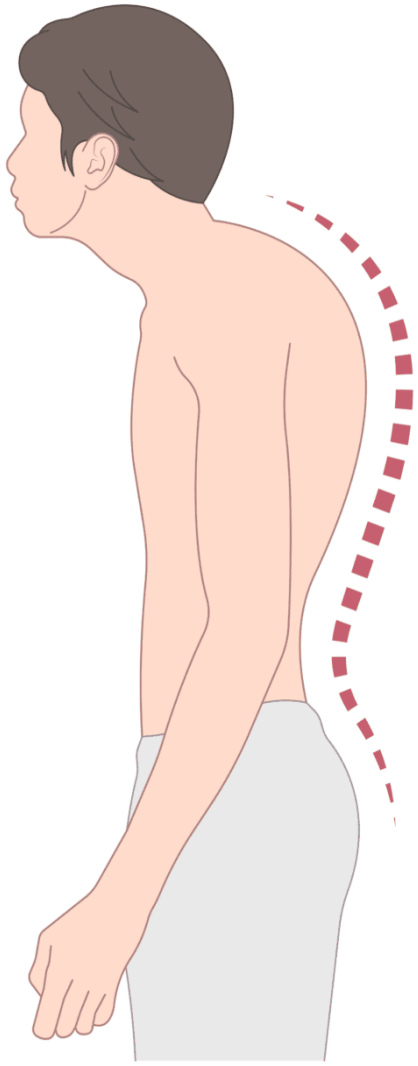

Amendment for progressive kyphotic deformity in Spinal Tuberculosis : Challenges and Outcomes

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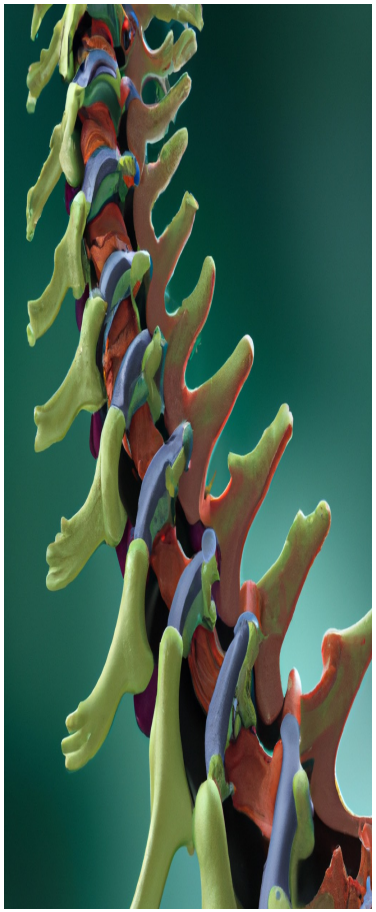
Shaheed Ahsan Ullah Master General Hospital,
Tongi, Gazipur.

Introduction

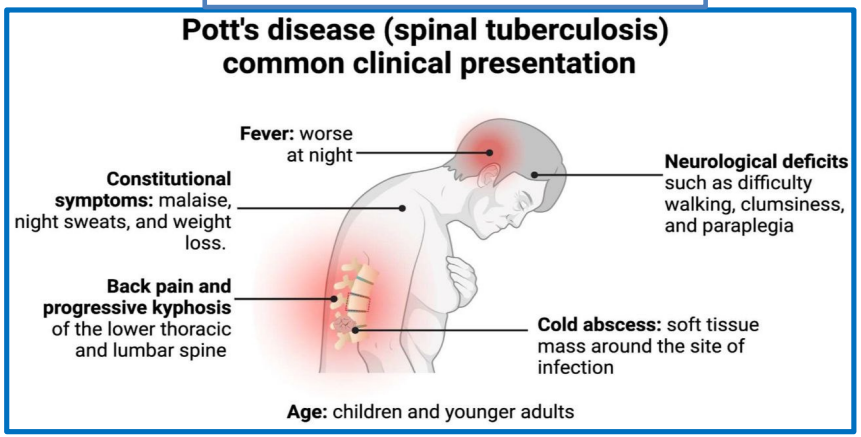
- > 3 Million patients with active spinal tuberculosis in the world today
- Surgical treatment for TB Spine sometimes becomes inevitable.
- If surgical management ignored or not done accordingly then patient may come with kyphotic deformity of Spine.
- There are so many amendment for correction of post TB Kyphotic deformity.
- Whatever the amendment is, the result of surgical correction of post tb kyphosis is excellent and patient may lead smooth and healthy life.

