

# Microbiologic Culture of Fine Needle Biopsies: Are We Wasting Tissue?

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## Abstract

**Introduction:** During rapid on-site evaluation of fine needle biopsies, a portion of the specimen is often submitted for microbiologic cultures if there is a clinical/pathologic suspicion for infection or the diagnosis is uncertain. Cultures can yield crucial information; however, fine needle specimens are limited, and additional tissue could potentially be critical for diagnosis, molecular studies and other studies in neoplastic cases. The purpose of this study is to help determine the clinical utility of submitting fine needle biopsy specimens for culture.

**Materials and Methods:** A retrospective review of all cytology fine needle biopsy cases sent for microbiologic cultures from 1/1/2023 to 12/31/2025 was performed using the electronic medical record. Information was obtained about the pathologic diagnosis, special stains (acid fast bacillus, AFB and Grocott's methenamine stain, GMS), and culture results and cross-referenced with clinical notes to help determine the clinical impact of positive cultures. Cases in which positive culture results were treated by the clinician were considered clinically relevant.

**Results:** A total of 450 cases were reviewed. While 160 were culture positive, only 36 (8.0%) yielded clinically relevant results (with the remainder predominantly skin flora/oral contaminant or organisms clinically unrelated to the patient's condition). Of the clinically relevant cases, organisms were seen on GMS or AFB stains in 6/36 (16.7%). Therefore, only 6.7% of cases demonstrated a clinically significant diagnosis on culture results alone. Overall, 109 cases were malignant on final review (24.2%).

**Conclusions:** Based on the results, submission of microbiologic cultures in fine needle biopsy specimens should be considered carefully, particularly if a neoplasm is suspected clinically. Submission of cultures in cases for which the diagnosis is uncertain is more likely to waste tissue which could be used for diagnosis or molecular testing in neoplastic cases than to yield a clinically relevant culture result.

## Methods

- 1 **Retrospective review**  
All cytology fine needle biopsy cases sent for microbiologic culture, 1/1/2023 to 12/31/2025, identified through the electronic medical record.
- 2 **Data collected**  
Pathologic diagnosis, special stains (AFB and GMS), and culture results.
- 3 **Clinical impact**  
Results cross-referenced with discussion of treatment in clinical notes to determine clinical relevance.

*AFB, acid fast bacillus; GMS, Grocott's methenamine stain.*

## Results

A total of **450 cases** were reviewed. While **160** were culture positive, only **36 (8.0%)** yielded clinically relevant results (with the remainder predominantly skin flora/oral contaminant or organisms clinically unrelated to the patient's condition). Of the clinically relevant cases, organisms were seen on GMS or AFB stains in **6/36 (16.7%)**. Therefore, only **6.7%** of cases demonstrated a clinically significant diagnosis on culture results alone. Overall, **109 cases were malignant** on final review (24.2%).

