Deep Fungal Infection- An Emerging Problem in Bangladesh

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Introduction

- **Invasive fungal infections- a major cause of morbidity and mortality over the past three decades.**
- **Usually these are asymptomatic but can cause severe infections in appropriate hosts.**
- **Organ transplantation, aggressive chemotherapy and use of immunosuppressive treatment increase the risk of infection.**

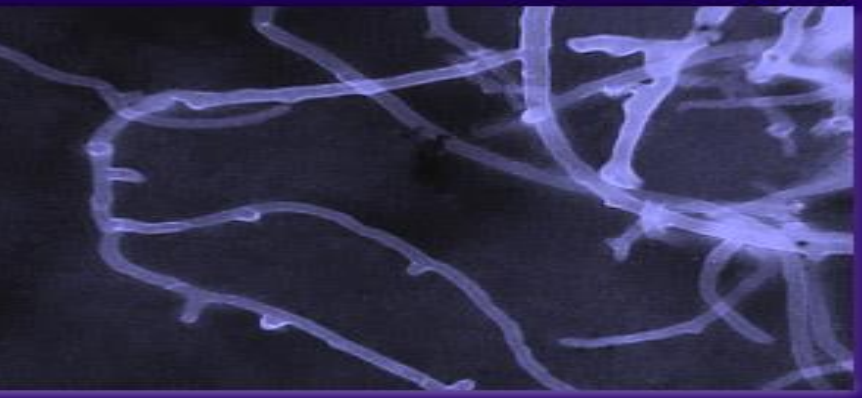
Characteristics

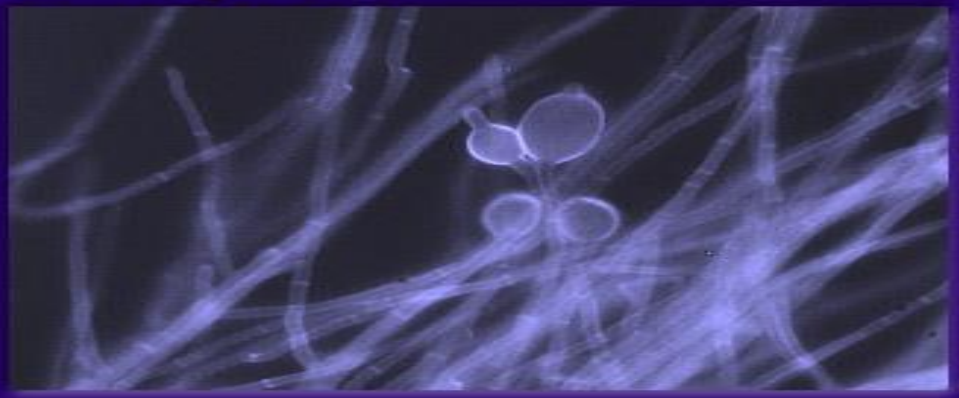
- Endemic mycoses cause more severe illness in immunocompromised patients than in immunocompetent individuals.
- Ubiquity in nature renders them easily acquired by the susceptible host

Fungi

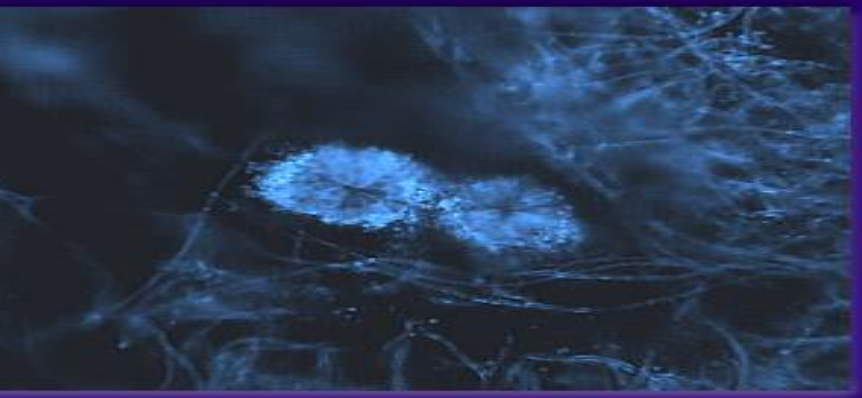
- *Yeast-Candida* and *Cryptococcus*
- *Mold-Aspergillus, Rhizopus (Mucormycosis)*
- *Dimorphic fungus*-blastomycosis, paracoccidioidomycosis, coccidioidomycosis, histoplasmosis, and sporotrichosis.

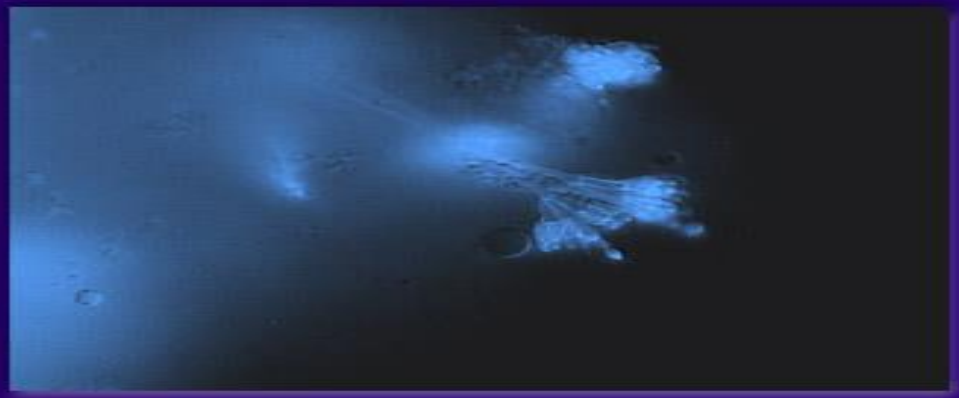
The Fungus (among us)



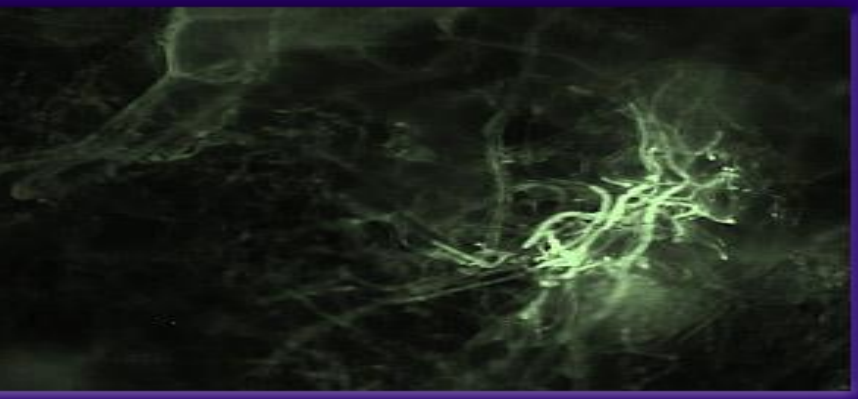


↕ Stained with Calcofluor for chitin walls (observed under 395 nm light)





Stained with FDA for cell viability and internal structures



Materials and Methods

- Case reports from different medical institutions for last few years were searched.
- National and International Journals
- Pubmed and Cochrane library.