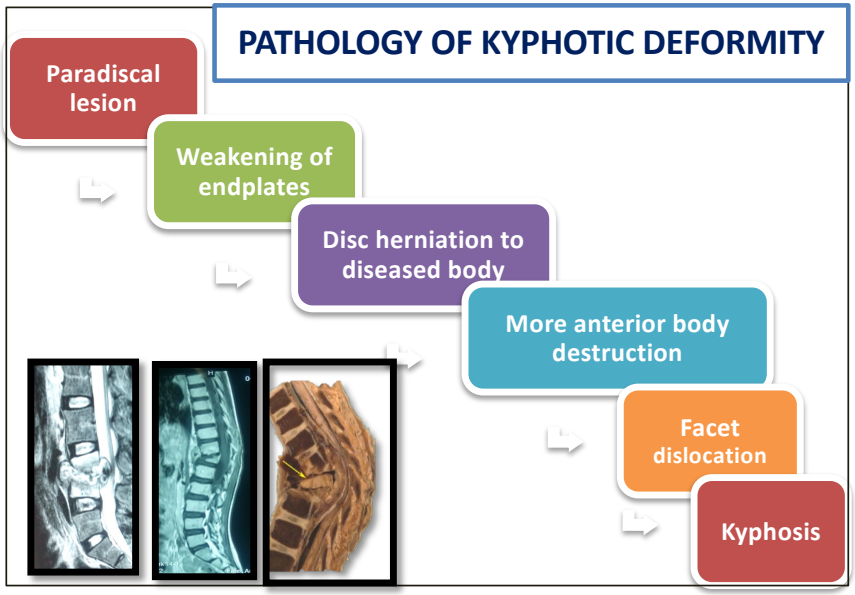
❖ **> 80%** have a certain degree of detectable kyphosis at the time of presentation

❖ Takes **3-4** months to appear

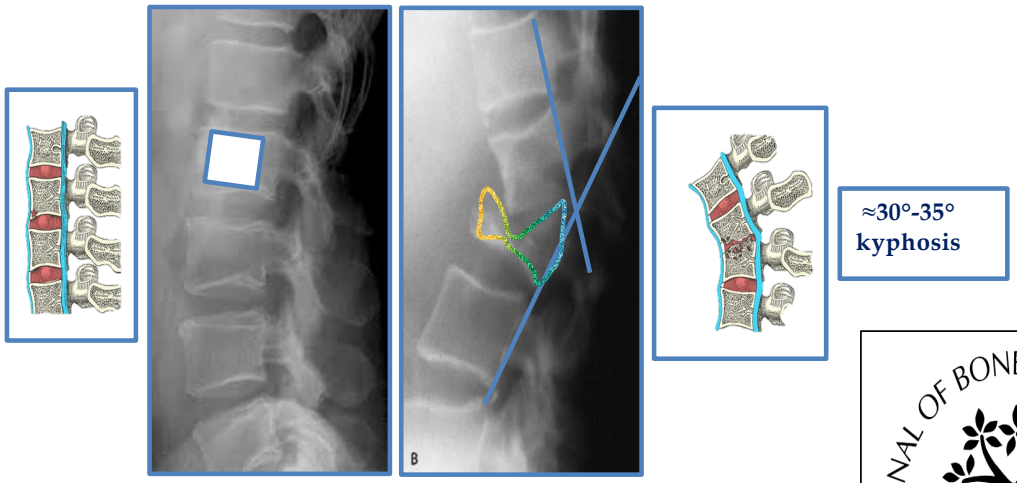


Post TB Kyphosis





Consequences of TB Spine - Kyphosis
If untreated or inadequately treated



≈30°-35° kyphosis

Severity of kyphosis

- Extent of destruction
- Age of the patient
- Level of lesion

WET & HEALED TB

kyphosis progresses in 2 distinct phases

- ***Phase I or active/wet phase*** **(1st 18-24 months)**
- ***Phase II or healed phase***

