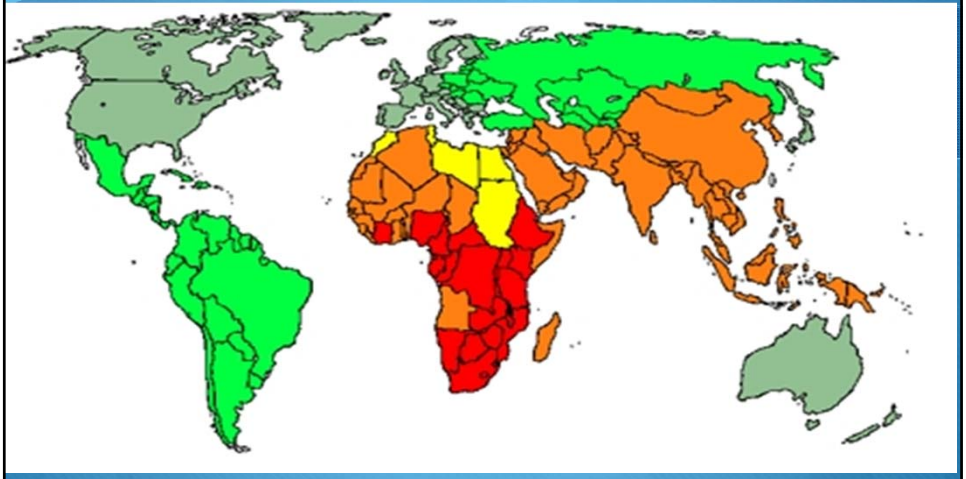
Dr. Rahyussalim, SpOT(K)

- TTL : Padang, June 5, 1971
- INSTITUSI : Specialty of Orthopaedic and Traumatology, Faculty of medicine, University of Indonesia / Cipto Mangunkusumo Hospital

World (Lung) TB Incidences. Cases per 100.000

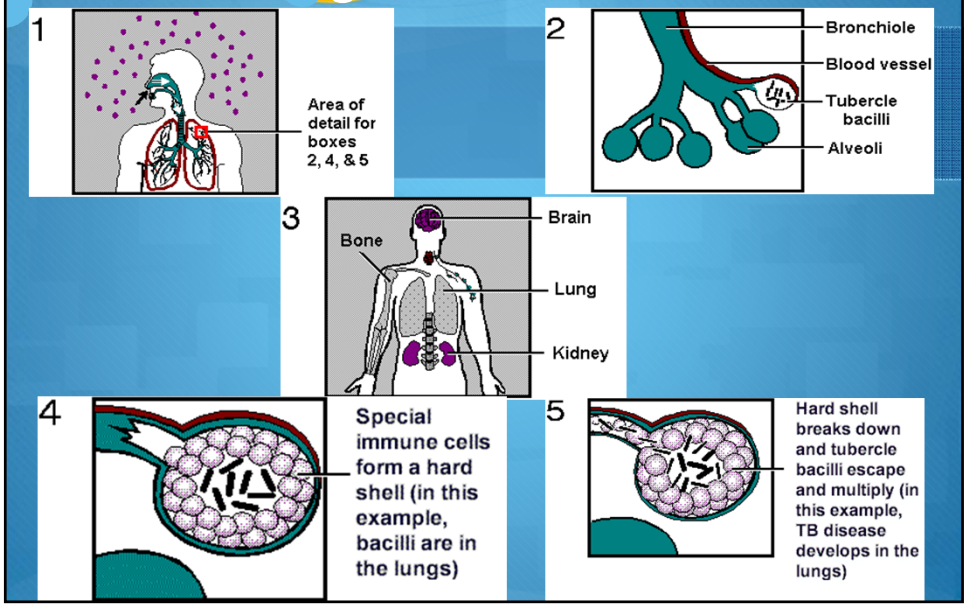


Red = >300 ; Orange = 200-300 ;

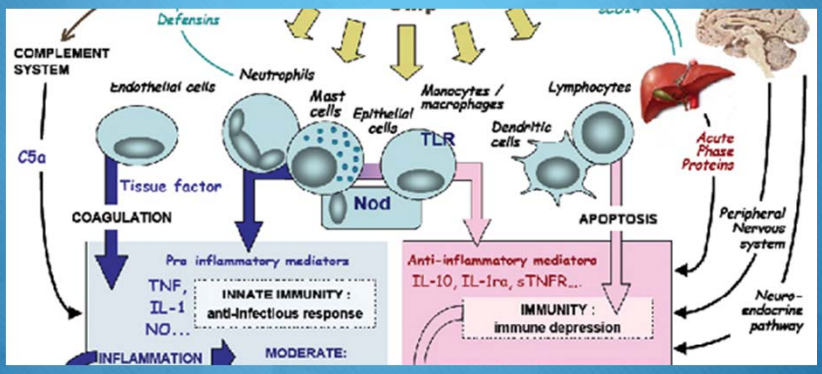
Yellow = 100-200 ; Green 50-100 ; Grey <50

