# Alien v/s predator: battle for time

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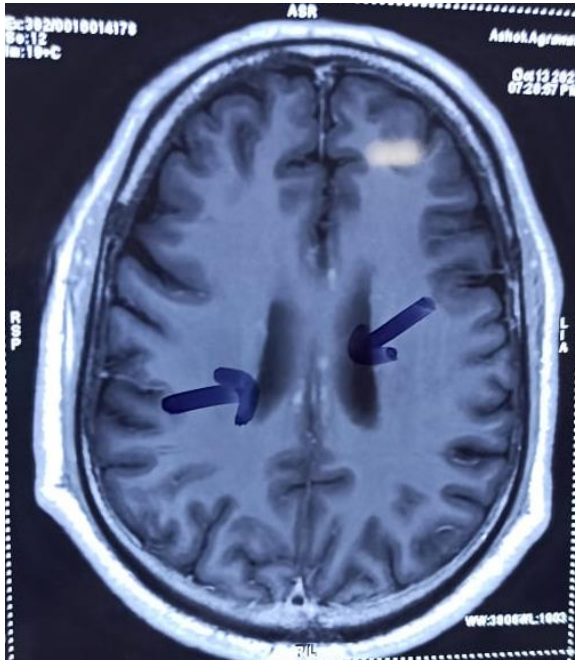
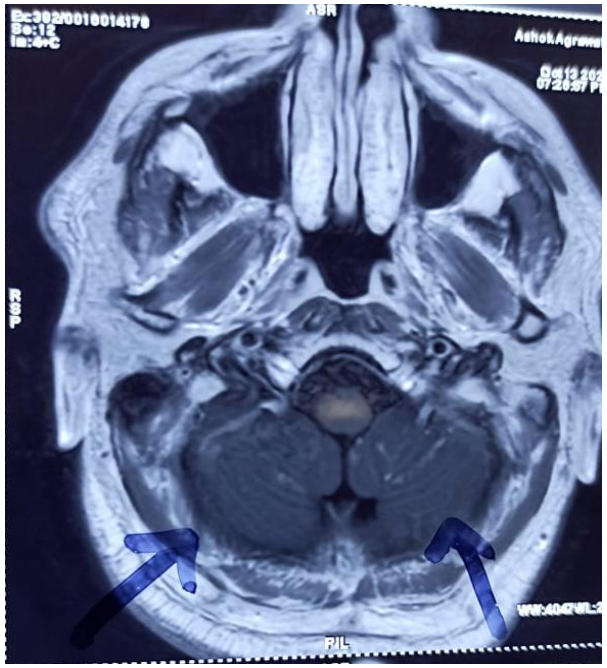
# CASE

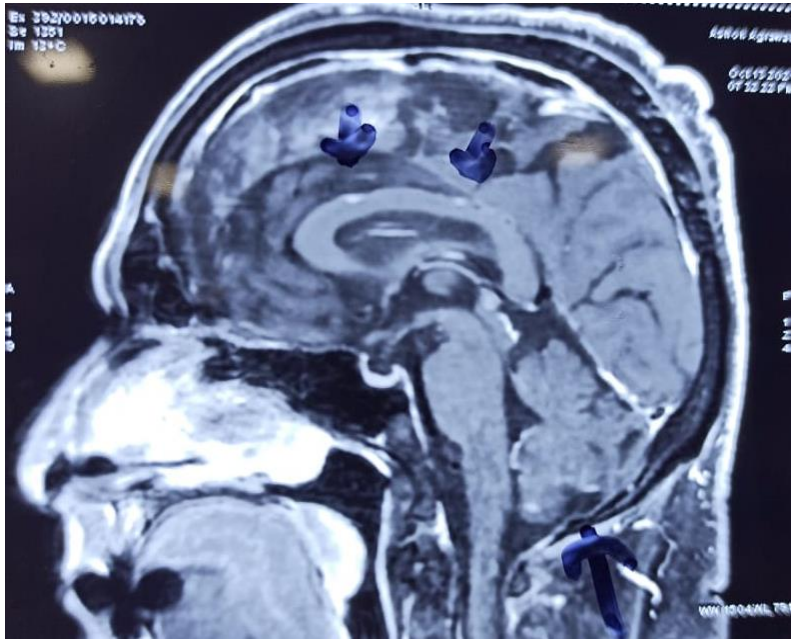
- 62/M
- Newly diagnosed DM
- No travel history or other comorbidities
- R/O of surat -> stayed in Mumbai for last few yrs

- C/O: (R) LL numbness & weakness with progressive difficulty in walking & imbalance since 2 years
- history of urinary retention since last 1 yr
- Headache since last few months – TCA taken