Case reports

- Histoplasmosis
- Pulmonary Blastomycosis
- Mucormycosis
- Pulmonary Aspergilloma

Case1: Histoplasmosis (DMCH)

- A 57 yrs male ,non diabetic, normotensive, smoker,farmer presented in November 2009 in DMCH with
  - low grade fever for 3 months
  - backache for 2 and a half months followed by progressive weakness of both lower limbs
  - constipation and incontinence for same duration.

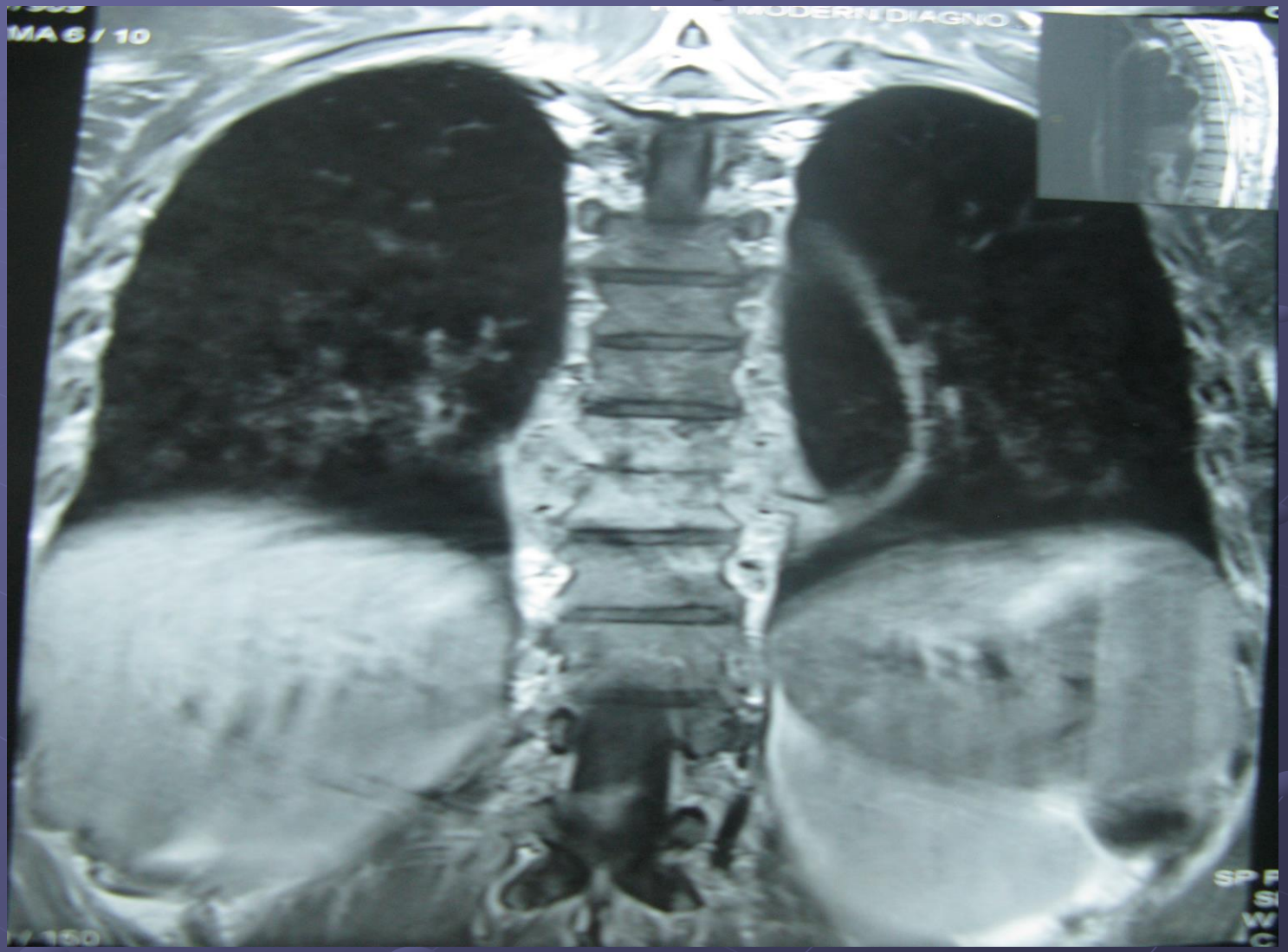
Case 1: Signs

- Ill looking
  - Anaemic
  - Generalised lymphadenopathy
- Spastic paraplegia with sensory loss up to the level of D10
  - No gibbus
- Mild hepatomegaly.