Mycobacterium tuberculosis

Pathogenesis of infection



Bacterial infection mechanism



Epidemiology of extrapulmonary tuberculosis

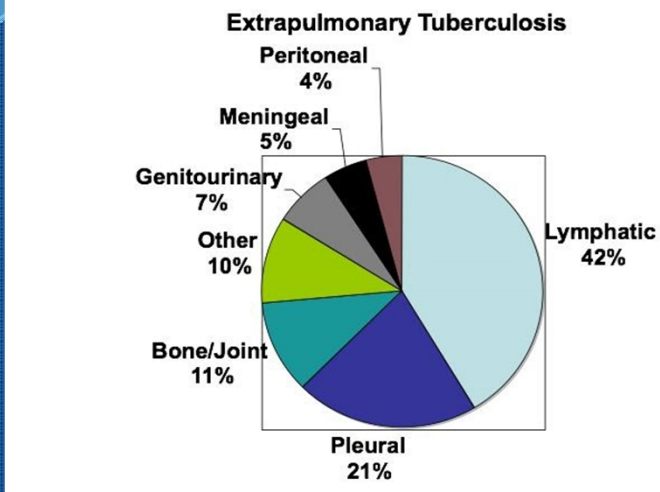
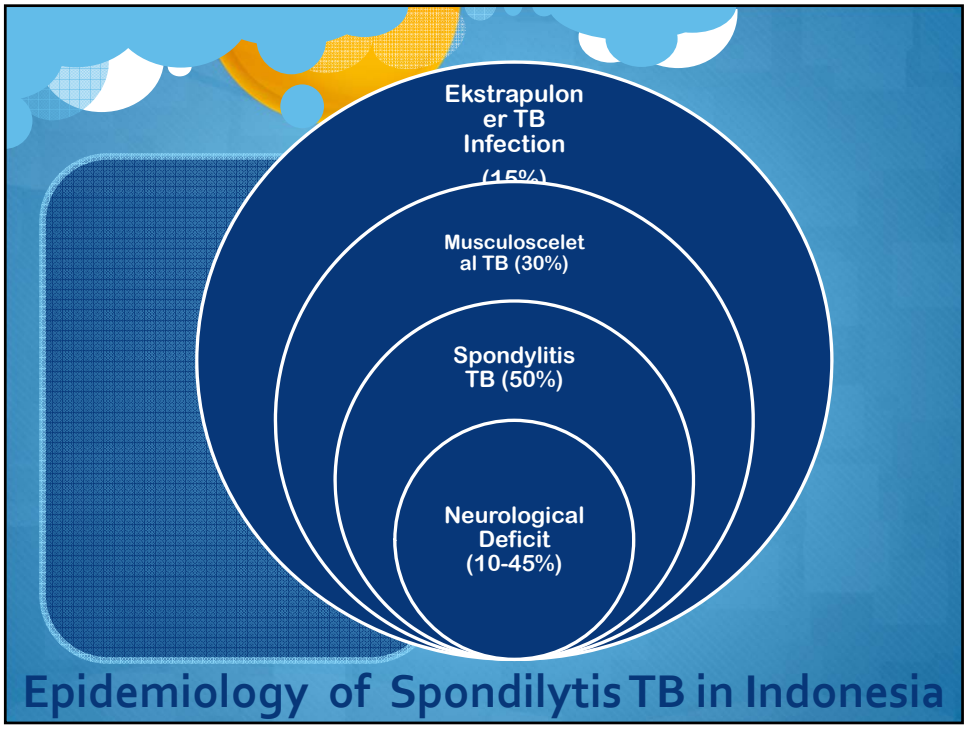
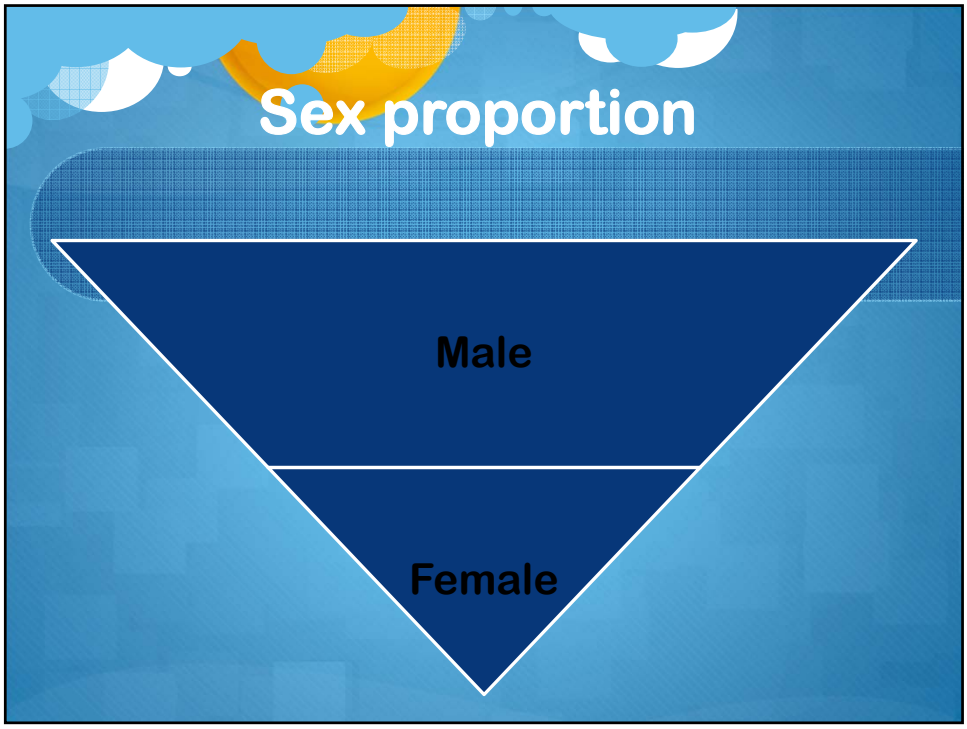
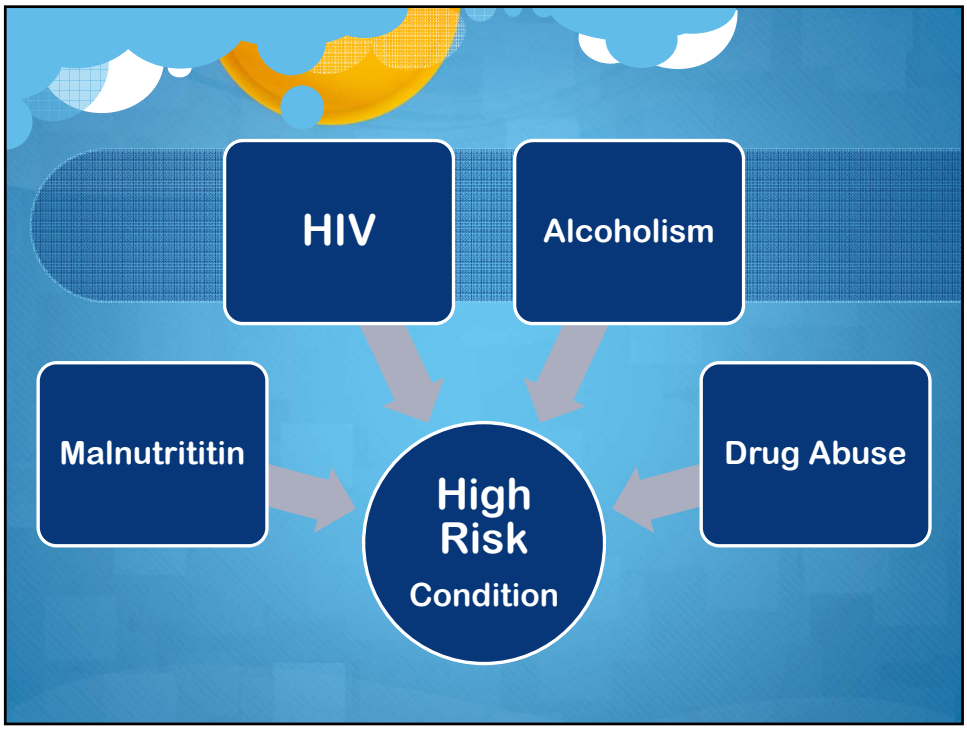