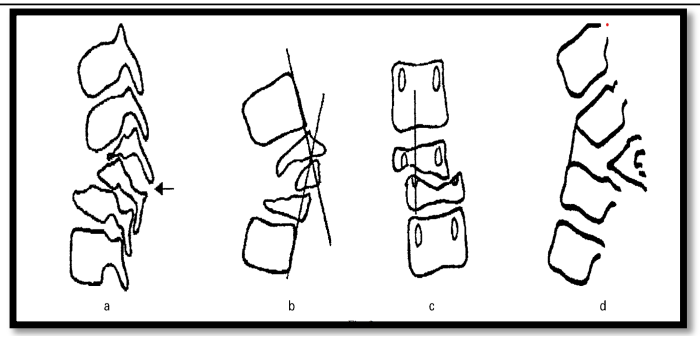
THE JOURNAL OF BONE & JOINT SURGERY (Br)

The natural history of post-tubercular kyphosis in children

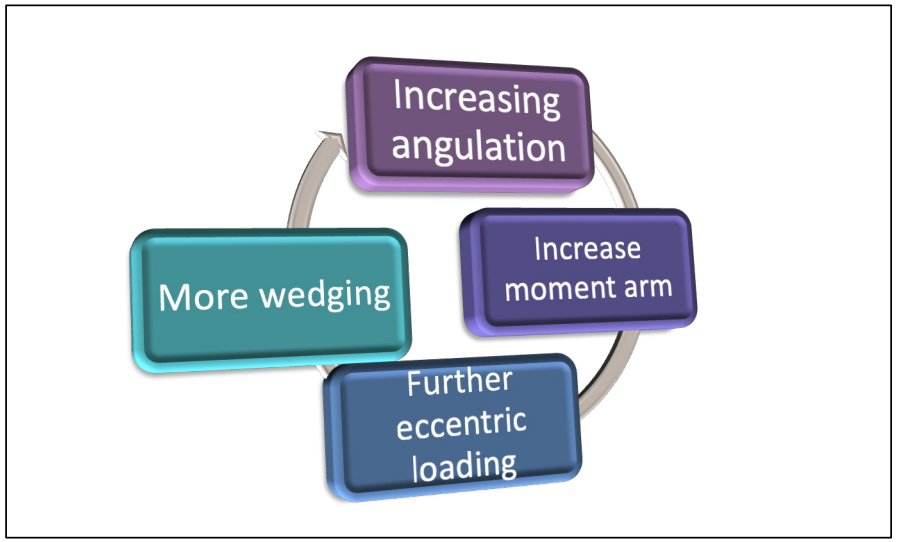
RADIOLOGICAL SIGNS WHICH PREDICT LATE INCREASE IN DEFORMITY

S. Rajasekaran

From the Tuberculosis Research Centre, Chennai and Ganga Medical Centre, Coimbatore, India



- Age <7 years at the time of disease,
- Thoracolumbar involvement,
- loss of >2 vertebral bodies
- Presence of ≥2 **spine at risk signs**



INDICATION OF SURGERY

1. Progressive Neurological Deficits
2. Risk of kyphosis progression
3. Cardio-Pulmonary compromise

OSTEOTOMIES

Facetectomy	3 to 5°/segment
Wilson and Ponte Chevron Osteotomy	Up to 10°
SPO (Smith Peterson Osteotomy)	10° to 20°
PSO (Pedicle Subtraction osteotomy)	17°
VCR	40°

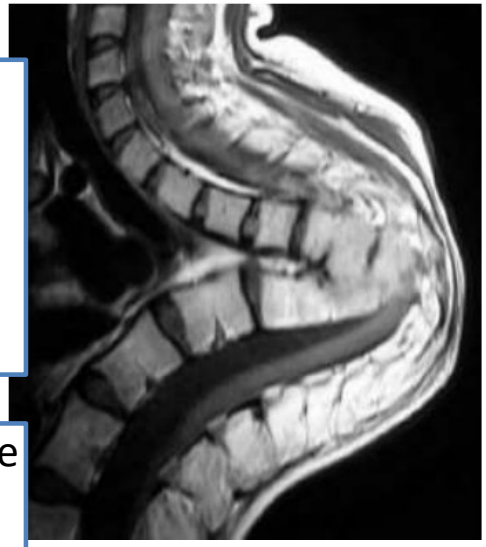
Challenges:

- Cosmetic and psychological disturbance.
- Costo-pelvic impingement.
- Secondary cardiorespiratory problems.