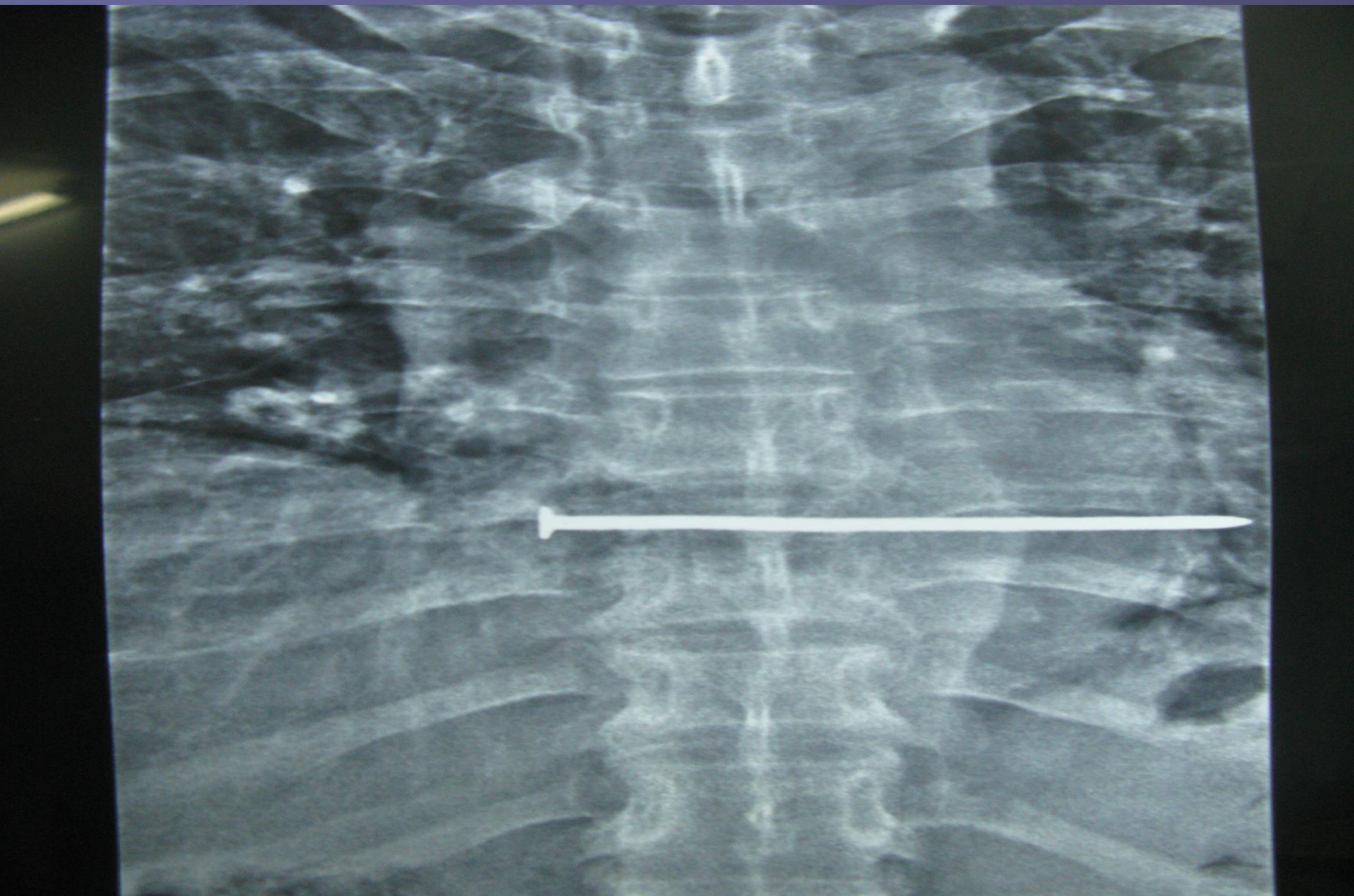
Case 1:Investigations

- Hb: 8.9 gm/dl
- ESR: 90mm in 1st hr
- PBF: Normochromic normocytic anaemia with increased rouleux formation.
- Bone marrow shows hyperactive marrow.

