

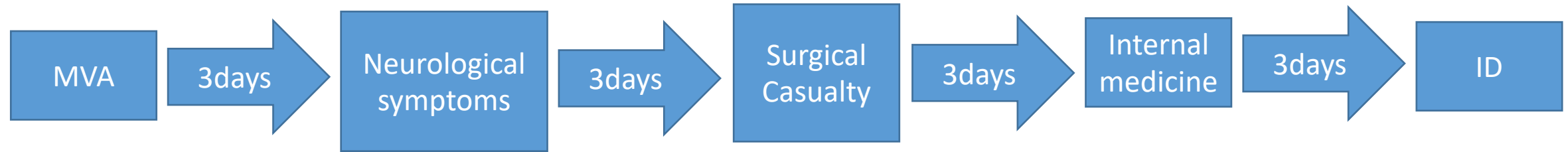
HOPE Conference

7 June 2022

Dr Tappie Cairns



Timeline – End September - October



History on presentation

40+ year old male

Accident 6 days prior to presentation.

Presents with 3 day history of confusion and lower limb weakness

No hx of LOC after accident

Medical history

PLHIV on ART

2015-2019:

TDF/FTC/EFV. Stopped treatment.

Jan 2021:

Re-started TDF/FTC/EFV at local clinic.

April 2021: VL 127446 copies/ml (5.1 Log₁₀) CD4 91 cells/uL, Serum CrAg negative

History (continued)

Previous admission to surgical ward April 2021

Psoas abscess



GXP MTB detected, Rifampicin sensitive
AFB+, TB culture negative

Miliary pattern PTB on CXR

Started on Rifampicin, Isoniazid, Pyrazinamide, Ethambutol (Rifafour)
Prophylactic TMP/SMX was not started and ART regimen was not changed

Current Rx (Oct): Rifampicin & Isoniazid
Good adherence since April.

On examination

Weight 70+kg

Well nourished, no signs chronic illness, no lymphadenopathy or anaemia

No meningism

GCS 14/15 (E4, M6, V4)

