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# CAVITARY LESION IN AN IMMUNOCOMPROMISED ADULT

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## Introduction

- The prevalence of pulmonary cryptococcosis has increased in the last twenty years (1).
- Most commonly due to the human immunodeficiency virus(HIV) epidemic.
- Also seen in solid organ transplant recipients and patients on chronic immunomodulatory agents or glucocorticoids.

We present the case of a man with rheumatoid arthritis treated with methotrexate and leflunomide who presented with cavitory lesion and pneumonia due to an unusual organism.

## Case Presentation

- A 57-year-old man with past medical history notable for rheumatoid arthritis presented with dyspnea on exertion, night sweats, unintentional weight loss, and cough which had been progressing over the previous four weeks.
- The patient's rheumatoid arthritis was well controlled with methotrexate 10mg weekly, prednisone 5 mg daily, and leflunomide 20mg daily. The patient was in El Paso, Texas and St. Louis, Missouri in the last six months.
- On physical examination, the patient was afebrile and had normal vital signs. Physical exam revealed decreased breath sounds in his right lower lung fields. No nuchal rigidity or skin lesions were present.
- Laboratory studies were notable for a white blood cell count of  $7.4 \times 10^3/\mu\text{L}$  with a normal differential and an elevated erythrocyte sedimentation rate at 72 mm/hr. Serum cryptococcal antigen was negative.
- Chest radiograph and subsequent computed tomography (CT) of the chest revealed a right upper lobe cavitory lesion and right lower lobe consolidation. (Figure 1, 2) A bronchoscopy was performed with bronchoalveolar lavage (BAL). Fungal culture from the BAL grew *Cryptococcus neoformans* (Figure 3 and 4). Head CT and lumbar puncture revealed no evidence of central nervous system infection. Testing for HIV was negative.
- Therapy with fluconazole 400 mg daily was initiated with significant improvement in functional status. Immunosuppressive therapy was stopped with the exception of low dose prednisone. Given the long half-life of leflunomide (15 days), a washout was performed with cholestyramine. Antifungal therapy will be continued for six to twelve months, depending on patient response. All immunomodulatory therapy will be held during this time.