Figure 1: Frequency of different forms of extrapulmonary tuberculosis. Source CDC.



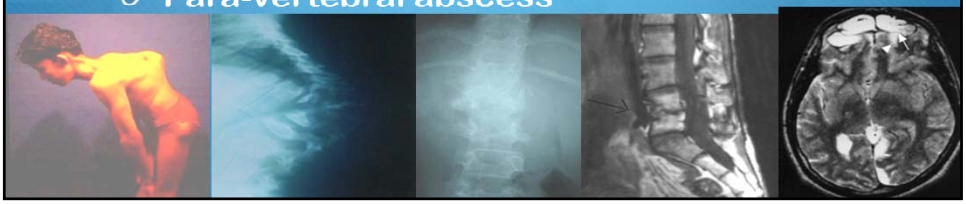
Epidemiology of Spondilytis TB in Indonesia


Sex proportion
Male
Female


HIV
Alcoholism
Malnutrititin
Drug Abuse
High Risk Condition

What is Spondylitis TB

- Infected spine due to *Mycobacterium tuberkulosis* bacteria
- Thoraco-lumbar area the most frequently involved
- The most complication
  - Kyphosis
  - Epidural abscess
  - Para-vertebral abscess

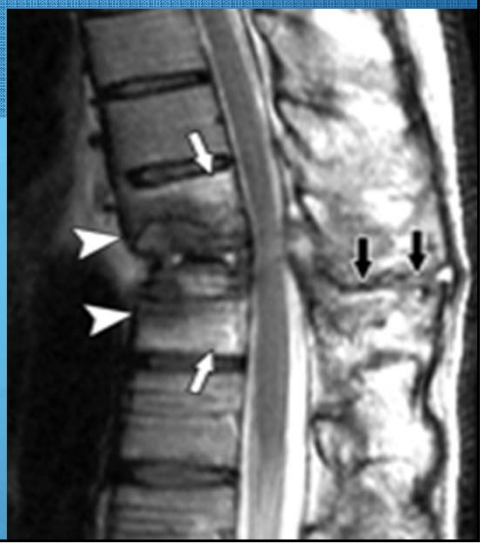


Infection Attacked

- Cervical (10%)

Infection Attacked

- Thoracal (40%)



Infection Attacked

- Lumbal (60%)

Spondylitis Tb Centre in Indonesia

Spine Surgeon Indonesia

1. Prof. dr. Subroto Sapardan, SpBO
2. dr. Daly Hanafiah, SpOT
3. dr. Agus Pujo Santoso, SpOT
4. Dr. Luthfi Gatam, SpOT
5. dr. Zairin Noor Helmi, SpOT
6. dr. Ifran Saleh, SpOT
7. dr. Tjuk Risantoso, SpOT
8. Dr. Agus Hadian Rahim, SpOT
9. dr. Gede Sandjaya, SpOT
10. dr. Azharuddin, SpOT
11. dr. Tedjo Rukmoyo, SpOT
12. dr. Iman Solichin, SpOT
13. dr. Chairuddin Lubis, SpOT
14. dr. Rendra Leonas, SpOT
15. dr. Rizal Pohan, SpOT
16. dr. Mulyadi Ridea, SpOT
17. dr. Yvone Sarrah, SpOT
18. dr. Bambang Tiksnadi, SpOT
19. dr. Husodo Dewo Adi, SpOT
20. dr. Komang Agung Irianto, SpOT
21. dr. Adi Aryanto, SpOT
22. dr. Oktavianus N, SpOT