- CNS - DTR (R) LL +++, rest NAD
- Usg scrotum – B/L bulky heterogenous epididymis with multifocal calcification & (R) small chronic abscess s/o chronic granulomatous inflammation
- Routine labs – NAD
- CRP & ESR – raised
- MRI spine – NAD
- HIV - negative







Abnormal leptomeningeal enhancement with micronodular pattern predominantly in interfolial space along the inferior cerebellar surface S/O (reactivated) granulomatous meningitis – infective v/s noninfective

- CSF –P- 100, S- 39, wbc- 180(n-12, L-68)
- Gene xpert MTB – negative
- India ink – negative

- Empirically ATT started with tapering steroids -> Partial decrease in symptoms

# Readmitted – 1 month later

- 1/11/21 – history of drowsiness & convulsion
- CSF – P – 119 , S- <2
- Gene xpert – negative (2/2)
- 2nd line ATT started

- Repeat MRI – Previous lesion has marginally reduced **but acute infarct** B/L parasagittal frontal lobe, perisylvian cortex, corona radiate, lentiform nucleus, internal capsule, temporal lobe, cerebellar vermis **represent vasculitis infarct subsequent to meningitis**

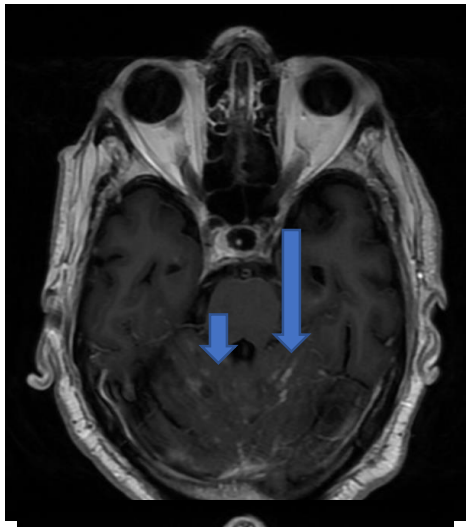
# Summary

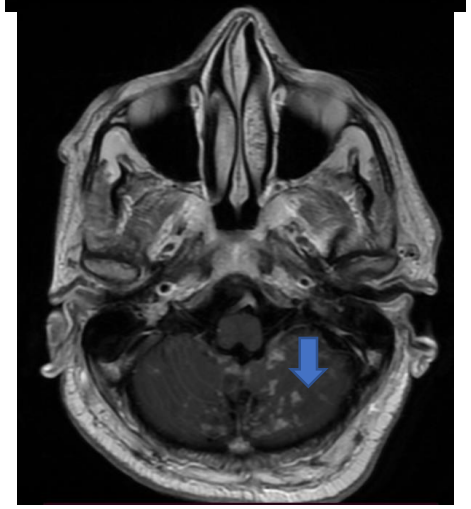
- Elderly male, immunocompetent
- Focal neurological f/b convulsion
- MRI – granulomatous meningitis with vasculitis
- USG scrotum – chronic granulomatous abscess
- CSF- high protein, low sugar, lymphocytosis
- No response to 1$^{st}$ line ATT

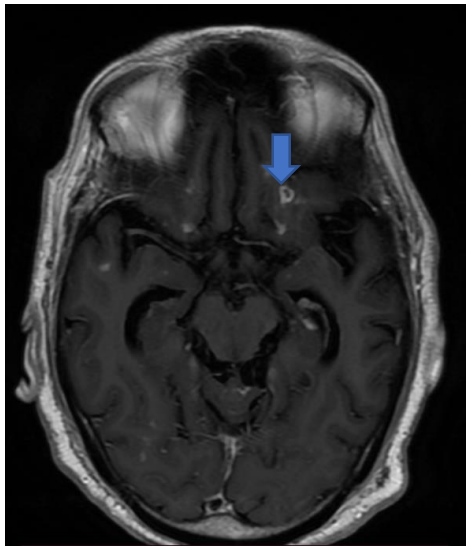
**Differential diagnosis??**

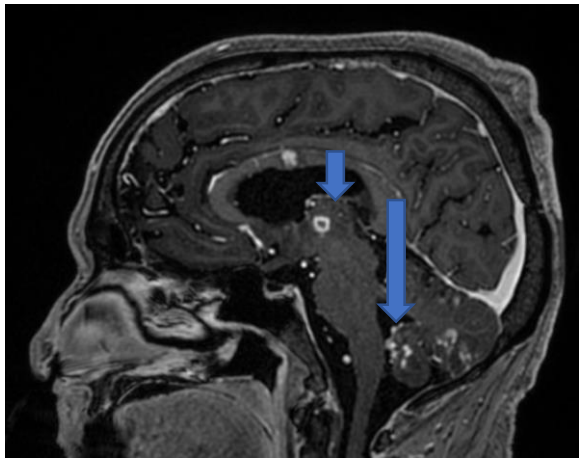
- CSF – INDIA INK – Positive, CrAg-positive
- L-Amb & 5FC started, ATT withdrawn
- Neurological no major response (on tracheostomy support)
- recurrent tapping done – eye opening +
- L – Amb & 5FC continued for 26 days, no major neurological response