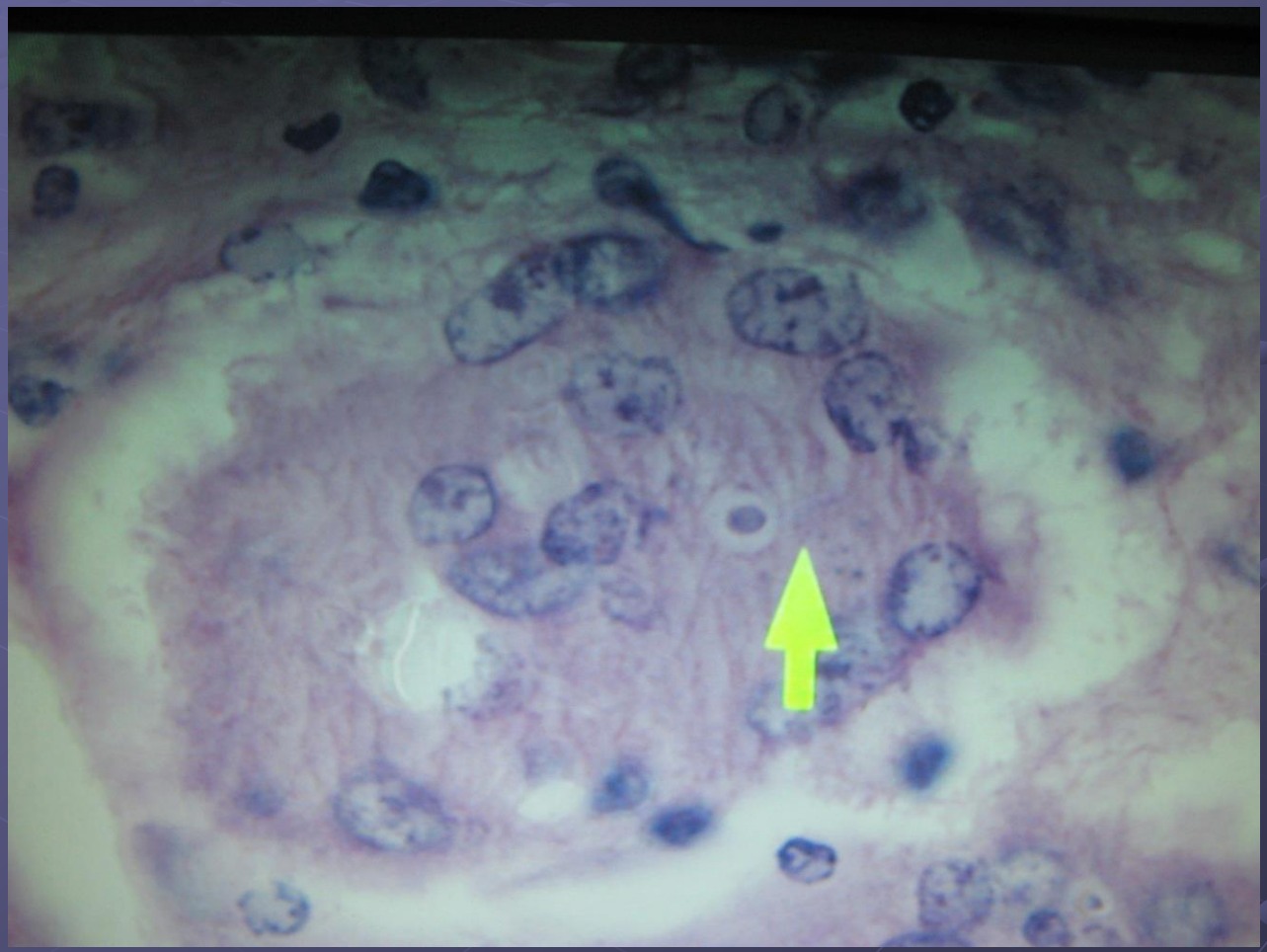
MRI Spine



X RAY SPINE



Lymph node biopsy



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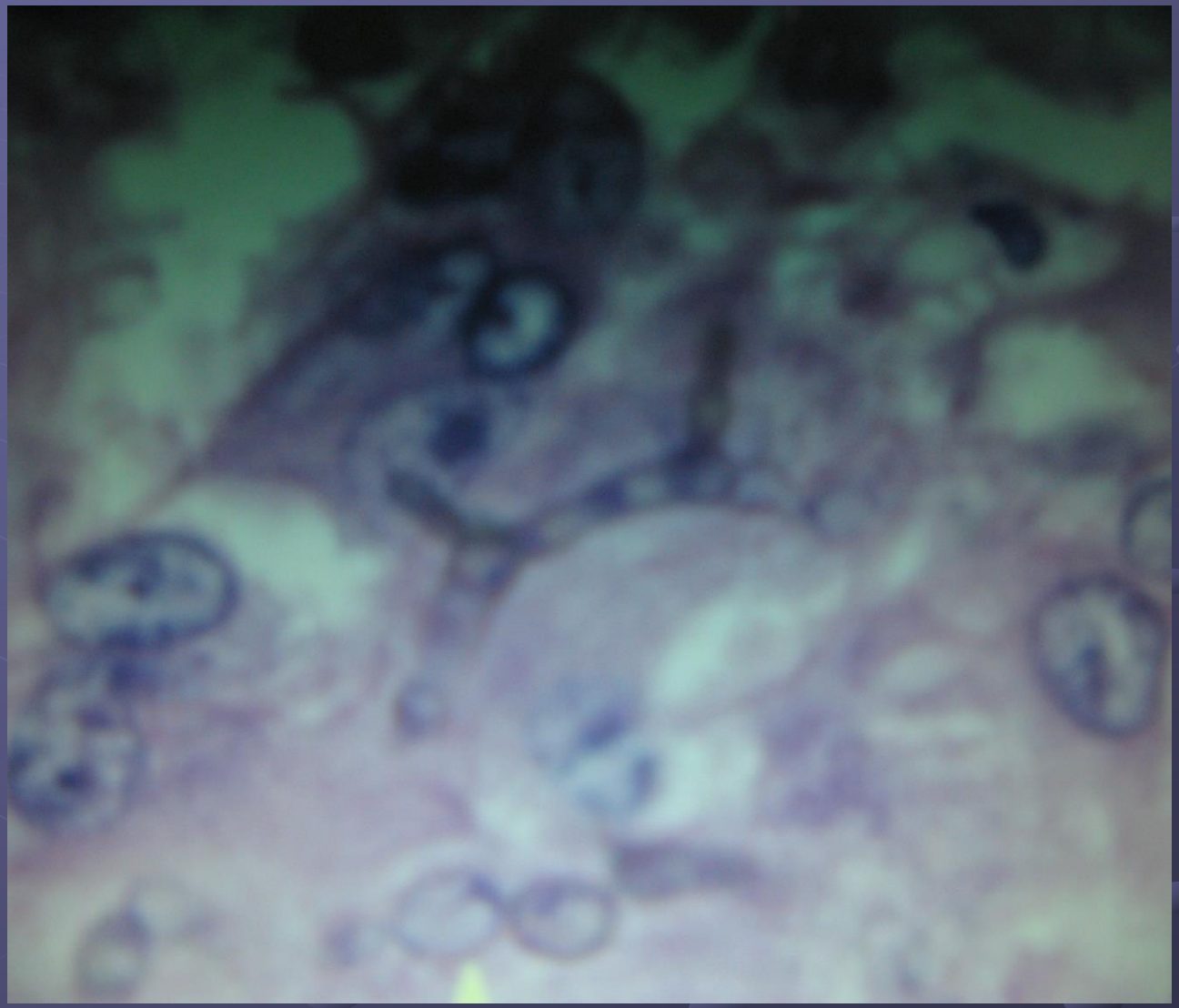
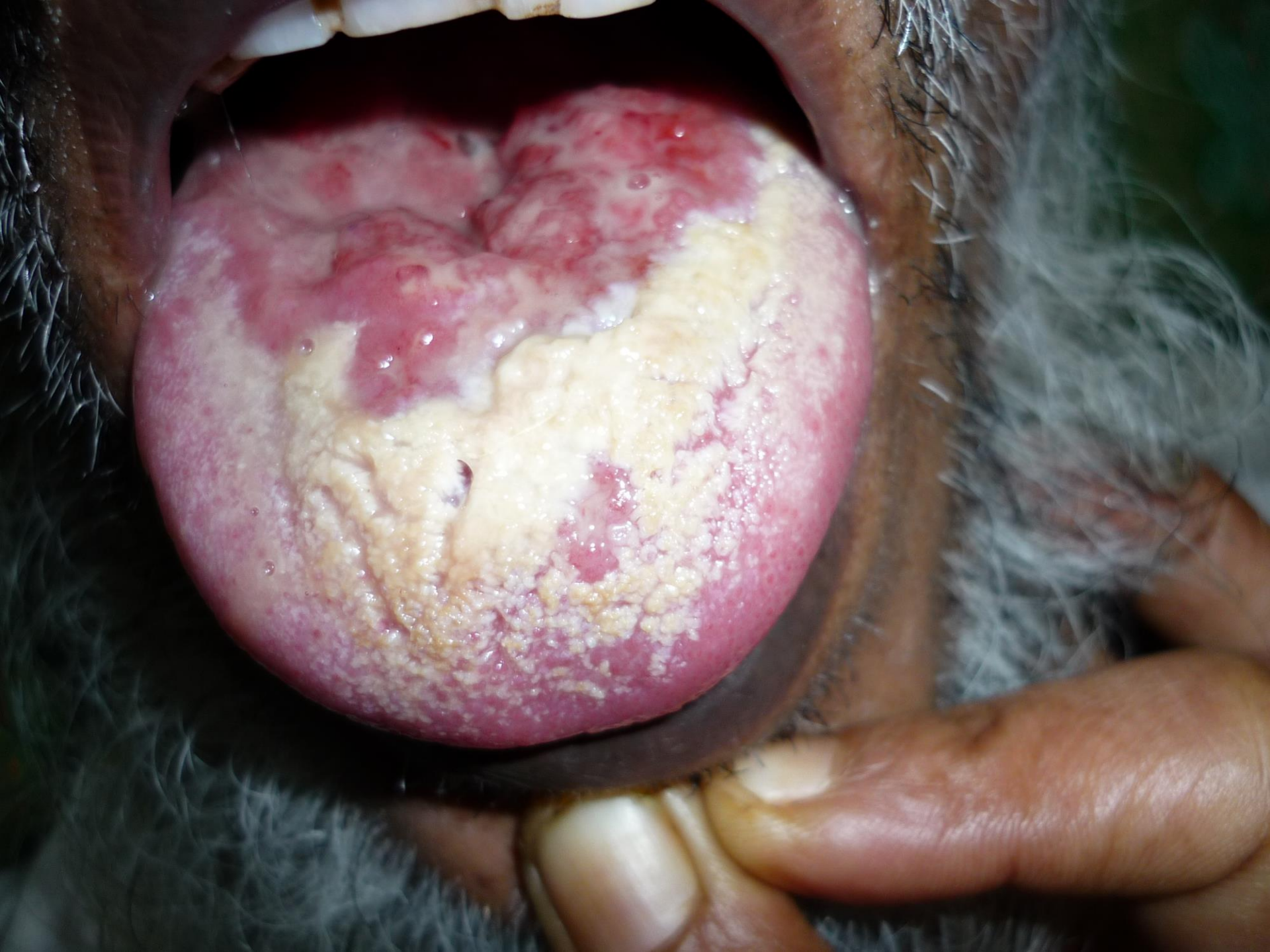