## Imaging

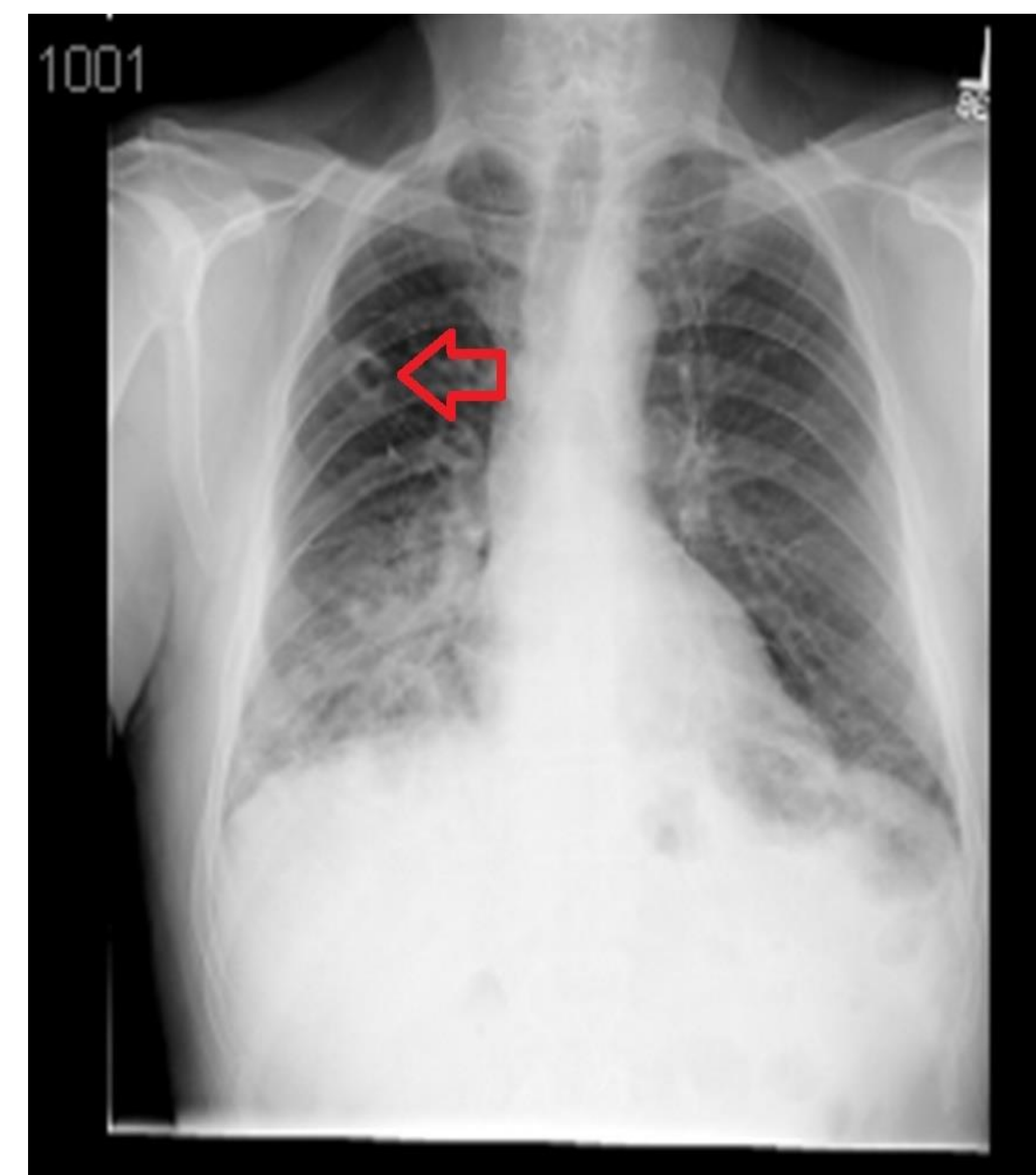


Figure 1 is a picture of the Chest X-Ray showing a right upper lobe cavitory lesion.