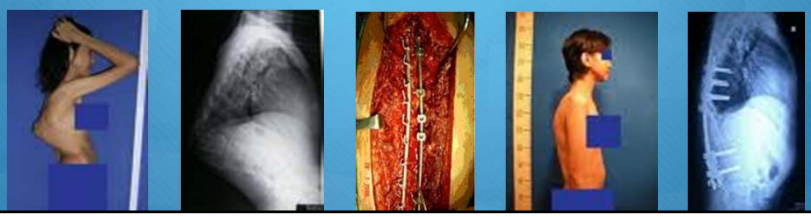
Spine Surgeon Indonesia

23. dr. Arsanto Triwidodo, SpOT
24. dr. Charles A. S, SpOT
25. dr. Romaniyanto, SpOT
26. dr. Alexander JAL, SpOT
27. dr. Otman Siregar, SpOT
28. dr. Karya Triko Biakto, SpOT
29. dr. Iwan Hermawan, SpOT
30. dr. Arman Bausat, SpOT
31. dr. I. Noman Semita, SpOT
32. dr. Agus Priambodo, SpOT
33. dr. Syaifullah Asmiragani, SpOT
34. dr. Didik Librianto, SpOT
35. dr. Jursal Harun, SpOT
36. dr. Herman Gofara, SpOT
37. **dr. Rahyussalim, SpOT**
38. dr. Suhana, SpOT
39. dr. Harry Kamijantono, SpOT
40. dr. Ahmad Ramdan, SpOT
41. dr. I Ketut Suyasa, SpOT
42. dr. Tommy Suharso, SpOT
43. dr. Fachrisal, SpOT

Therapy Management for Spondylitis TB

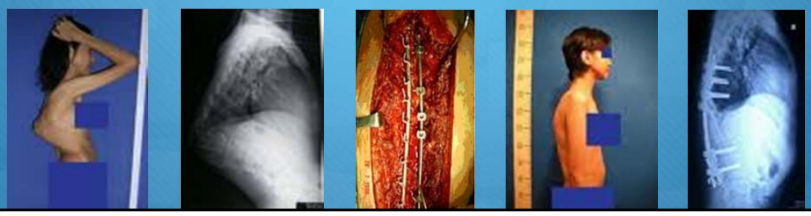
Total Treatment

- Total Treatment by Prof.Soebroto Sapardan (1989)
- A therapy unit with a view of all the good aspects of the patient, the surgical and non surgical
- Underlying the birth of this treatment is a matter of total social and economic problems.
- Principle : Providing solutions to problems found in accordance with the modalities that are available



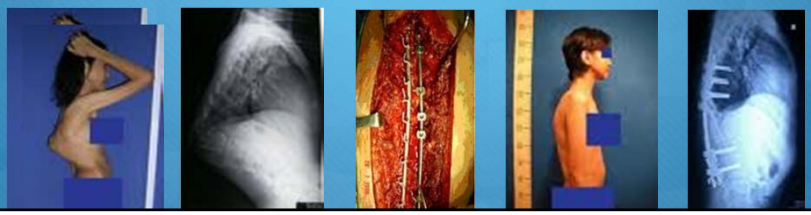
The Aim of Total Treatment

Healing of Spondilitis in a stable and painless spine without unacceptable deformity with return of function, return to the society, family and occupation



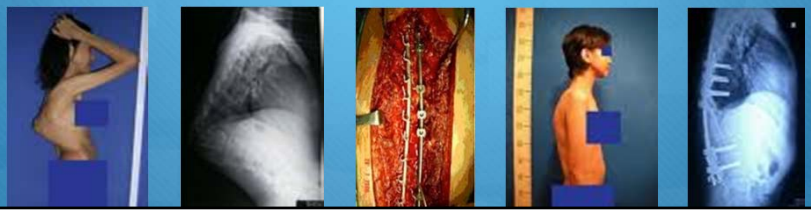
Steps The Total Treatment

- Identification and clarification of existing problems
- Make a list of modalities from conservative to aggressive operative
- Fit the individual patient: Customize list of issues with appropriate treatment
- Give 10 or 10 alternative treatment options



Problems

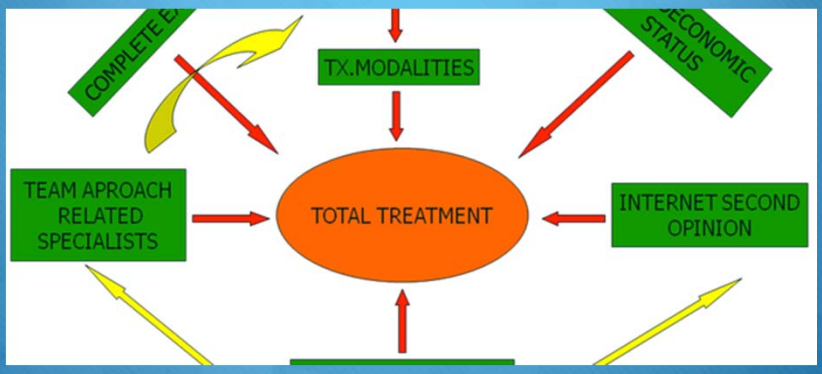
- Infection
- Poor general condition
- Multiple lesions
- Cold abscess
- Painful
- Pathological Fractures
- Instability
- Neurological Deficit
- Deformity
- Kifosis progressive
- Pulmonary Dysfunction
- Cardiac diasability
- Sosioekomi
- Psychogenic