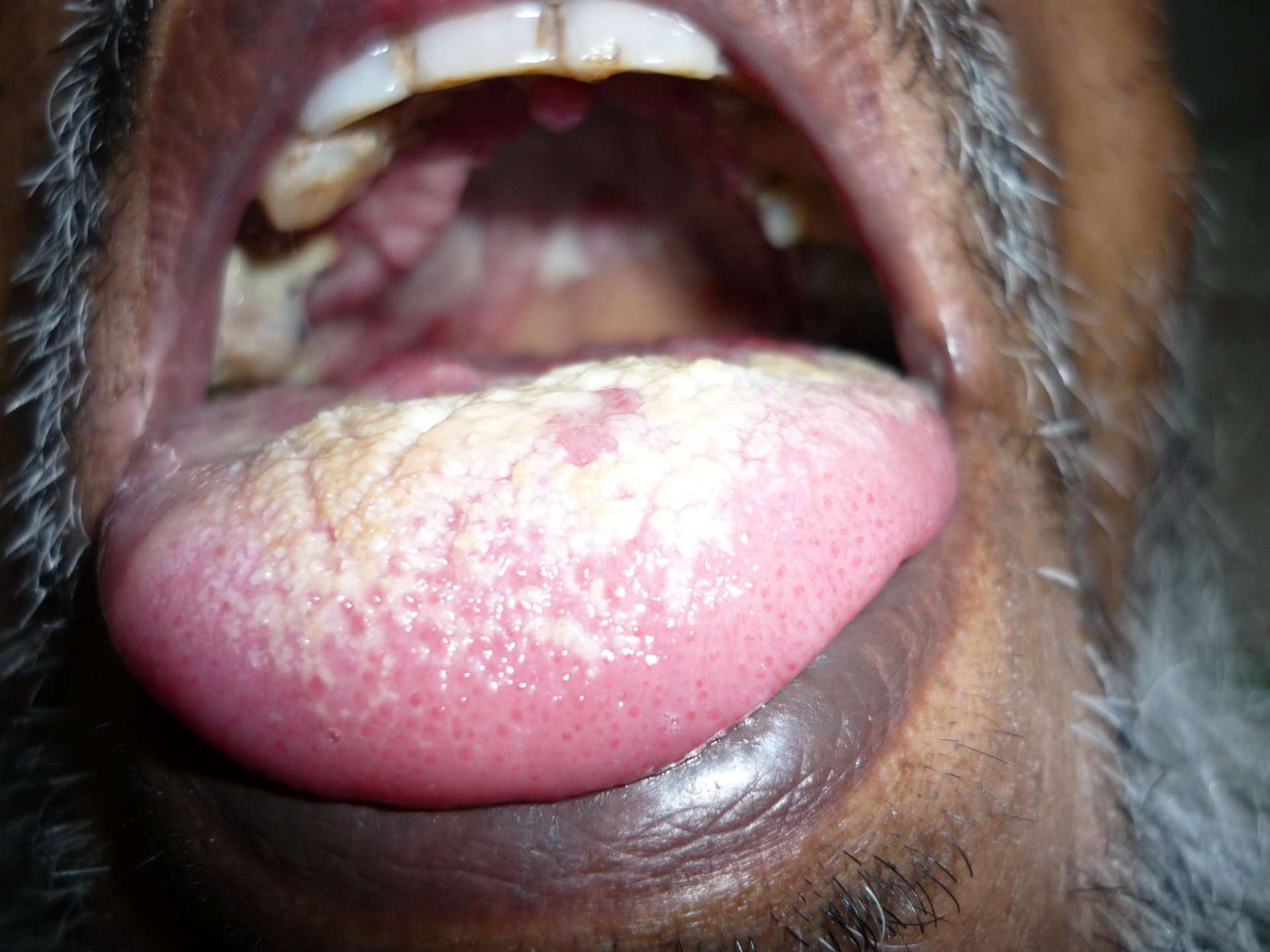
Case 2:Histoplasmosis(BSMMU)

- A case was reported in BSMMU in 2009 July where a 45 yrs male who was diagnosed and treated as a case of Abdominal TB presented with
  - fever for 15 days.
  -abdominal pain,jaundice,hiccup for same duration.
  -painful growth in oral cavity for same duration.

Case 2: Examination

- Generalised lymphadenopathy
- A growth on the tongue raised, fungating, ulcerated covered with necrotic tissue
- Another growth over the hard palate - rounded and ulcerated.





- Histopathology from tongue ulcer and lymph node shows features consistent with Histoplasmosis.

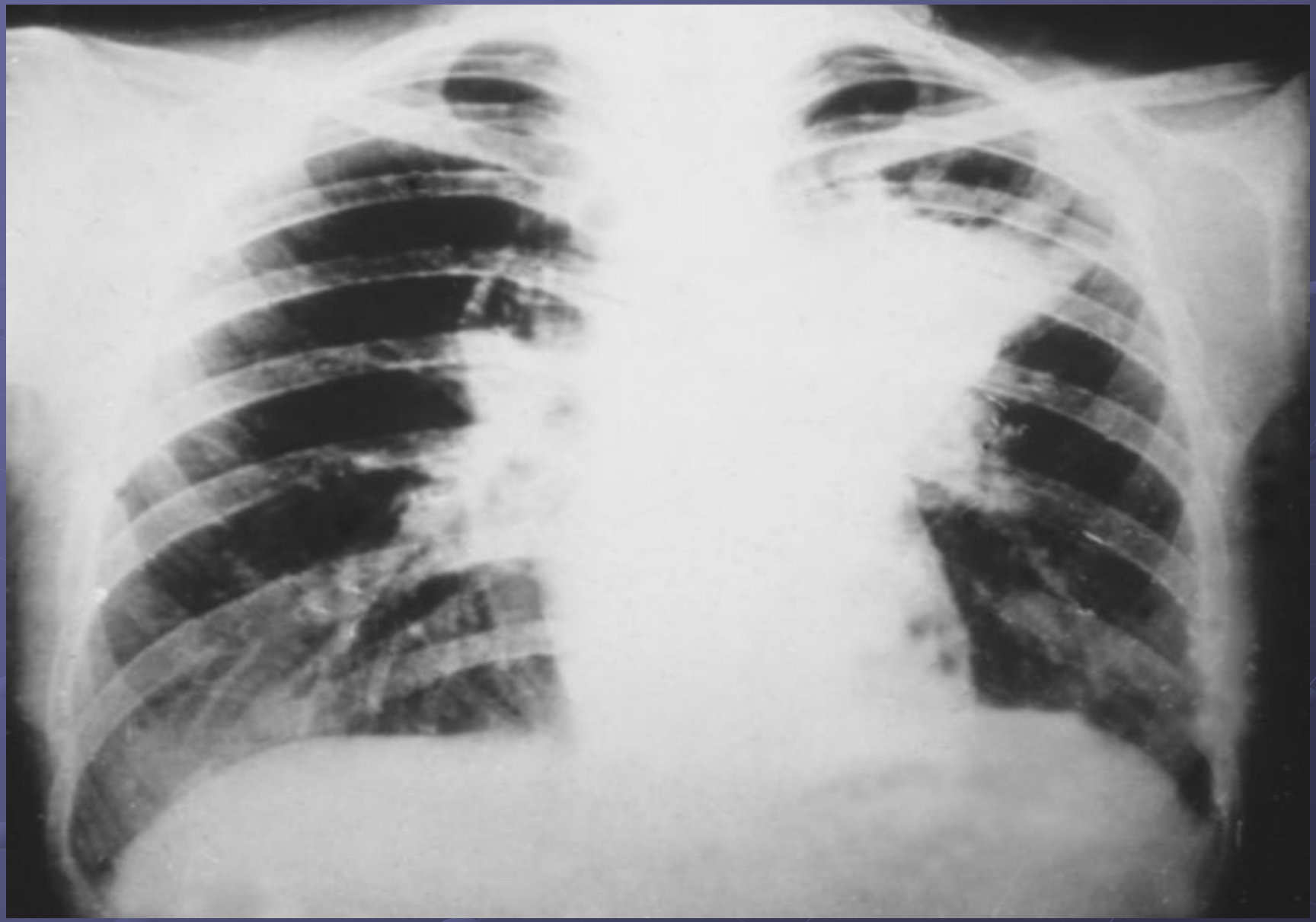
Case 3:Pulmonary Blastomycosis (RMCH)