UL: Power 5/5, normal tone

LL: Power 5/5, normal tone

Reflexes not assessed due to lack of cooperation

Cranial nerves intact

CVS: pulse 110bpm. BP 132/86 normal HS, no murmurs

Chest: No respiratory distress, clear

Abdomen: soft, no organomegaly

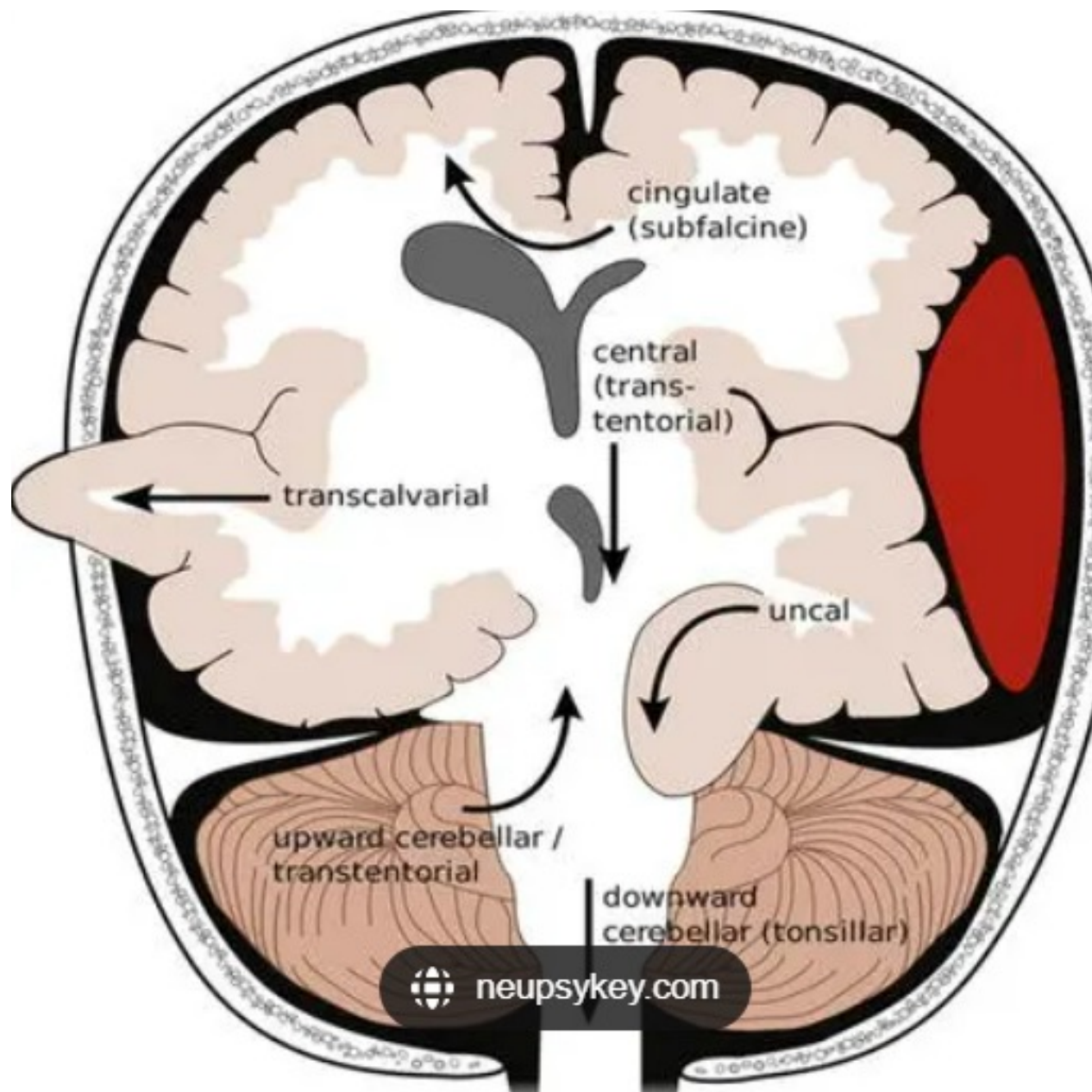
Special Investigations

Chest X-ray: Poor inspiration. Lung fields clear

		Normal value
WBC	4.2	3.9-12.6x10 ⁹ /L
Hb	14.3	12-15g/dL
MCV	94.3	78.9-98.5fL
MCH	37.7	26.1-33.5pg
Plt	258	186-454 x10 ⁹ /L
INR	1.02	0.9-1.2
CRP	18	<5 U/L
CD4	78	500-1400 cells/uL
VL	22864 (4.4 Log ₁₀)	<25 copies/ml
Serum CrAg	Negative	
RPR	Non-reactive	

		Normal value
Na	134	136-145 mmol/L
K	4.7	3.5-5.1 mmol/L
Cl	98	98-107 mmol/L
CO2	28	23-29 mmol/L
Anion Gap	17	9-16 mmol/L
Urea	9.1	2.1-7.1 mmol/L
Creatinine	90	49-90 umol/L
eGFR	>60	mL/min/1.73m ²
TP	96	60-78 g/L
Alb	36	35-52 g/L
T Bili	3	5-21 umol/L
ALT	58	7-35 U/L
ALP	150	42-98 U/L
GGT	324	<40 U/L
LDH	263	266-500 U/L





What is the most likely diagnosis?