Therapeutic Modalities

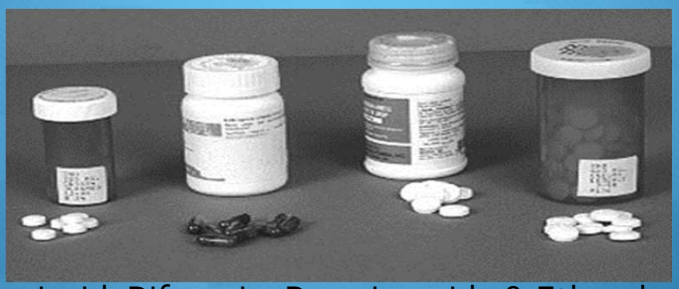
- Basic therapy
- Abscess Drainage
- Kostotransversektomi
- Debridement Torakoskopik
- Anterior Debridement and strutgrafting (Hongkong Method)
- Anterior Instrumentation
- Posterior Instrumentation
- Transpedikular debridement and biopsy
- Debridement Translateral or posterior lumbar interbody fusion and Shortening procedures for correction kyphus
- Rehabilitation
- Circumferential decompression
- Fusion Cages

Scheme of Total Treatment



Anti Tuberculosis Drugs (OAT)

- If a positive skin test without symptoms and signs of infection are given isoniazid for 6 to 9 months.
- Active TB are given 3 or 4 drug combinations RHZE for 6 to 9 months can be extended to 1 and a half years with rigorous evaluation of anatomy and function of the spine.



Isoniazid, Rifampin, Pyrazinamide & Ethambutol

Alternative I

- Early Case
- Patients who refused all surgery
- Basic treatment

Alternative II

- Patients with a large abscess but with minimal destruction
- Good general condition

- Basic Therapy
- Debridement anterior
- evacuation of abscess with graft



Alternative III

- Tuberculosis in the thoracolumbar spine single or two levels affected by the minimum kifosis

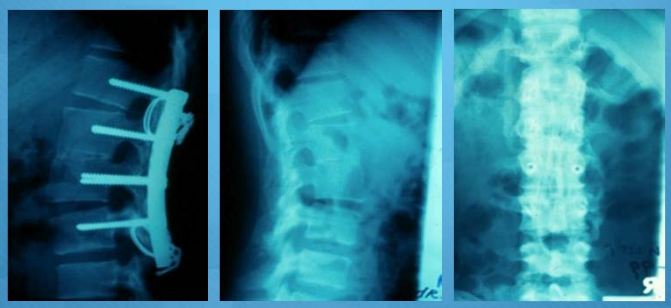
- Basic Therapy
- *Hongkong method*
- *body cast* post operatif



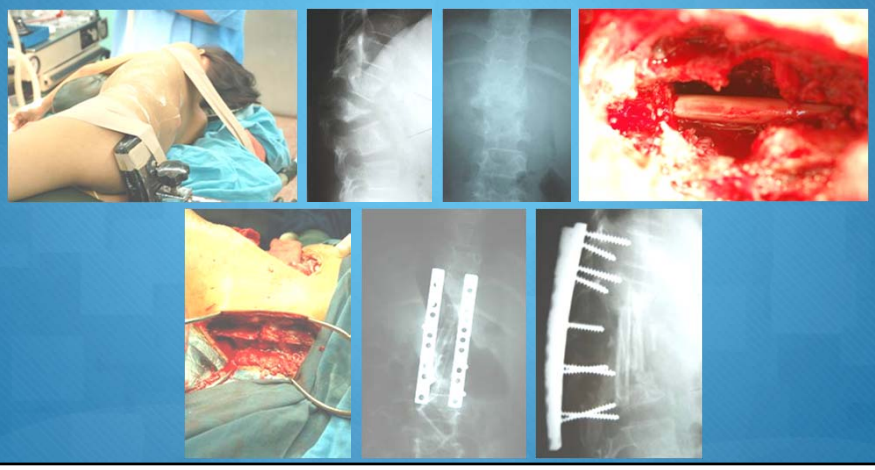
Alternative IV

- Patients with problems of infection, pain, posterior instability, deformity, with or without neurological deficit

- Basic Therapy & instrumentasi posterior & Hongkong method
- Approach anterior, debridement toraskokopik with or without fusion.