- In 1995 in RMCH ,a 50 yr old male, smoker presented with

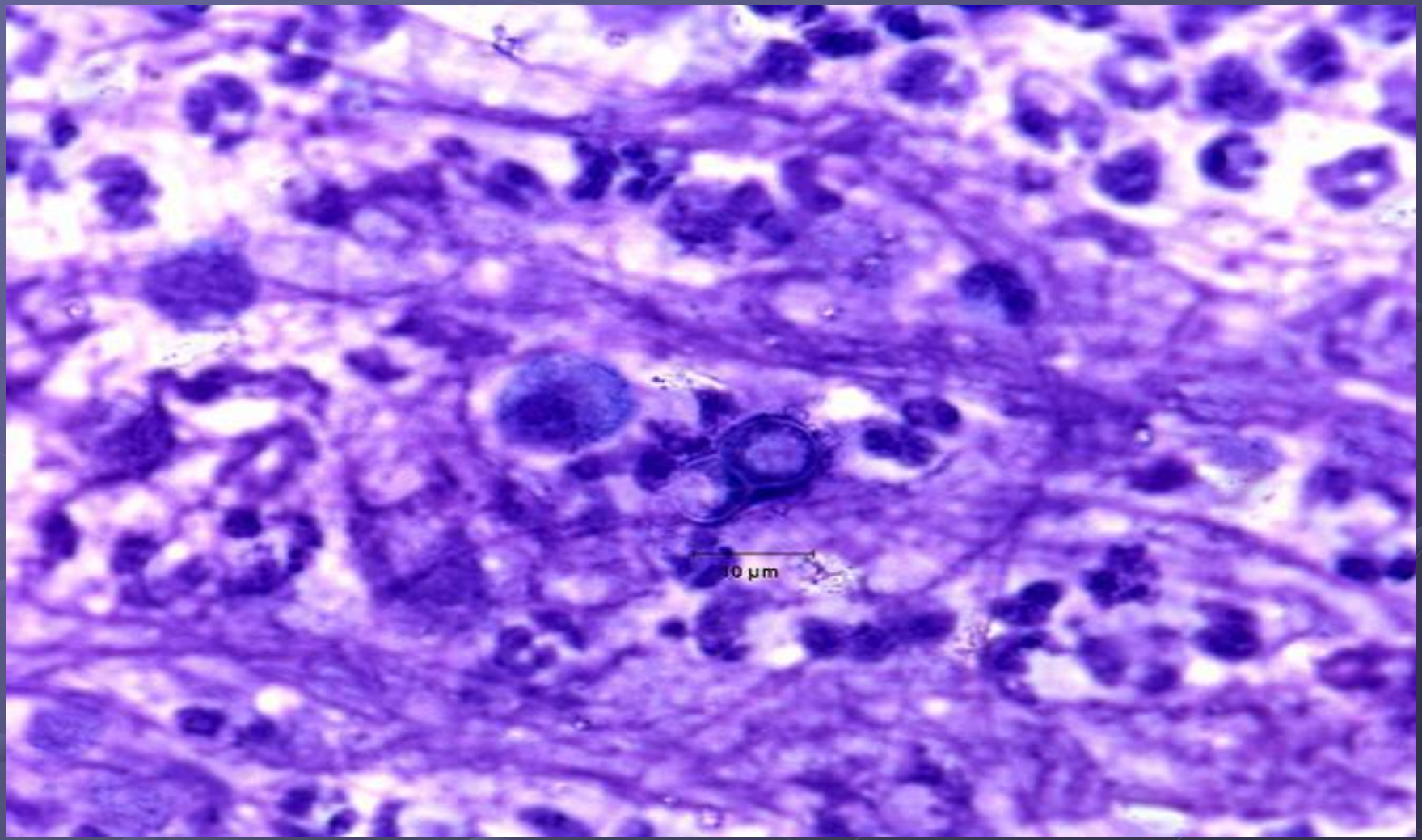
  -fever and dry cough for 3 months

- Chest X-ray : **homogenous opacity in left upper zone**
- Sputum: inflammatory cells with some fungal **yeasts and hyphae.**
- Percutaneous lung aspiration:double walled budding cysts suggestive of B**lastomycosis.**

Nazmul ahasan HAM
Trop doct 1995;25:83-84



Blastomycosis



Case 4:Mucormycosis(BSMMU)

- A case was reported in 2004 in BSMMU where a 42 yr old male who was on long term **steroid therapy for bone marrow failure**

  - developed left orbital swelling and blindness along with prolonged fever.