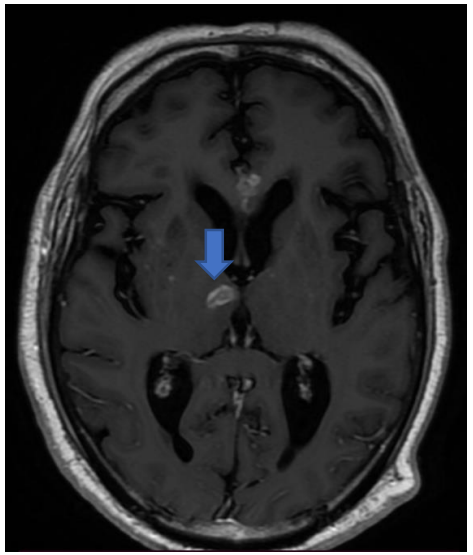
| | Protein | Sugar | India ink | CrAg | Culture (KOH) |
|---|---|---|---|---|---|
| 2/11 | 119 | <2 | | | |
| 9/11 | 112 | <2 | + | + | Budding yeast |
| 19/11 | 100 | 5 | | + | Budding yeast |
| 25/11 | 96 | 13 | + | | Budding yeast |
| 26/11 | | | + | | Budding yeast |

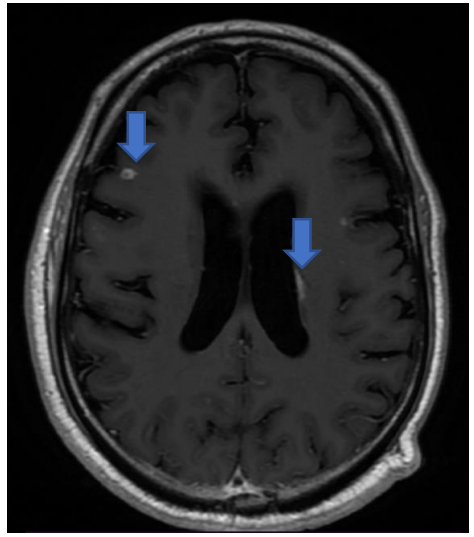












**<u>Leptomeningitis-</u>** diffuse smooth/ irregular thickening -contrast enhancement along the cortical sulci, cerebellar folia, along brainstem

**Presence of multifocal granulomatous lesions** involving cortex, gray white junction, brainstem, basal ganglia, thalami, cerebellum