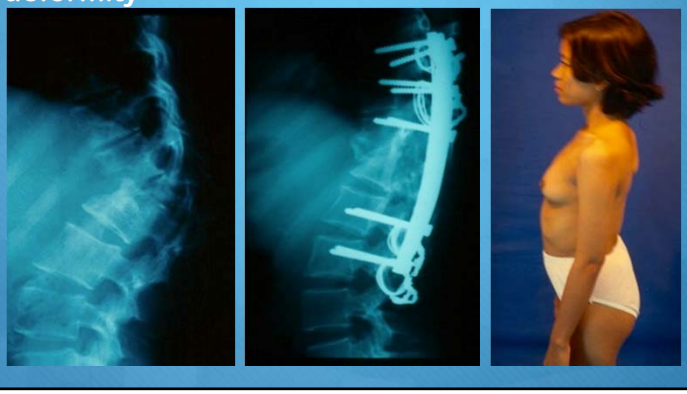
- TB L1 – L2
- Kyp 46° → 26°
- Approach anterior-posterior combined



Alternative V

- Patients like the alternative IV with rigid kyphosis spontaneous fusion of the facet joints as long deformity

- Posterior shortening
- Instrumentation anterior
- Hongkong Method

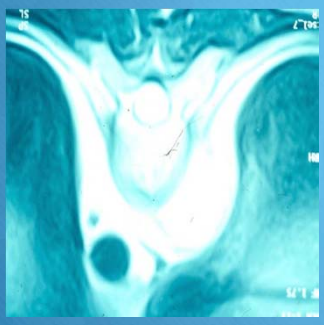


Alternative V

Alternative VI

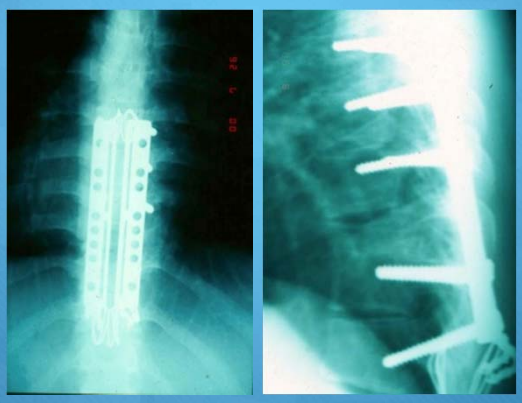
- Indikasi yang sama dengan alternatif IV untuk pasien yang menolak approach posterior dan anterior atau dengan tolerasi buruk atau approach kombinasi .
- Terapi dasar & dekompresi posterior dengan laminektomi & kostotransversektomi untuk debridement & evakuasi abses paravertbral dilanjutkan instrumentasi posterior dan fusi.

Alternative VI



Alternative VI

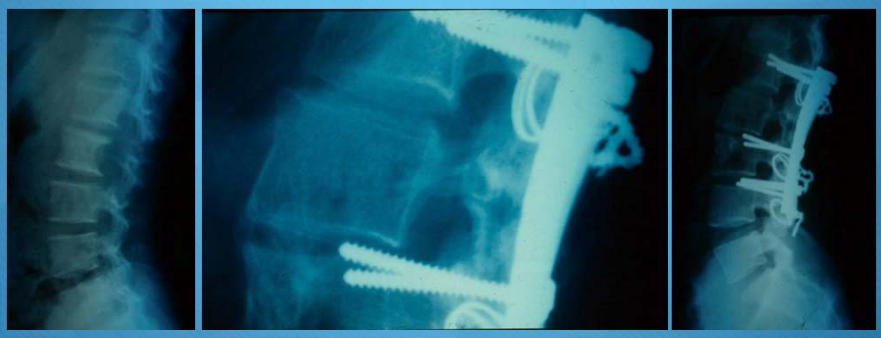
- Posterior approach only
- Costotransversectomy + debridement + instr



Alternative VII

- For patients with an abscess in the lumbar paravertebral warm.
- Significant abscess should be continued with alternative IV.
- Basic Therapy with laminektomi, limited shortening procedures & debridement & fusion translateral or approach posterior lumbar interbody with instrumentation posterior segmental

Alternative VII

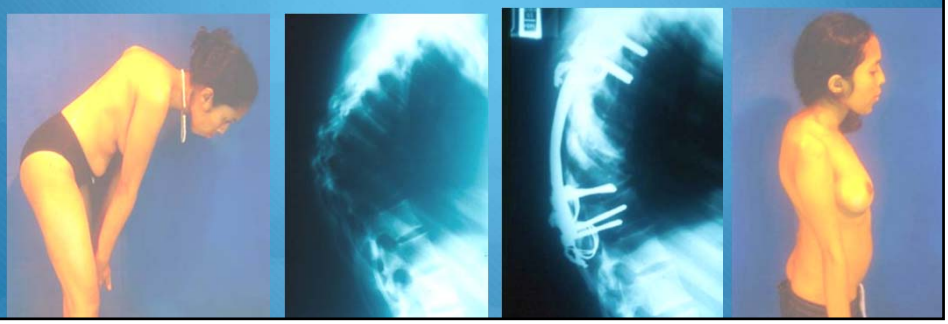


Alternative VII

Posterior only, limited shortening lumbar spine + TLIF / PLIF / None

Alternative VIII

- khifosis 60-89^{o}
  - Approach posterior
  - Kostotransversektomi-Shortening
  - Dekompresi sirkumferensial



Alternative IX

- For correction of severe kifosis
- Neurological deficit
  - Only Posterior
  - Decompresion Sirkumferensial
  - Minimal corection