- Affects the anterior column in more than 90 of patients.
- Late onset paraplegia.
- Correction difficult with high rate of complications.

More than 1.5 Vertebral body destruction

- $>60^0$ kyphosis
- Active disease
- Vicious Cycle



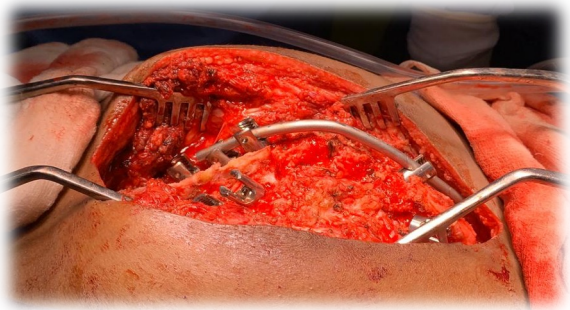
Risk factors for severe progression

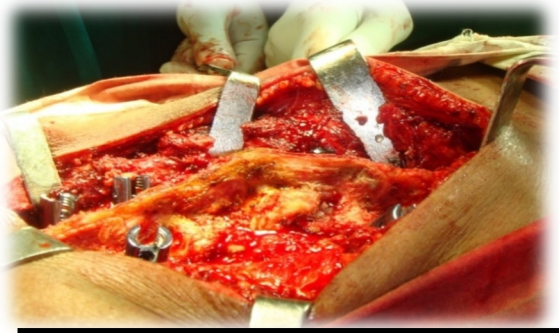
- Age below 10 years.
- Vertebral body loss of more than 1–1.5
- A pre-treatment deformity angle of greater than 30 deg, especially in children.
- Cervical thoracic and thoracolumbar junctional lesions.
- The presence of 'spine-at-risk' radiological signs.

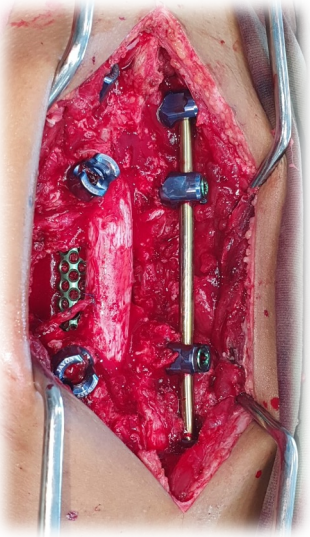
- Prospective study of 11 patients (4M+7F)
- Total number of cases: 11
- M= 02, F= 09
- Dry TB = 3, Wet TB = 6
- Age range: 09 to 67 years
- Study place & period: From January 2018 to July 2022 at NITOR & BSOH
- Follow-up: 3 months 4 years
- Anti TB: 12-18 months

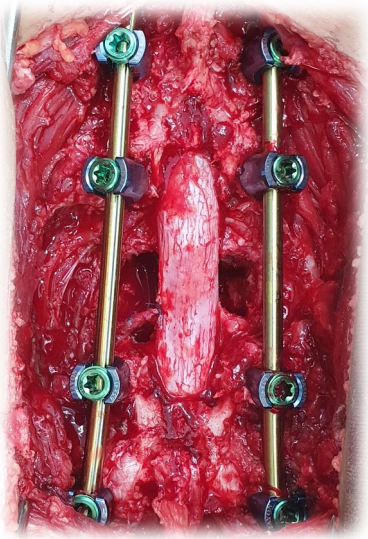
Techniques

- ❑ Proper positioning & exposure
- ❑ Insertion of pedicle screws
- ❑ Posterior column osteotomy:
  - Wide apical laminectomy
  - Excision of TP & portion of adjacent rib (occasional)
  - Temporary rod stabilization
  - Excision of pedicle & vertebral body