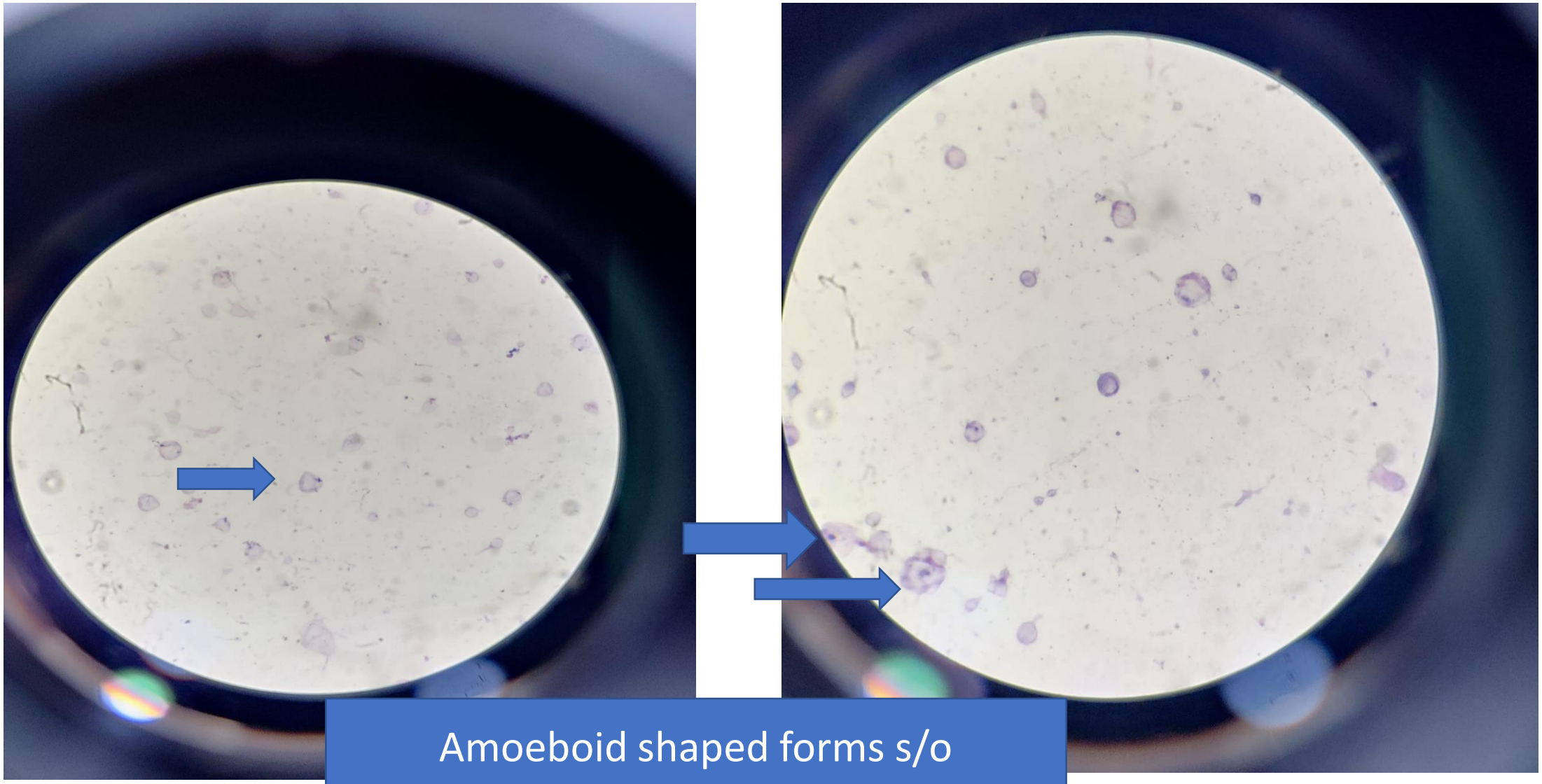
Enhancement patterns-ring - solid enhancing- target like – punctate – heterogeneous

# Shifted to surat -> ID Opionion

- GCS- 5 (deteriorating)
- L-Amb & 5FC continued,
- Post Tapping done -> GCS – 6

- Repeat CSF – Protein – 179, S – 19, opening pressure - 30
- India Ink - negative
- Plan -> Biofire – was not affording (for confirming by PCR & for strain of cryptococcus)
- GCS – STATIC for few days

# CSF SHOWED



Amoeboid shaped forms s/o trophozoites of acanthamoeba spp

- CSF C/S - Negative
- For further confirmation -> CSF was required -> CHARCOL YEAST AGAR (acanthamoeba), fluorescent microscopy

- Meanwhile patient develop abdominal sepsis
- Succumb

# QUESTION?

1. Immunocompetent, No history of exposure for crypto, was it cryptococcal meningitis? if yes then which species?
2. If crypto meningitis, then y it was not responding to almost 1 month therapy of L-Amb & 5FC?
3. Would CSF biofire would have been useful for diagnosis?
4. Was CSF CrAg false positive? If, then y?
5. Was it dual pathology → acanthamoeba spp + cryptococcal ?
6. Radiological Difference between 2 pathology?

# False positive CrAg

- Use of BBL Port –A-Cul transport vials (52 sample)

-Deborah A. Wilson et al.J Clin Microbiol. 2011 Feb; 49(2): 702–703

- *Trichosporon beigelii* or *Capnocytophaga canimorsus*, presence of a malignancy or rheumatoid factors, and contamination with agar, agarose, or syneresis fluid during laboratory pipetting

- Thomas C. Stoeckli et al. https://doi.org/10.1086/319212

# MRI difference

| | Cryptococcal | Acanthamoeba – 2 form<br>a) Primary amoebic meningoencephalitis<br>b) Granulomatous amoebic encephalitis |
|---|---|---|
| Key finding | 1) Dilated VR/perivascular spaces<br>2) Cryptococcoma (immunocompetent > immunosuppressed) | 1) Multifocal Granulomatous lesion<br>2) Intralesional hemorrhage<br>3) Initial ischemic stroke – trophozoite predilation to VR space |
| Leptomeningitis | +/- | Basal meningitis +/- |
| Hydrocephalus | +/- | Occasionally late finding |

# Lesson learnt

1. Immunocompetent cryptococcal patient are difficult to treat
2. CSF CrAg has high sensitivity & specificity, false positive r reported
3. The mortality rate of granulomatous amebic encephalitis (GAE) due to Acanthamoeba exceeds 90%