

Tatalaksana Meningitis TB

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Topik

1. Lumbal pungsi
2. Regimen OAT utk Meningitis

Meningitis TB (TBM)

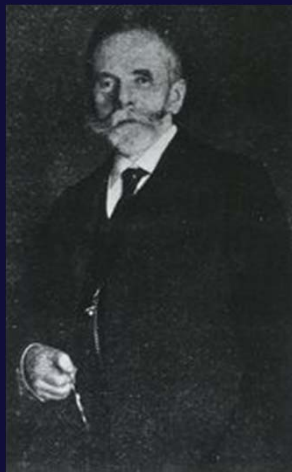
- TBM 5- 10 % pasien TB
- Mortalitas MTB di RSCM
 - Non HIV 35 %
 - HIV (+) : 60 %

Table 2 The presenting clinical features of tuberculous meningitis in older children and adults as described by recent clinical series.^{6,8,11-13}

	Frequency/range
Symptom	
Headache	50–80%
Fever	60–95%
Vomiting	30–60%
Photophobia	5–10%
Anorexia/weight loss	60–80%
Clinical sign	
Neck stiffness	40–80%
Confusion	10–30%
Coma	30–60%
Cranial nerve palsy	30–50%
VI	30–40%
III	5–15%
VII	10–20%
Hemiparesis	10–20%

Heinrich Quincke

German 1842-1922



- Lumbal pungsi berulang (drainase) pasien anak yg koma dan diagnosis sbg meningitis infantum
- Paska LP kesadaran membaik
- Awal : LP ditujukan sebagai terapi

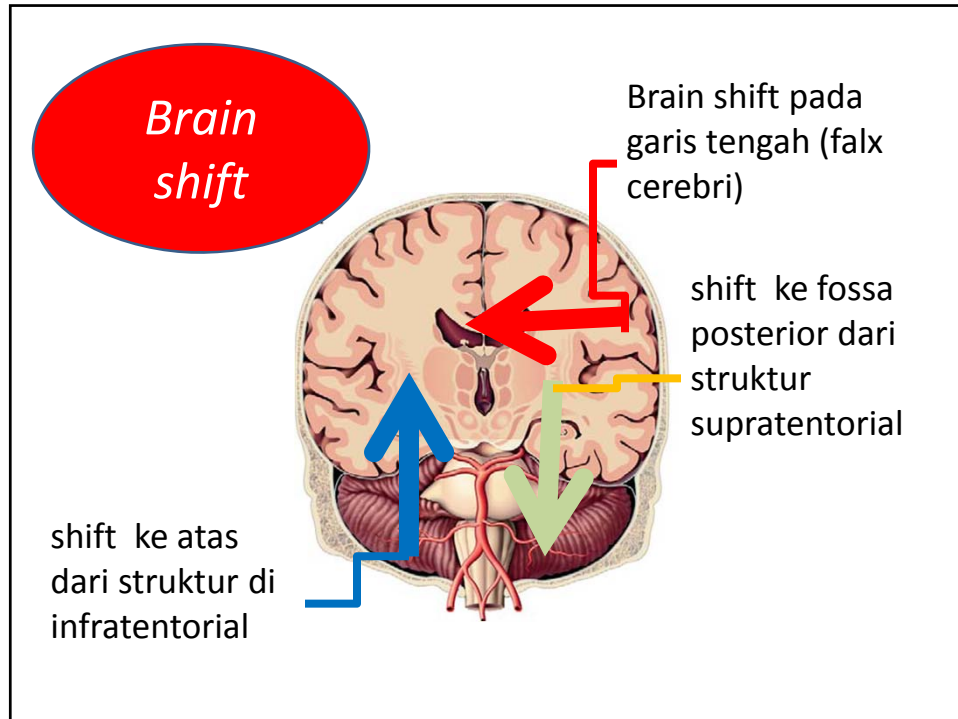
1. Quincke HI. Ueber hydrocephalus. Verhandlung des Congress Innere Medizin (X), 189 1;321-39.
 2. Wynter WE. Four cases of tubercular meningitis in which paracentesis was performed for the relief of fluid pressure. Lancet 1891;1:981-2.