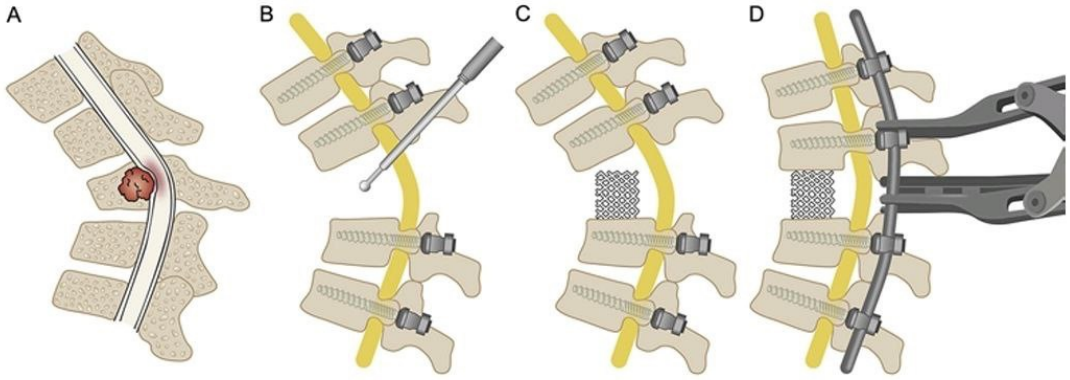






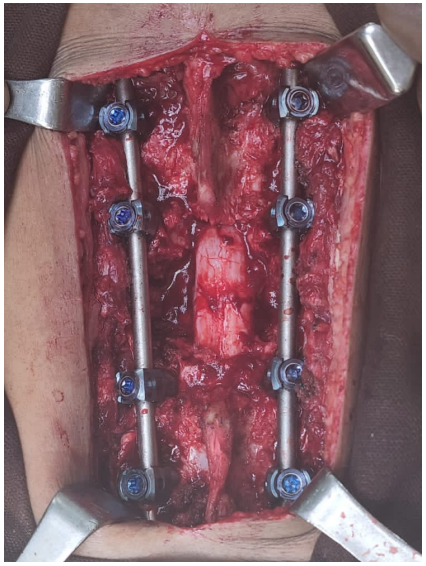
- ❑ Ligature of the thoracic nerve root on the convexity
- ❑ Discectomy above & below
- ❑ Placement of a cage
- ❑ Gradual correction
- ❑ Final stabilization