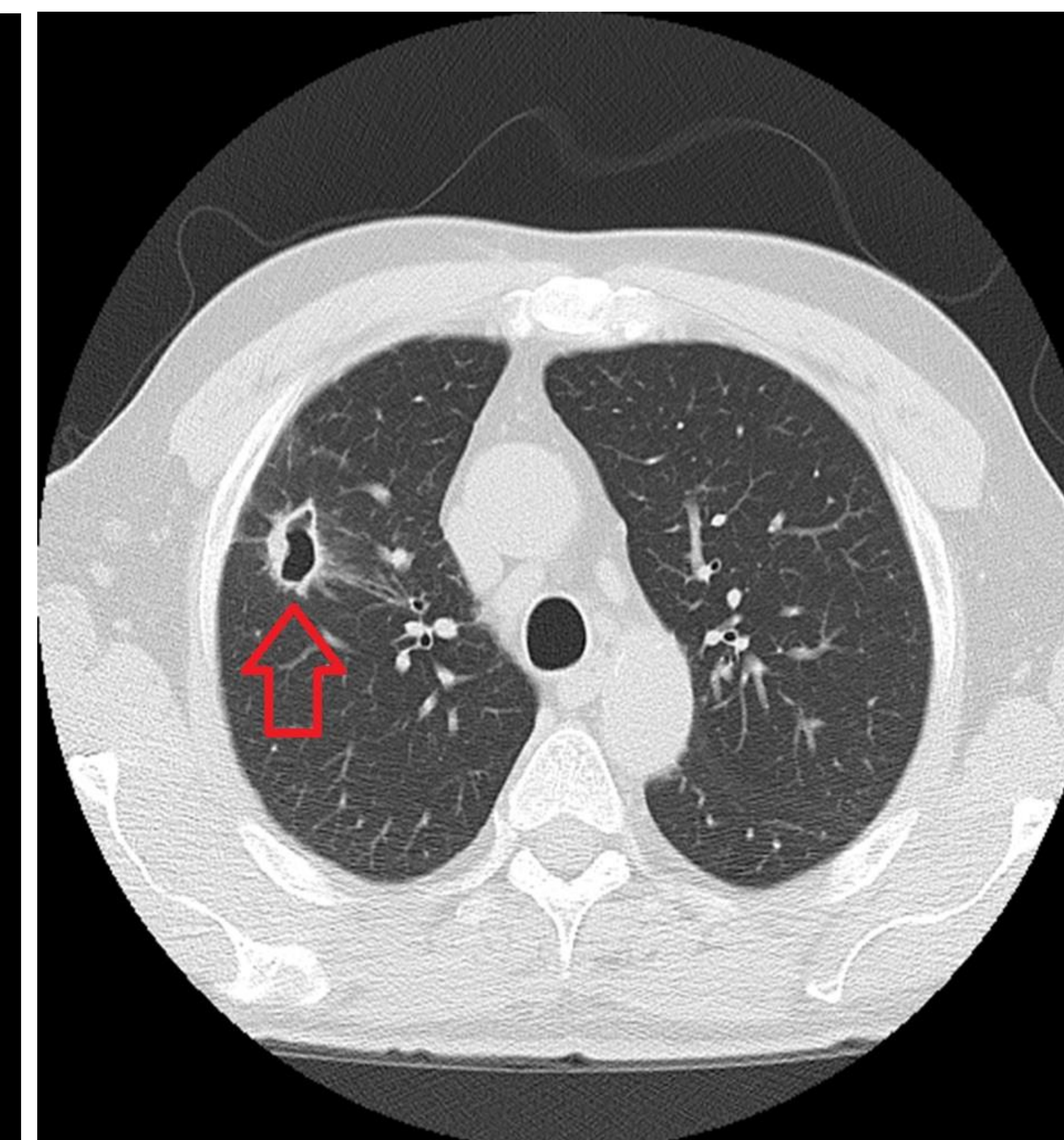


Figure 2 is a picture of the CT scan of the chest, showing a right sided cavitory lesion.

