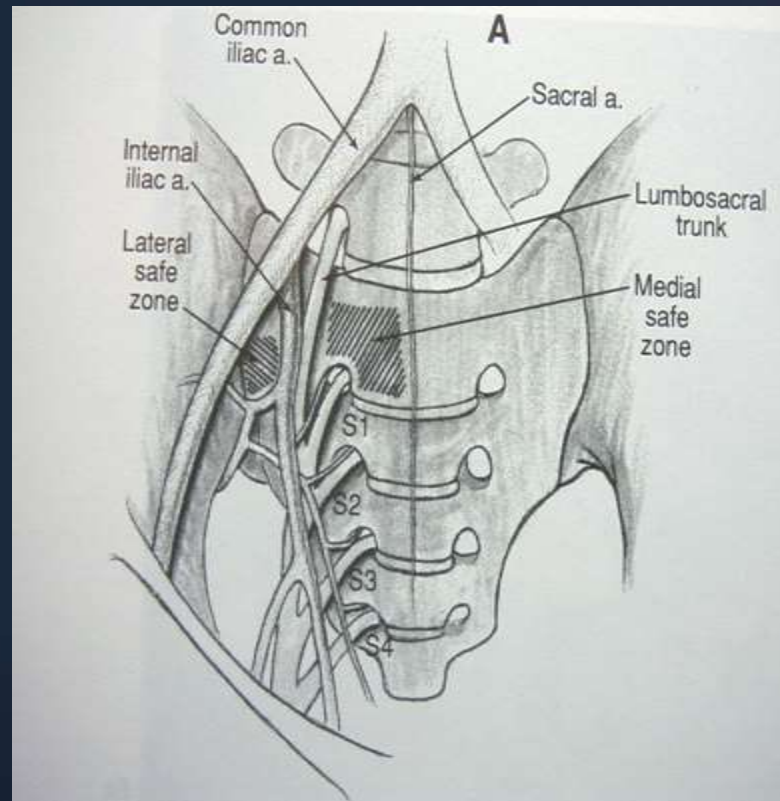
- Anterior penetration



Complication

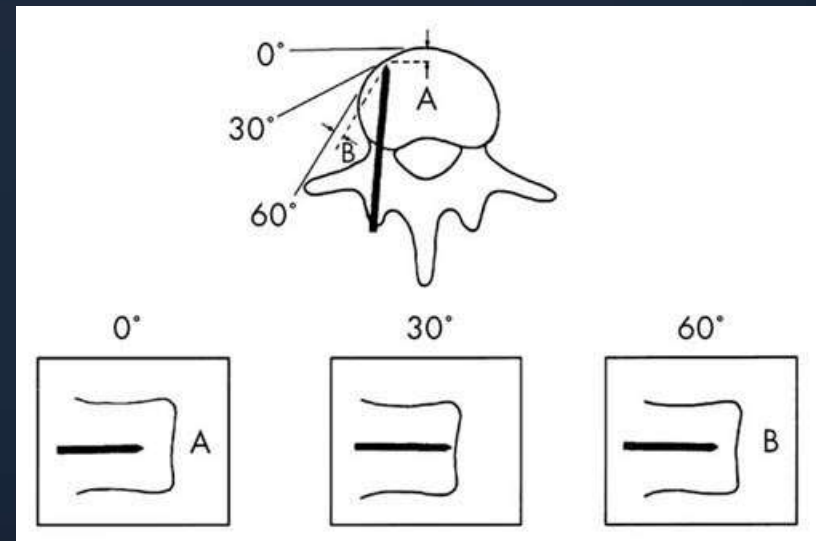


Complication



Near Approach X-ray View

- WhiteCloud
 - Roentgenographic measurement of pedicle screw penetration



- Whitecloud TS, Clin Ortho: 1989;245:57-68

Placement of Pedicle Screws in the Thoracic Spine

- Vaccaro, Garfin, An, Balderston.
- Five Cadavers, ninety screws between T4-T12 without imaging studies.
- 37 (41%) penetrated cortex.
- 21 screws entered the canal, 16 penetrated the lateral cortex.
- Conclusion: Be cautious and know your anatomy.

• JBJS Vol. 77-A(8); Aug 95, 1200-1206

Thank you