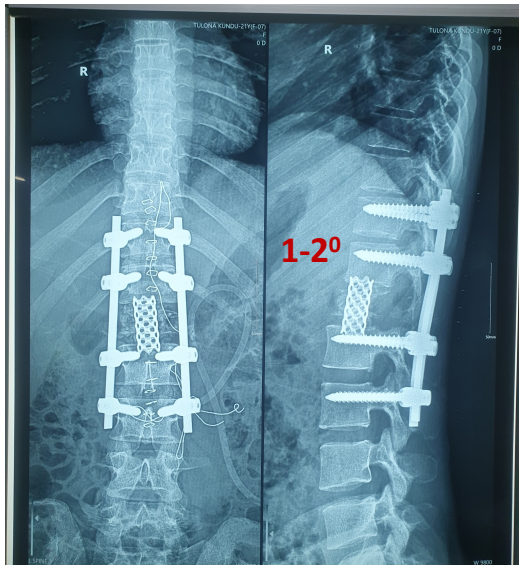
PVCR



Case Illustration

F/35, Wet TB at L1, Kyphosis 45^0

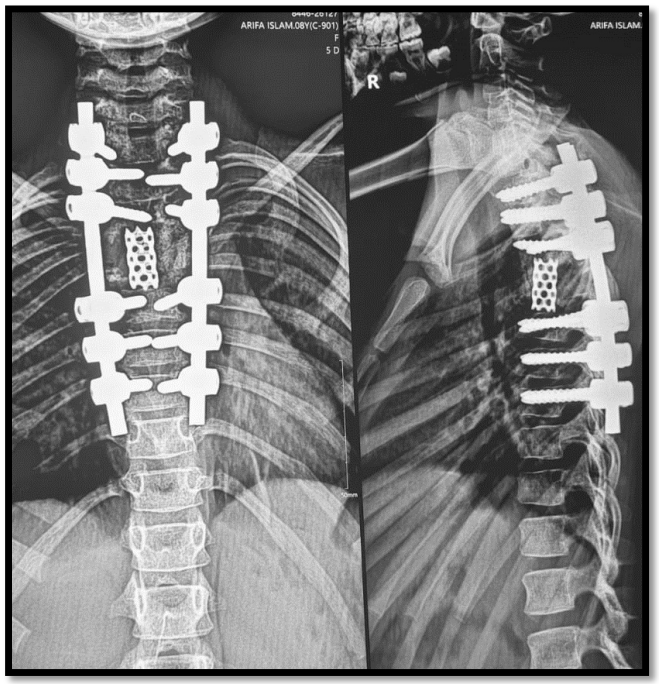




Pre Operative

Post Operative

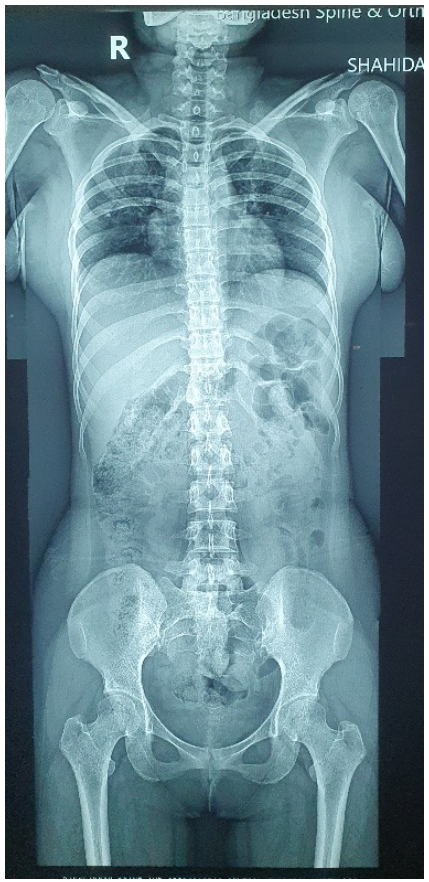
F/12, Dry TB at D4, Kyphosis 90^0

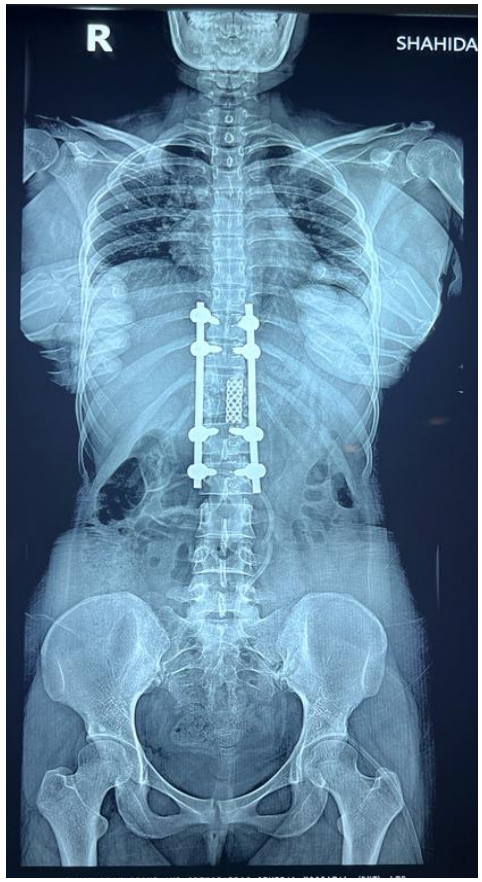


Pre Operative

Post Operative

F/45, Healed TB at D11/12, Kyphosis 45^0





Discussion

- Clinical outcome was assessed by Oswestry Disability Index (ODI) and Visual Analog scale (VAS)
- Preoperative, postoperative and final follow-up were assessed by x-ray, CT scan & MRI.
- The surgical approach : posterior approach with cord release and correction by transpedicular wedge osteotomy and widening of the spinal canal & Vertebral column resection (VCR)

Result

Result	No of patient	Percentage
Excellent	16	70%
Good	6	18%
Fair	2	8%
Poor	1	4%

Take Home Message

- Post TB Kyphotic Deformity Correction is a highly technically demanding
- Associated with a variety of complications
- Can be performed safely with proper training and patience