- Neurological examination revealed

  - **proptosis of left eyeball with complete ptosis and periorbital oedema.**

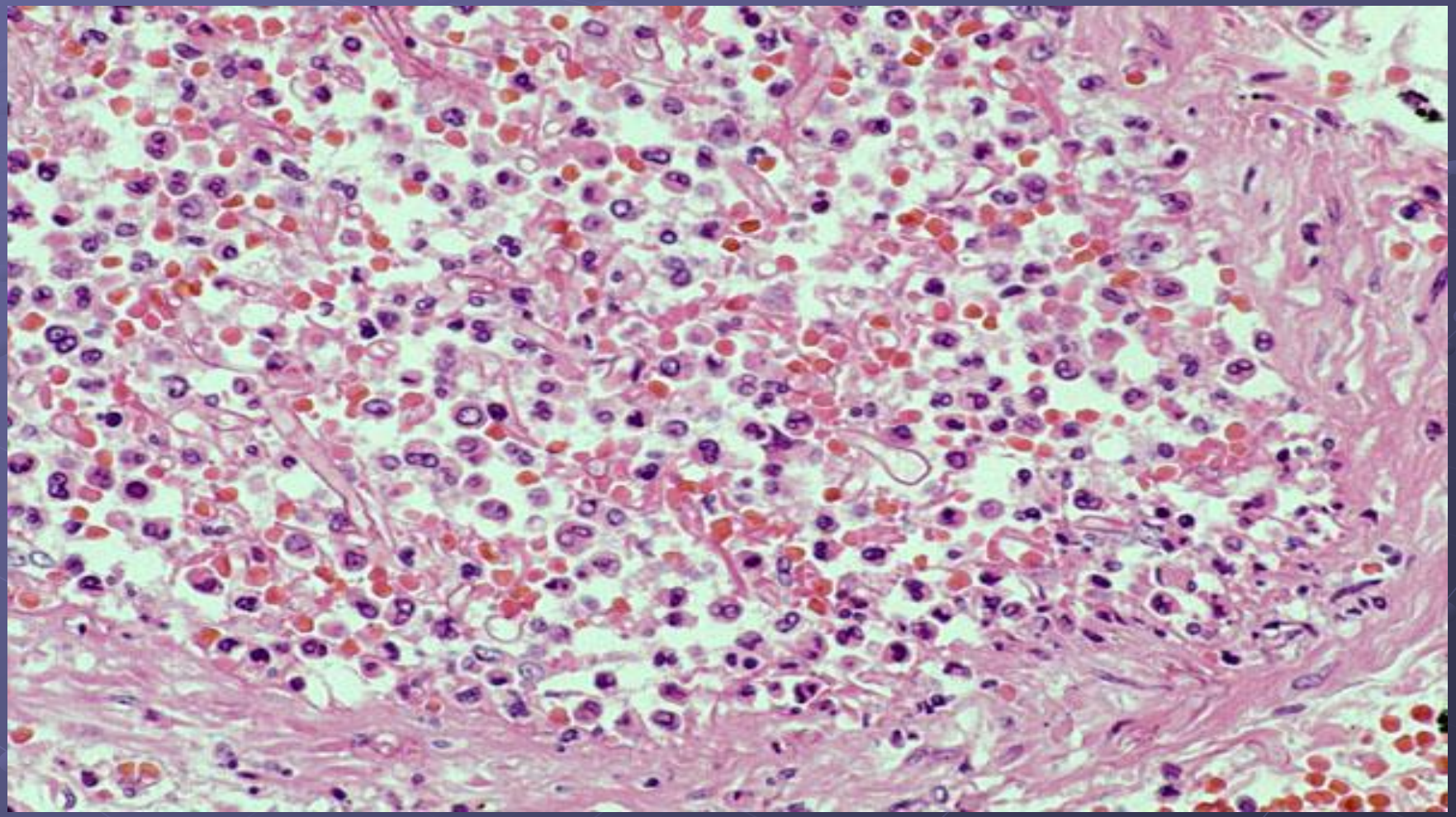
- Ulceration of both lips with crust formation.
- Total ophthalmoplegia with dilated pupil on left side and impairment of sensation over the distribution of trigeminal nerve.

MAJ Chowdhury
BCPS 2004:22:115-118

Case 4 (Histopathology)

- Histopathology of tissue obtained from nasal mucosa showed features consistent with mucormycosis.

Mucormycosis



Case 5:Mucormycosis(RMCH)

- In 1994, similar case was reported in RMCH where a 22 yr old housewife , a known case of ITP, treated with steroid presented with

  -low grade fever

  -swelling of the left side of face for 5 days

- Irregular intake of steroid without physicians advice and found to be diabetic.