1. TB tuberculoma - new
2. TB immune reconstitution
3. Cerebral Toxoplasmosis
4. CNS Lymphoma
5. Brain abscess – bacterial/fungal/tuberculous
6. CNS metastasis
7. All of the above
8. None of the above

Management

Advice from neurosurgery:

- Not for lumbar puncture

- Not for neurosurgical intervention

- Treatment: Ceftriaxone 2g bd IVI for 10 days, Dexamethasone 8mg IVI 8hrly,
Restarted intensive phase TB treatment (Rifafour) orally

Progress in ward

Remained confused despite management as advised

ID consulted on day 6 of admission

ID added treatment for Toxoplasmosis:

TMP/SMX - TMP component 10mg/kg/day in two divided doses
(Bactrim 5 tablets bd)

Risperidone started

Results: Toxoplasmosis gondii ELISA IgM IgG positive

Progress in ward (continued)

Over the next 5 days confusion resolved

Discharged 14 days after admission

Plan:

- Intensive phase TB treatment

- Oral steroids - Prednisone 80mg daily

- HD TMP/SMX

- CTB after 6 weeks

Out-patient follow up November 2021:

(6 weeks after starting treatment)

Doing well, gaining weight, no neurological symptoms
HIV VL 9691.

ART changed to TDF, FTC, double dose DTG (from TDF, FTC, EFV)

Start weaning off steroids (from prednisone 80mg dly)

Continue HD TMP/SMX, Intensive phase TB treatment

Change of ART regimen was delayed by 6 weeks. When would you do?

1. Within a few days of admission
2. After two weeks
3. After 4 weeks
4. After completing TB treatment
5. Not until substantial resolution on CTB

December 2021 (10 weeks after start of treatment)

Improvement on CTB

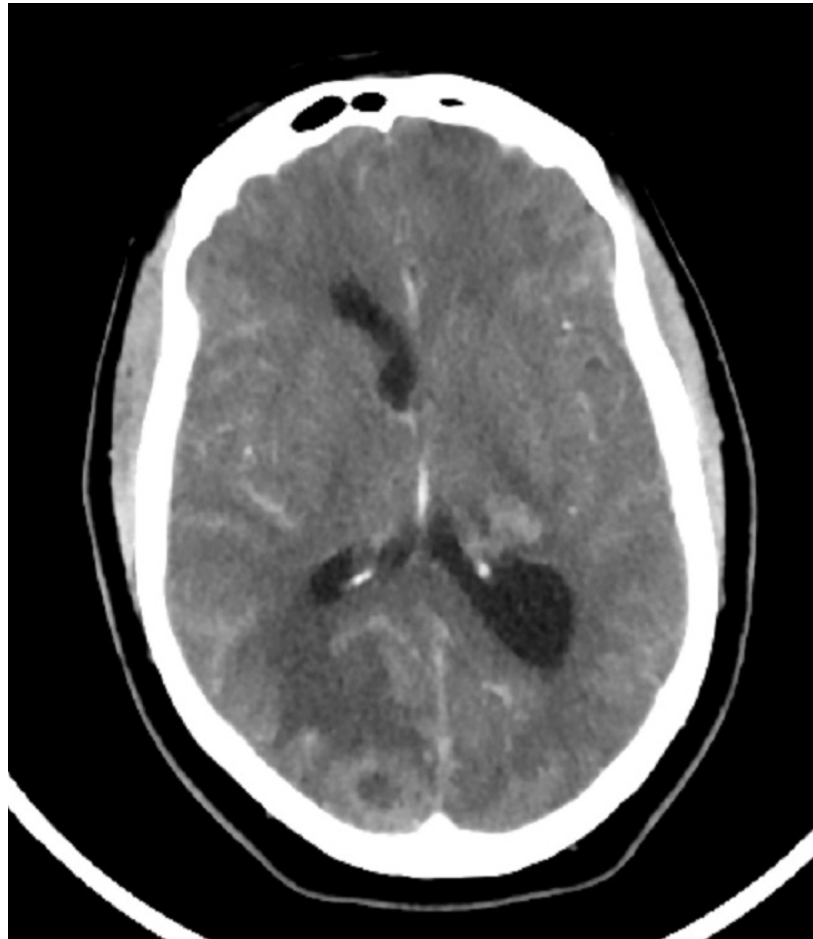
Plan:

Wean off steroids (to complete in Jan 2022)

Continue TMP/SMX

Continue TB treatment

December



October



CTB March 2022 (5months after start of treatment)

No interval change

Patient clinically well

CD4 137, VL LDL

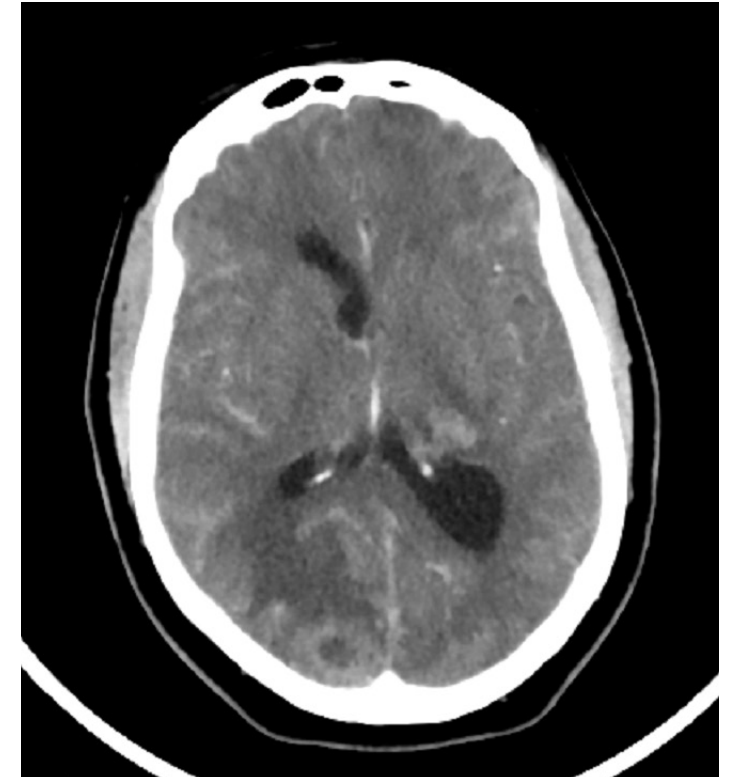
On ART, TB treatment,

TMP/SMX

March 2022



Dec 2021



What next?

Reason for persistence?

1. Unresolved IRIS?
2. CNS lymphoma?
3. Residual TB?
4. Residual Toxoplasmosis?
5. Bacterial abscess?
6. Fungal Infections? Aspergillosis/histoplasmosis

Would you do further investigations now?