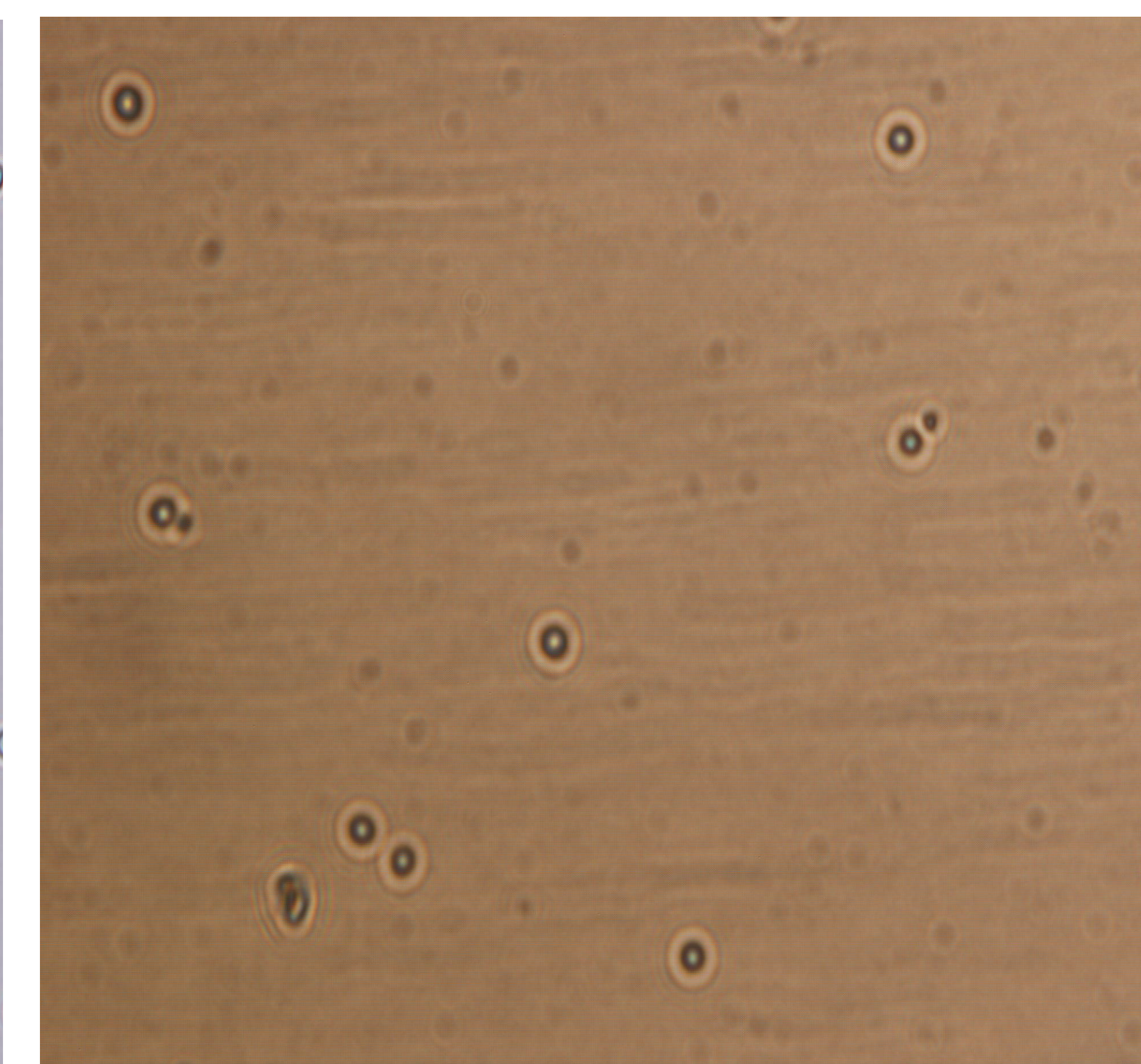
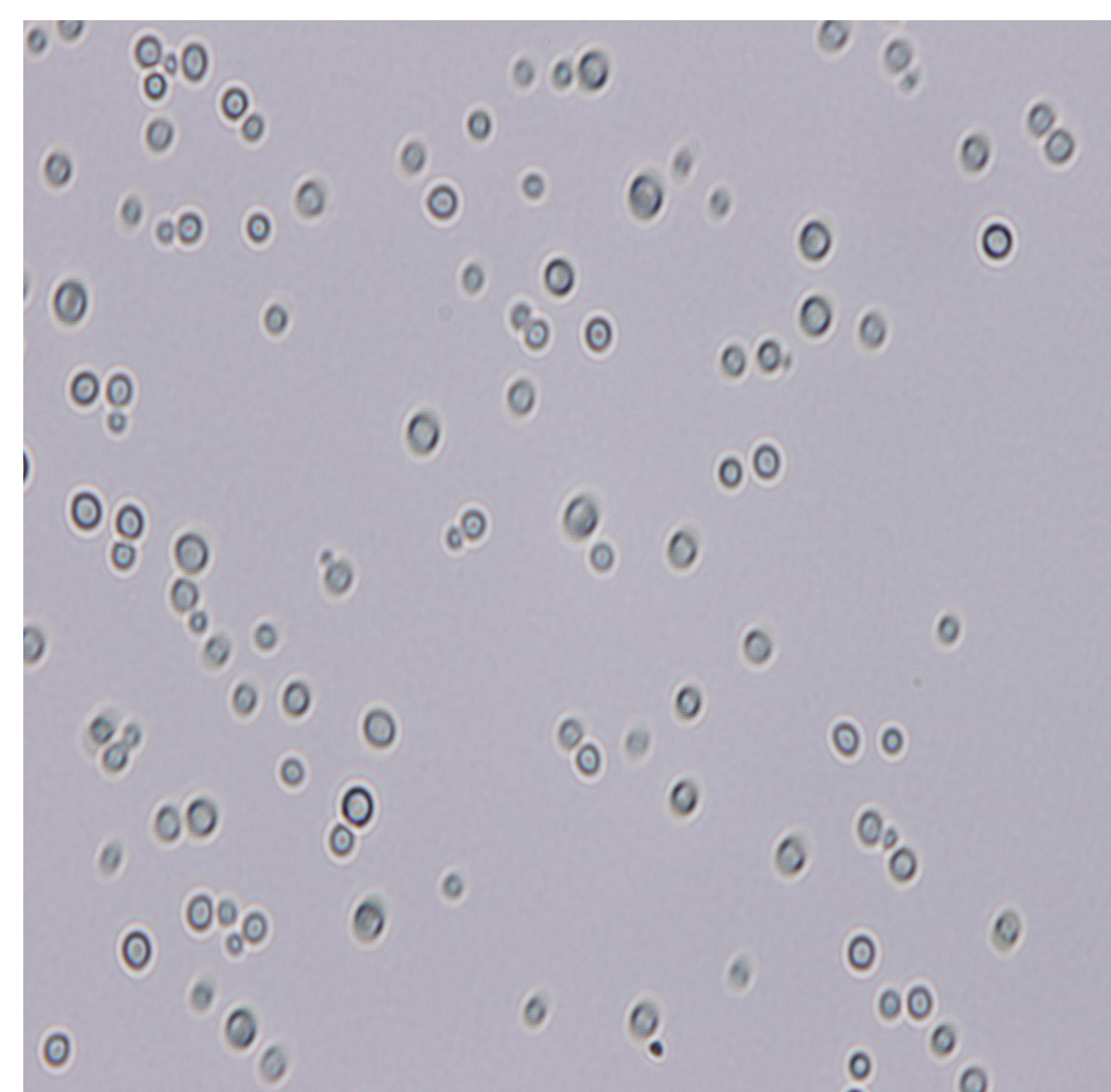