Alternative X

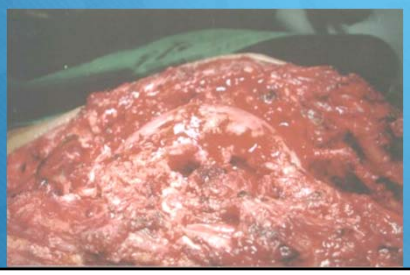
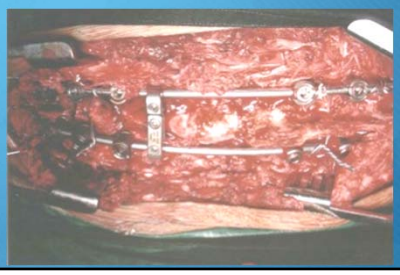
- Indications of more than 90º kifosis
- Circumferential decompression of the anterior longitudinal ligament, the entire thing into the pedicle screw, the correction with reduction screw or sublaminal wiring

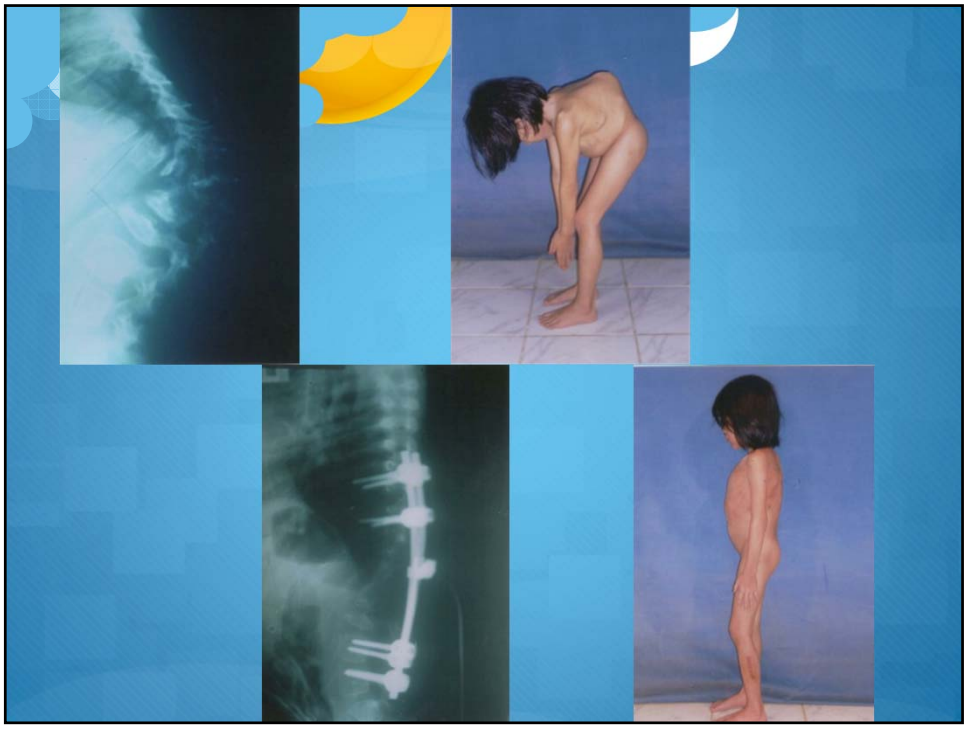


Treatment Alternative X

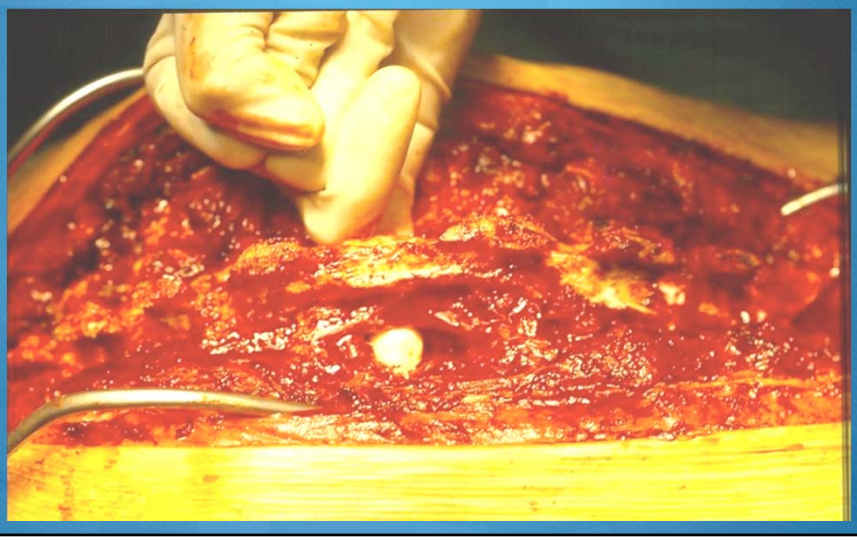
25 years old lady
TB of T_{10} - L_2
Kyp 135^0 –
corrected to 35^0





Circumferential Decompression



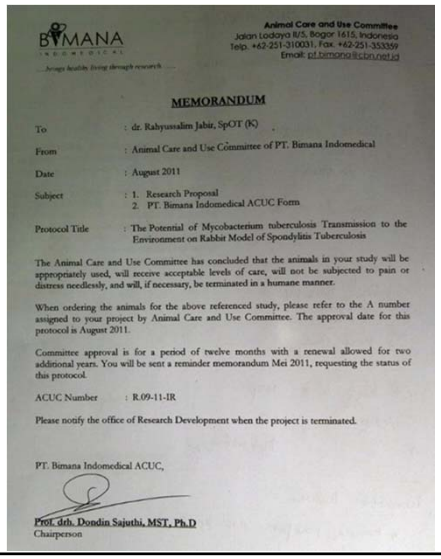
Research Update

POTENSI PENYEBARAN BAKTERI *MYCOBACTERIUM TUBERCULOSIS* KE LINGKUNGAN PADA PEMBUATAN MODEL KELINCI SPONDILITIS TB

Rahyussalim, Tri Kurniawati, Imamul A, Ekowati H
Department Orthopaedic & Traumatology FKUI/RSCM