April 2022 follow up

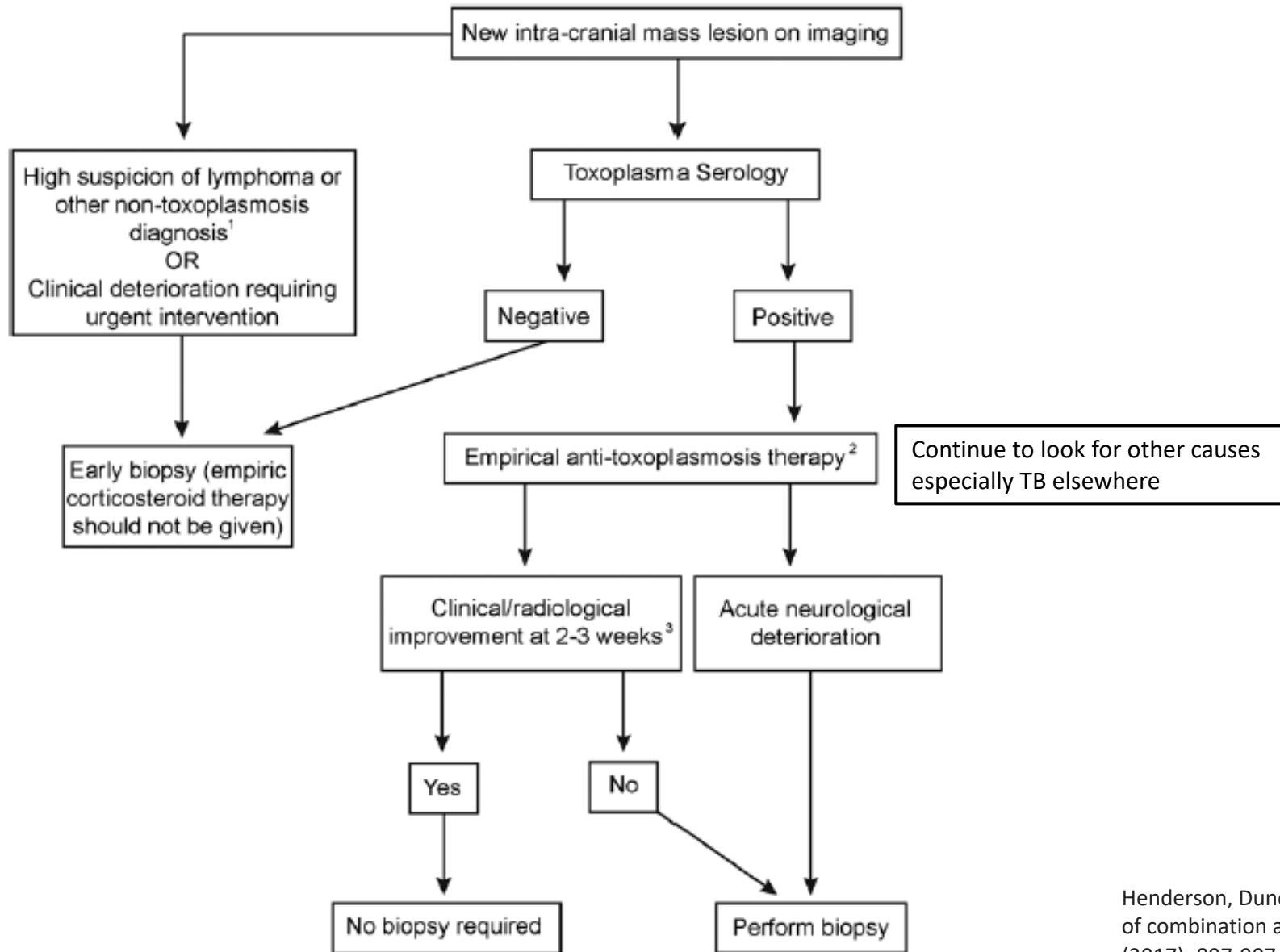
(6months after start of treatment)

Remains well. No neurological signs.

CD4 115, VL <20

Stop HD TMP/SMX, change to prophylactic dose (2 SS tabs TMP/SMX)

Continue ART, TB treatment



Pragmatic approach to SOL:

Bloods: Toxoplasma & syphilis serology
CD4, reflex CRAG,

Search for TB outside CNS (LAM, CXR, Xpert Ultra, US abdomen)

Start treatment for toxo

Decide on empiric TB treatment and steroids

LP if safe: Cells, protein, glucose, bacterial culture, CRAG, Xpert Ultra and TB culture, Syphilis, EBV Viral Load, Toxoplasma PCR

Response to treatment for Toxo to guide management

Henderson, Duncan et al. "Neurosurgery and human immunodeficiency virus in the era of combination antiretroviral therapy: a review." *Journal of neurosurgery* vol. 126,3 (2017): 897-907. doi:10.3171/2016.1.JNS151194

Presentation and outcome of patients with intracranial tuberculoma in a high HIV prevalence setting

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CONCLUSION: Tuberculoma is a severely disabling TB manifestation regardless of HIV coinfection, with half of patients showing radiologically persistent lesions at 18 months follow-up. Large size of tuberculoma at presentation heralds lower chance of its resolution within 18 months.