Figure 3 and 4 show microscopic examination of sputum fungal culture specimen obtained by performing bronchoscopy with BAL. Figure 4 shows presence of encapsulated yeast on India Ink stain, hallmark of *Cryptococcus*.

## Conclusion

- *Cryptococcus*, an opportunistic fungal infection, presents most commonly as meningitis, but may affect any organ system.
- Isolated pulmonary involvement is the second most common presentation, with symptoms ranging from asymptomatic colonization to severe pneumonia with respiratory failure. The severity of disease is based on degree of immunosuppression in the affected host. The most common radiographic finding in non-HIV patients is solitary or multiple pulmonary nodules, followed by multifocal airspace consolidation. Lobar infiltrates and cavitory lesions occur more commonly in immunosuppressed host.
- Diagnosis can be made from culture following sputum sampling, bronchoscopy with BAL, or open lung biopsy. Serum cryptococcal antigen detection is highly specific when found in titers greater than 1:4, though isolated pulmonary involvement of the non-HIV patient, only 25-56% of patients have positive titers.
- Treatment largely depends on the patient's immune status and extent of disease. Immunocompromised patients with mild to moderate disease may be treated with fluconazole 400mg daily for 6-12 months. Severe lung disease or disseminated disease should be treated with induction therapy with a liposomal amphotericin and flucytosine combination for 2-4 weeks followed by fluconazole therapy until immune reconstitution is achieved.
- Cryptococcal pneumonia has been reported with methotrexate concurrent with steroid or leflunomide therapy.

## References

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