LP – Herniasi

- **Brain shift → lanjut → herniasi**
- LP dapat memicu herniasi otak
 - Perburukan klinis paska LP tdk selalu karena herniasi
 - Herniasi paska LP tdk selalu karena LP

Herniasi

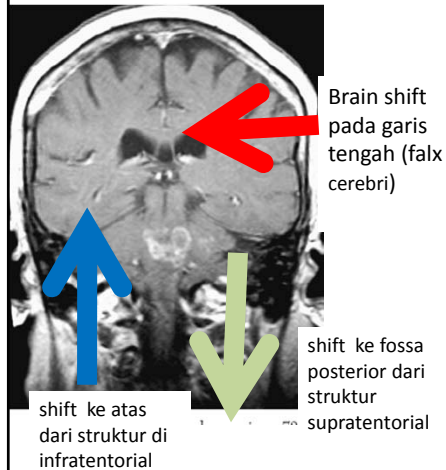
1. Peningkatan tekanan intrakranial
 2. Herniasi otak (brain shift)
- Dua keadaan yang berbeda



LP – Brain Shift

- LP **tdk dikerjakan** pd brain shift
- LP **dikerjakan** pd TIK tinggi

Mengenal brain shift

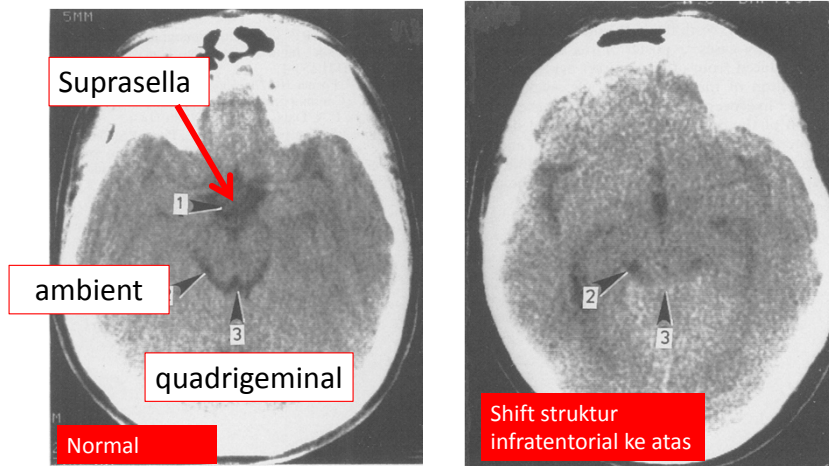


- Tanda Klinis
- Tanda imaging

Klinis brain shift

- Sefalgia dan muntah
- brain shift tentorium : kaku kuduk, kesadaran menurun, hemiparesis, pupil anisokor
- Brain shift foramen magnum : kaku kuduk, head tilt, kesadaran menurun, bradikardi, apneu.
- Papil edema walaupun ada bukan merupakan tanda brain shift

Brain shift



JNNP 1987;50:1071-1074

Bahaya LP

- LP : extremely helpful and rarely dangerous? (*J Neurol* (2002) 249 : 129–137)
- Contraindications to lumbar puncture are relative to the importance of the data being sought. (*Neurology* 1993;43:625)

Regimen OAT utk Meningitis TB

- TB meningitis yang memiliki mortalitas 30-60 % : menggunakan OAT yang sama dengan TB paru.
- *Immune-pathology* berbeda dgn TB paru
- Penetrasi obat ke SSP berbeda dgn jaringan lain.

Pengobatan MTB

Nama obat	Dosis harian		Rute
	Anak	Dewasa	
Isoniazid	10-20 mg/kgBB (max. 500 mg)	300 mg	Oral
Rifampisin	10-20 mg/kgBB (max. 600 mg)	450 mg (< 50kg) 600 mg (≥ 50kg)	Oral
Pirazinamid	30-35 mg/kgBB (max. 2 gram)	1,5gram (<50kg) 2,0 gram (≥50 kg)	Oral
Etambutol	15-20 mg/kgBB (max. 1gram)	15 mg/kgBB	Oral

Thwaites et al, J Infect 2009; 59: 167-187

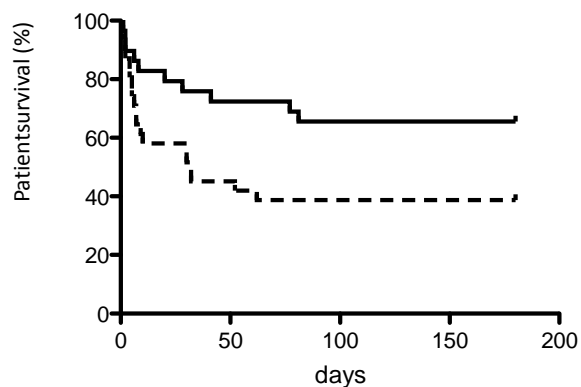
Penetrasi OAT pd SSP

Anti-TB drug	Activity	CSF penetration
Isoniazid	Cidal	90%–95%
Rifampin	Cidal	5%–25%
Pyrazinamide	Cidal	95%–100%
Streptomycin	Static	20%–25%
Ethambutol	Static	10%–50%
Ciprofloxacin	Cidal	15%–35%
Levofloxacin	Cidal	60%–80%
Moxifloxacin	Cidal	70%–80%

Penetrasi OAT pd SSP

Anti-TB drug	Activity	CSF penetration
Cycloserine	Static	40%–70%
Amikacin	Cidal	10%–25%
Streptomycin	Cidal	10%–20%
Capreomycin	Static	unknown
Para-aminosalicylic acid	Static	unknown
Thioacetazone	Static	unknown
Linezolid	Cidal	80%–100%
Bedaquiline (TMC207)	Cidal	unknown
Delamanid (OPC-67683)	Cidal	unknown

Ruslami dkk di Bandung : Dosis Tinggi Rifampisin pd Meningitis TB



Survival among TB meningitis patients treated with high dose () and standard dose () rifampicin (adjusted HR 0.45, 95% 0.21-0.98). One-month mortality was 17% resp 42%, six-month mortality 34% resp 61%.