Table 1. Summary of reported medical management strategies and clinical and radiologic outcomes of intracranial tuberculoma case series.

Study, First author, year published, country	Study design	Patients, n (age group) ¹	Duration of ATT, Months: %	Steroid use, %	Favorable clinical outcome, %, (n/N) ²	Radiologic persistent tuberculoma(s), % (n/N): months F/U
Afghani ⁶⁷ , 1994, multiple	Case report + review	41 (C + A)	10-24: 100	80 ³	68 (25/37)	N/A
Anuradha ³² , 2011, India	Retrospective observational	43 (C + A)	9: 100	100	26 (11/43)	79 (30/38): 9
Awada ³³ , 1998, Saudi Arabia	Retrospective observational	18 (C + A)	12-18: 100	67	N/A	100 (18/18): 12
Bayindir ⁶⁸ , 2006, Turkey	Retrospective observational	23 (C + A)	12-18: 100	N/A	100 (15/15)	N/A
Gupta ⁶⁹ , 1990, India	Prospective observational	31 (C + A)	11-12: 97	N/A	N/A	14 (4/29): 12
Gupta ⁸ , 2003, India	Prospective observational	9 (C + A)	16: 11 18-34: 88	89	44 (4/9)	N/A
Harder ⁷⁰ , 1983, Saudi Arabia	Retrospective observational	20 (C + A)	12: 61 9-24: 39 ⁴	75	35 (7/20)	0 (0/10): 12 ⁵
Idris ⁶⁵ , 2007, Sudan	Retrospective observational	16 (A)	18: 100 ⁶	56	N/A	13 (2/16): 18
Li ⁶⁶ , 2012, China	Retrospective observational	6 (A)	18: 100	33	83 (5/6)	N/A
Man ³⁶ , 2010, France	Retrospective observational	23 (A)	9-18: 88 21: 12 ⁴	43	53 (10/19)	75 (12/16): 9-21
Marais ¹² , 2019, South Africa	Retrospective observational	66 (A)	≥9: 96% 19-46: 54 ⁴	76	37 (20/54)	49 (20/41): 18 33 (14/42): 24
Nair ⁹ , 2019, India	Retrospective observational	86 (C + A)	≥18: 100 >24-120: 22	N/A	N/A	22 (19/86): 24
Poonnoose ²³ , 2003, India	Retrospective observational	28 (C + A)	≥18: 100	54	68 (19/28)	69 (19/28): 18 46 (13/28): 24
Rajeswari ²⁴ , 1995, India	RCT	108 (C + A)	9: 100 ⁴	100	90 (97/108)	22 (20/91): 9 12 (11/89): 24
Ravenscroft ⁶⁹ , 2001, South Africa	Prospective observational	34 (C)	≥6: 100 12: 6	N/A	N/A	44 (14/32): 6 ⁷
Shah, 2016 ⁶⁴ , India	Prospective observational	28 (C + A)	≥12: 100 18-24: 17 ⁸	79	N/A	17 (4/24): 12 13 (3/24): 24
Shah, 2019 ¹¹ , India	Case series	6 (C)	23-32: 100	83	83 (5/6)	83 (5/6): >24
Tandon ⁷¹ , 1985, India	Retrospective observational	50 (C + A)	12-18: 98	N/A	78 (39/50)	40 (20/50): N/A
Wasay ⁴⁶ , 2004, Pakistan	Retrospective observational	102 (C + A)	9-12: 100 ⁴	79 ⁴	34 (17/50)	NA
Yaramis ⁷² , 1998, Turkey	Retrospective observational	4 (C)	12: 100 24: 50	100	100 (4/4)	N/A

Duration of
treatment for CNS
tuberculoma

Varies 9-18months

Marais, Suzaan et al. "Management of intracranial tuberculous mass lesions: how long should we treat for?." *Wellcome open research* vol. 4 158. 31 Oct. 2019, doi:10.12688/wellcomeopenres.15501.2

Thank you!