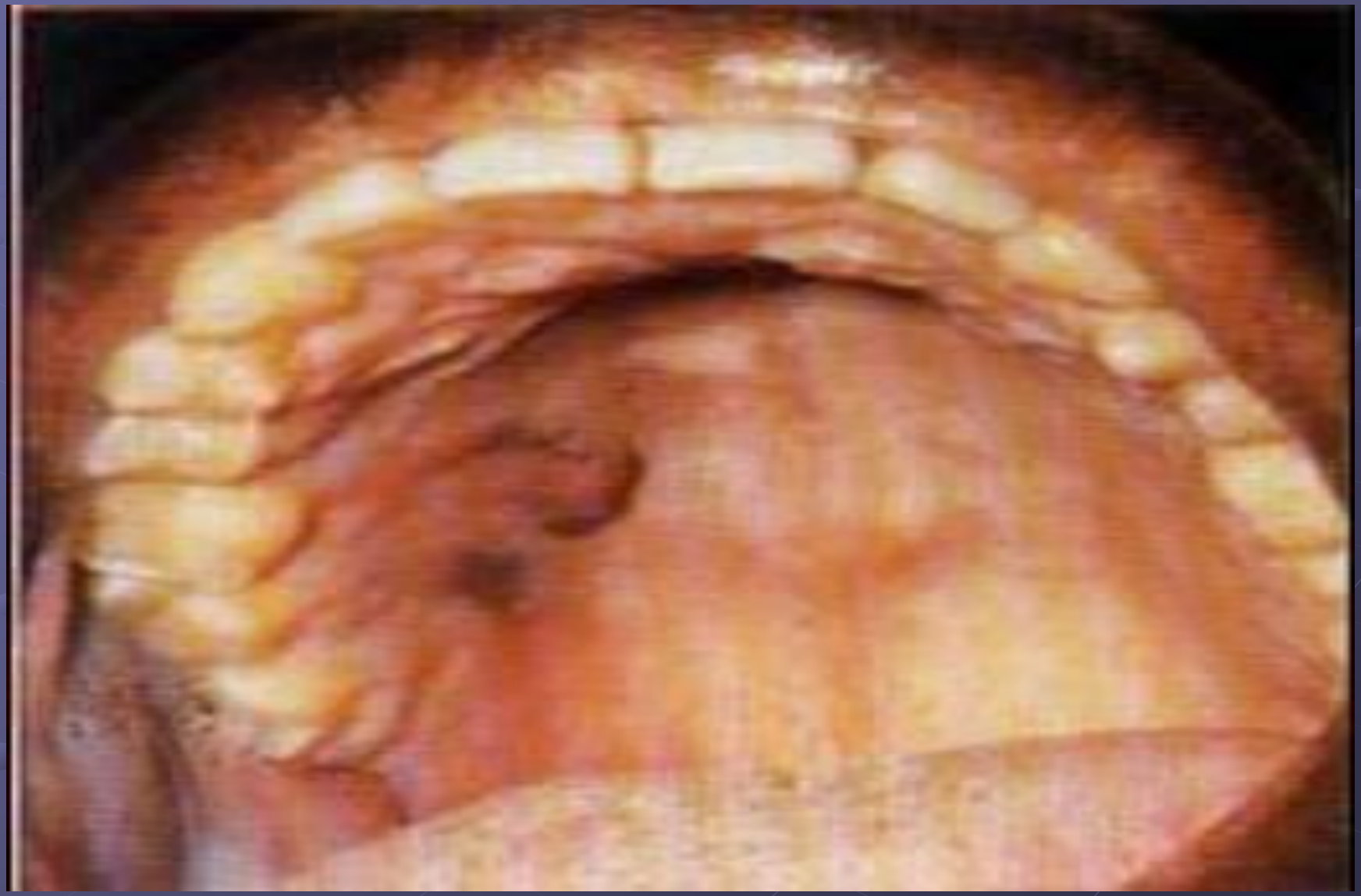
Nazmul Ahasan HAM
Trop doct 1994; 24:41

Case 5 :Mucormycosis(RMCH)

- A large ulcer with sharp margin and greyish white slough seen on the hard palate.

- Proptosis, complete ptosis, iii,iv,vi and 1st division of 5th cranial nerve palsy on left.

Palatal ulcer



- Histopathology from palatal ulcer shows features of Mucormycosis.

Case 6:Pulmonary Aspergilloma

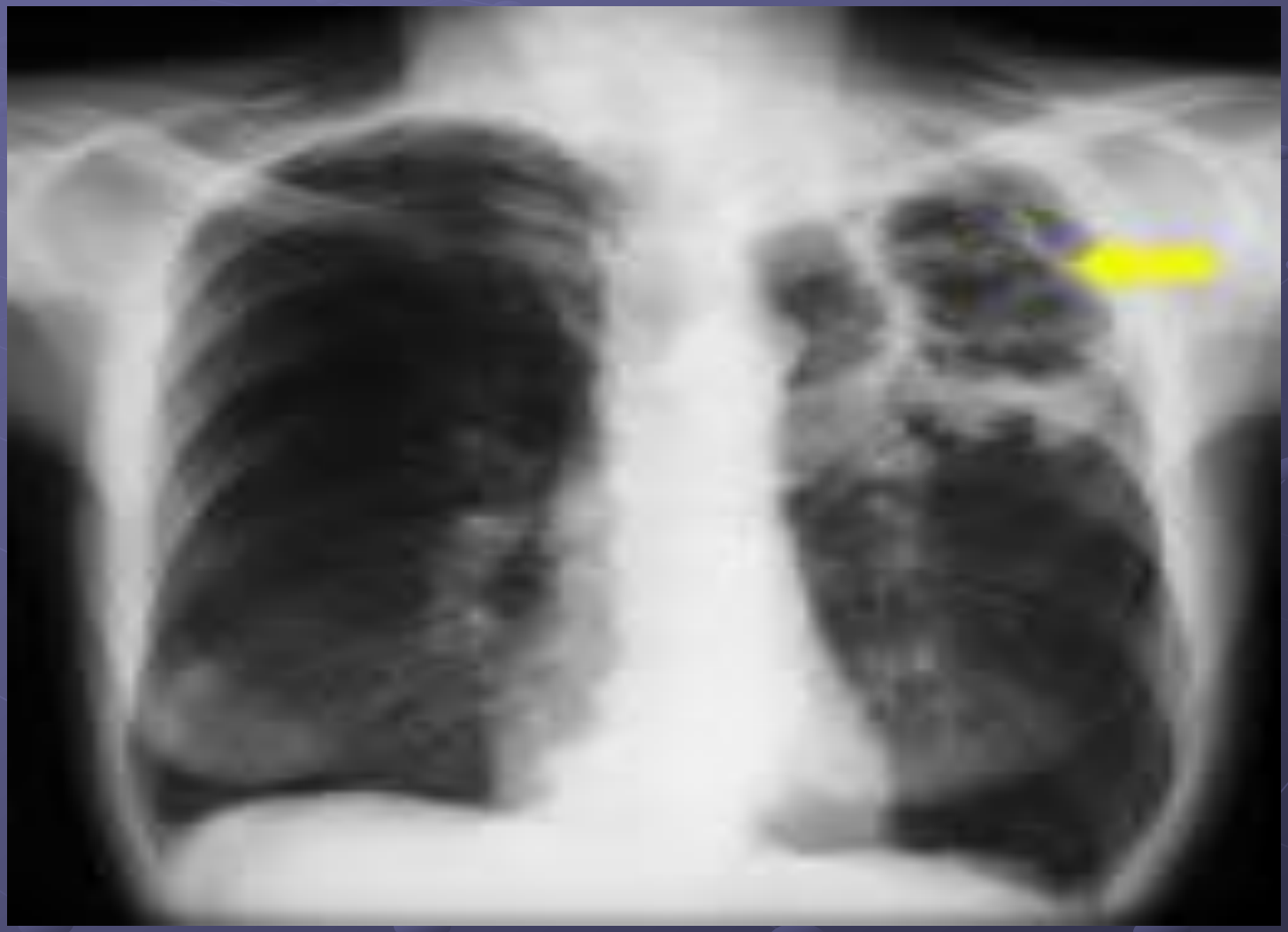
- A 70 yr old male, normotensive, smoker presented in DMCH with
  - -cough
  - -respiratory distress
  - -low grade fever for 2 yrs
  - -left sided chest pain for 2 months

- Past history : tuberculosis 12 yrs back.
- O/E: Features of Cavitary lung lesions

Case:6 Investigation()

- ESR:86 mm in 1st hr
- OGTT:12.60 mmol/l after 1 hr
  11.56 mmol/l after 2 hrs
- Chest Xray and CT scan :cavitary lesion in upper lobe of left lung with a mass within it and crescentic rim surrounding mass.

Chest X-ray



Case:6 CT scan

- CT guided FNAC: no malignant cell or granuloma, polymorphs, pulmonary macrophage and fungal hyphae found.

Aspergilloma

Conclusion

- High index of suspicion is needed to diagnose these different fungal infections.
- Bangladesh may be experiencing increased load of opportunistic fungal infections.
- Awareness is very important to explore the etiology.

Acknowledgements

- Doctors and staff of:
  - Dhaka Medical College and Hospital
  - Rajshahi Medical College and Hospital
  - BSMMU

Thank You