Animal Care & Use Committee (ACUC) Aproval

47



BIMANA

Animal Care and Use Committee
Jalan Lodaya II/5, Bogor 1615, Indonesia
Telp. +62-251-310031, Fax. +62-251-353359
Email: pt.bimana@cbn.net.id

MEMORANDUM

To : dr. Rahyussalim Jabir, SpOT (K)

From : Animal Care and Use Committee of PT. Bimana Indomedical

Date : August 2011

Subject : 1. Research Proposal
2. PT. Bimana Indomedical ACUC Form

Protocol Title : The Potential of Mycobacterium tuberculosis Transmission to the Environtment on Rabbit Model of Spondylitis Tuberculosis

The Animal Care and Use Committee has concluded that the animals in your study will be appropriately used, will receive acceptable levels of care, will not be subjected to pain or distress needlessly, and will, if necessary, be terminated in a humane manner.

When ordering the animals for the above referenced study, please refer to the A number assigned to your project by Animal Care and Use Committee. The approval date for this protocol is August 2011.

Committee approval is for a period of twelve months with a renewal allowed for two additional years. You will be sent a reminder memorandum Mei 2011, requesting the status of this protocol.

ACUC Number : R.09-11-IR

Please notify the office of Research Development when the project is terminated.

PT. Bimana Indomedical ACUC,

Prof. drh. Dondin Sajuthi, MST, Ph.D
Chairperson

Komisi Pengawasan Kesejahteraan dan Penggunaan Hewan Percobaan
RUMAH SAKIT HEWAN INSTITUT PERTANIAN BOGOR
Animal Care and Use Committee
VETERINARY TEACHING HOSPITAL
Jl. Agatis Kampus IPB Darmaga BOGOR 16680 Tel. 0251-8425503, Fax. 0251-8425503, 8421134

PERSETUJUAN ATAS PERLAKUAN ETIK

Judul Penelitian: **Potensi Penularan Bakteri *Mycobacterium tuberculosis* terhadap Lingkungan pada Model Kelinci Spondilitis TB**

Peneliti Utama: Dr. Rahayussalim, SpOT (K) Spine

Bahan Review:
1. Form Aplikasi ACUC RSH-IPB
2. Protokol Penelitian
3. Surat Tanggapan Peneliti kepada ACUC

Dengan memperhatikan:
1. Species dan Relevansi Hewan Model
2. Justifikasi jumlah hewan yang digunakan
3. Prosedur Penelitian pada hewan coba

Kami menyatakan bahwa prosedur dalam penelitian ini memenuhi persyaratan etik dan memperhatikan kesejahteraan hewan coba yang digunakan.

Maka, kami memberikan *Etikcal Approval* pada penelitian ini.

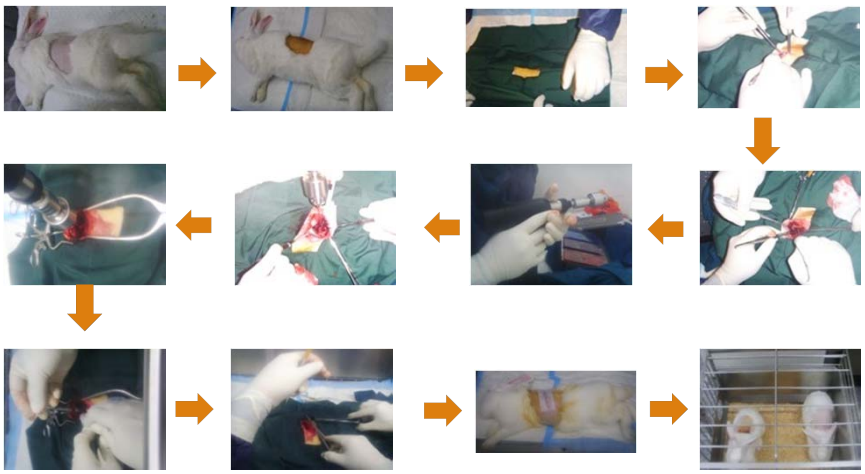
Nomor: 03 – 2011 RSH-IPB

Bogor, Oktober 2011
Ketua Komisi

drh. Tkowati Handharyani, MSi, PhD

Induction of infection research procedure
(Performed by orthopaedic surgeon)

48



Conclusion

Dengan pendekatan infeksi primer menggunakan prosedur inokulasi langsung 0,1 mL bakteri *M. tuberculosis* 10^7 cfu/mL di korpus thorakal 12 dan waktu inkubasi 14 minggu, tidak terjadi potensi penyebaran bakteri ke lingkungan pada model kelinci spondilitis TB.

Gambaran histopatologi mengindikasikan adanya proses infeksi bakteri *M. tuberculosis* pada korpus thorakal 12.


SIMPOSIUM TB NASIONAL
MENARA 165 TB SIMATUPANG
SABTU, 31 MARET 2012


SIMPOSIUM TB NASIONAL
MENARA 165 TB SIMATUPANG
SABTU, 31 MARET 2012
BERSATU INDONESIA BEBAS TB

THANK YOU