Radiological features: TBM

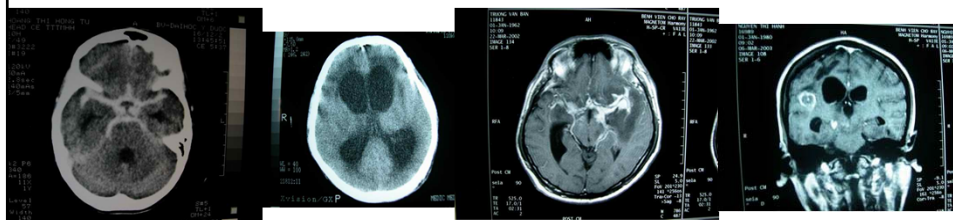
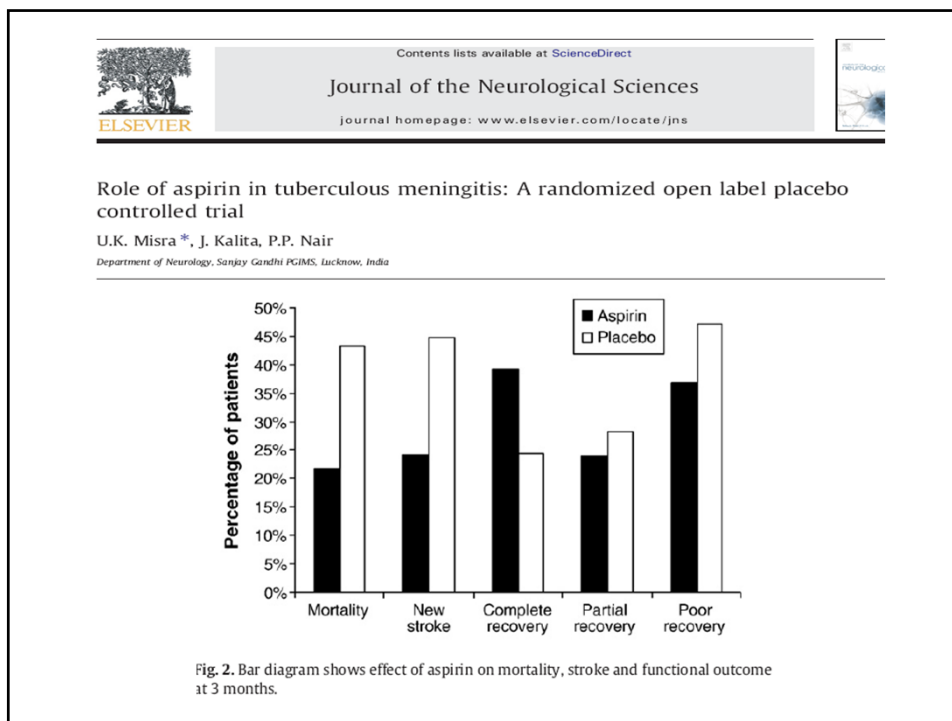


TABLE 3. Summary of Cranial CT Findings at Admission

Cranial CT Findings	HIV-Infected	No. of Patients	HIV-Uninfected	No. of Patients	OR	95% CI
Infarcts (%)	50.0	24	40.5	42	1.47	0.54–4.04
Basal ganglia	72.7	11	91.7	12	0.24	0.02–2.78
Cortical	18.2	11	8.3	12	2.44	0.19–31.53
Basal + cortical	9.1	11	0.0	12	3.57	0.13–97.23
Granuloma	0	24	15.0	40	0.11	0.01–2.01
Hydrocephalus	72.0	25	97.9	47	0.06	0.01–0.49
Communicating	100.0	10	80.0	40	5.49	0.29–103.46
Noncommunicating	0.0	10	20.0	40	1.00	—
Basal exudate (%)	37.5	24	71.4	42	0.24	0.08–0.70
Subarachnoid space (%)						
Increased	57.1	21	16.7	30	4.40	1.04–18.60
Normal	28.6	21	36.7	30	1.00	—
Decreased	14.3	21	46.6	30	0.39	0.80–1.94

Paed Infect Dis J. 2006; 25 (1): 65-9



Terima kasih

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