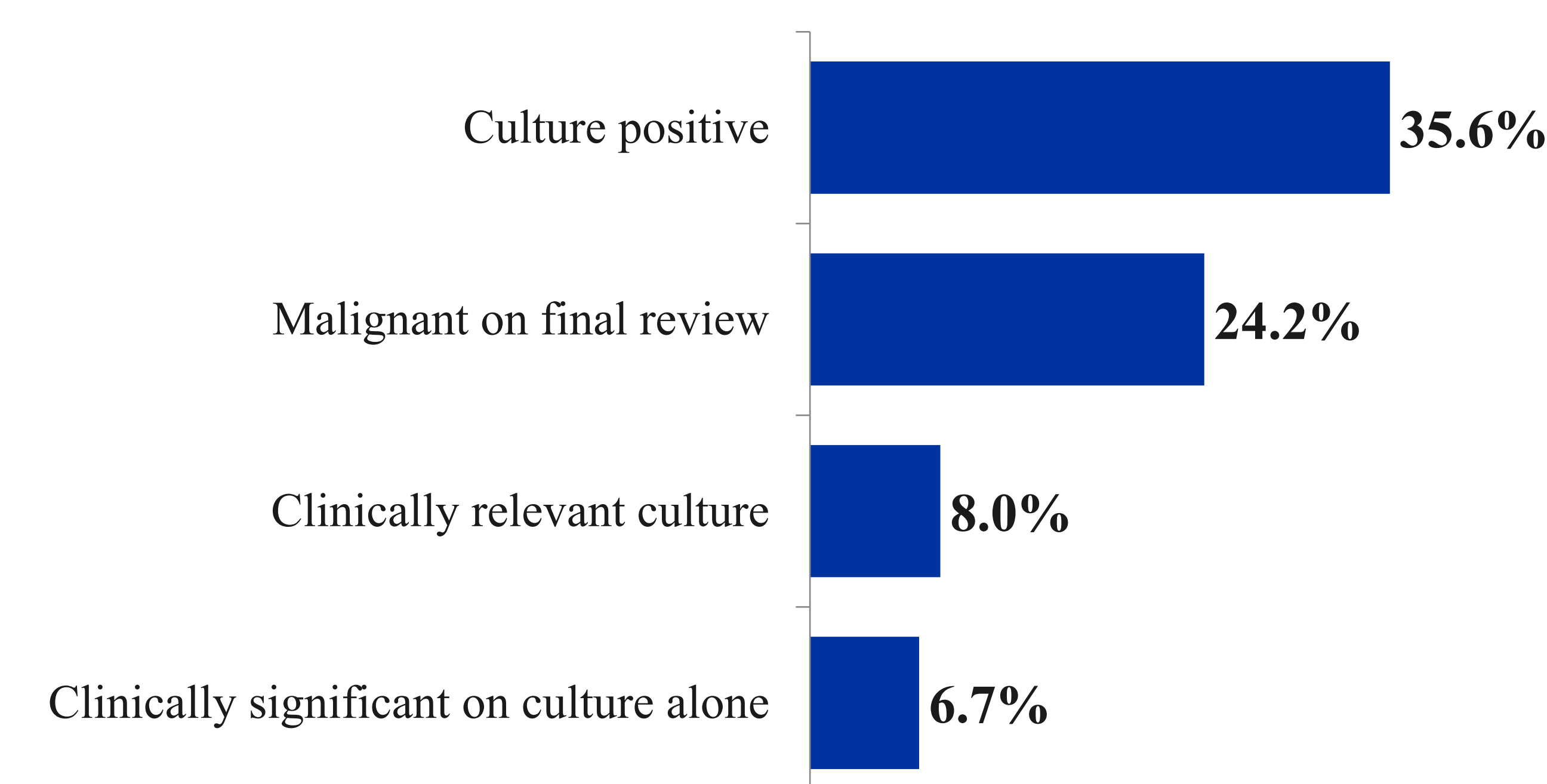


**Figure 1:** Yield of cultures and malignancy rate, as % of 450 cases.

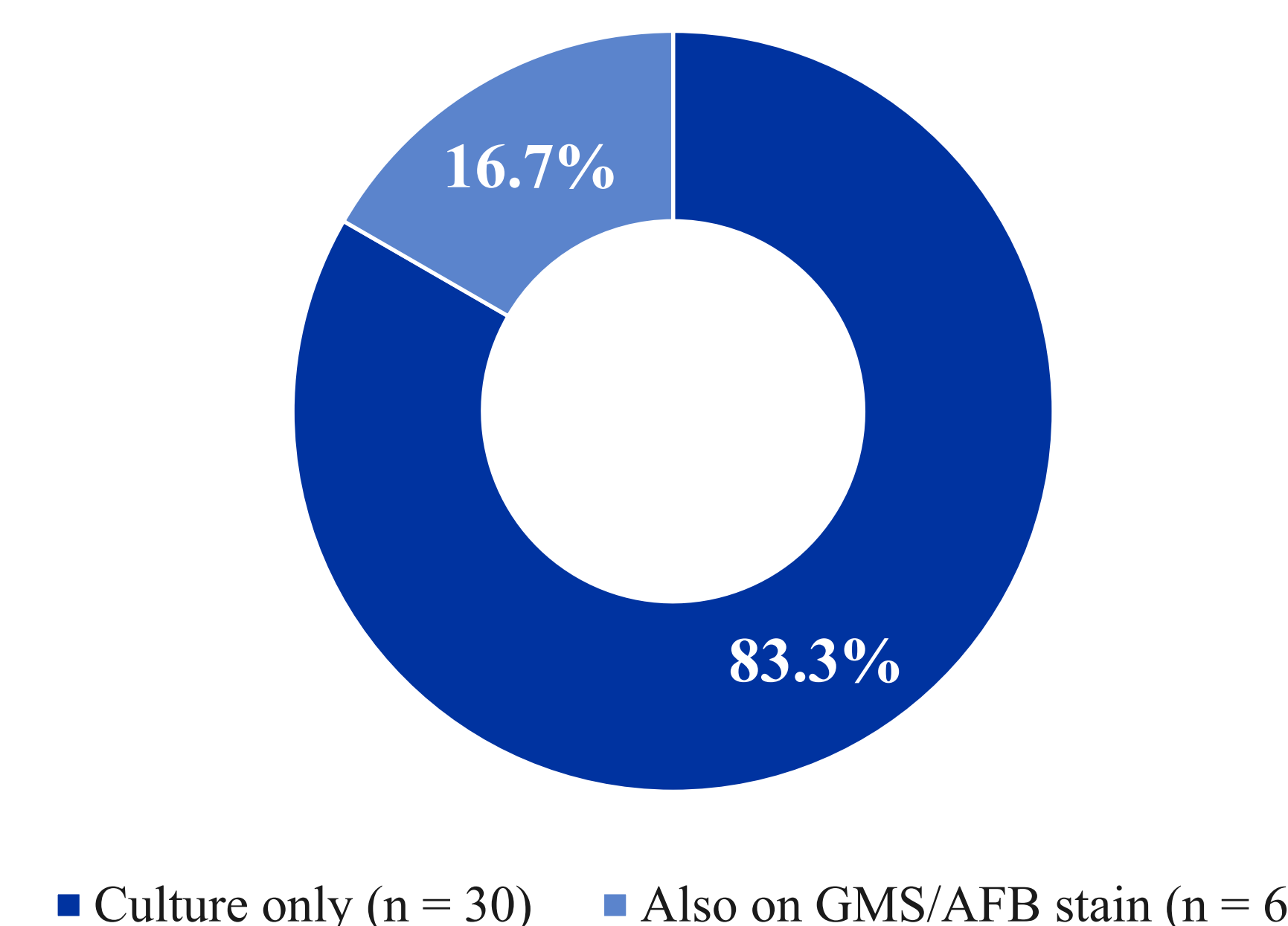


**Figure 2:** Proportion of clinically relevant organisms seen on special stains alone.

## Introduction

- During rapid on-site evaluation, part of a fine needle biopsy is often sent for microbiologic culture when infection is suspected or the diagnosis is uncertain.
- Cultures can give crucial information, but fine needle specimens are limited. Extra tissue may be critical for diagnosis, molecular testing, or other studies in neoplastic cases.

**Purpose:** to determine the clinical utility of submitting fine needle biopsy specimens for culture.

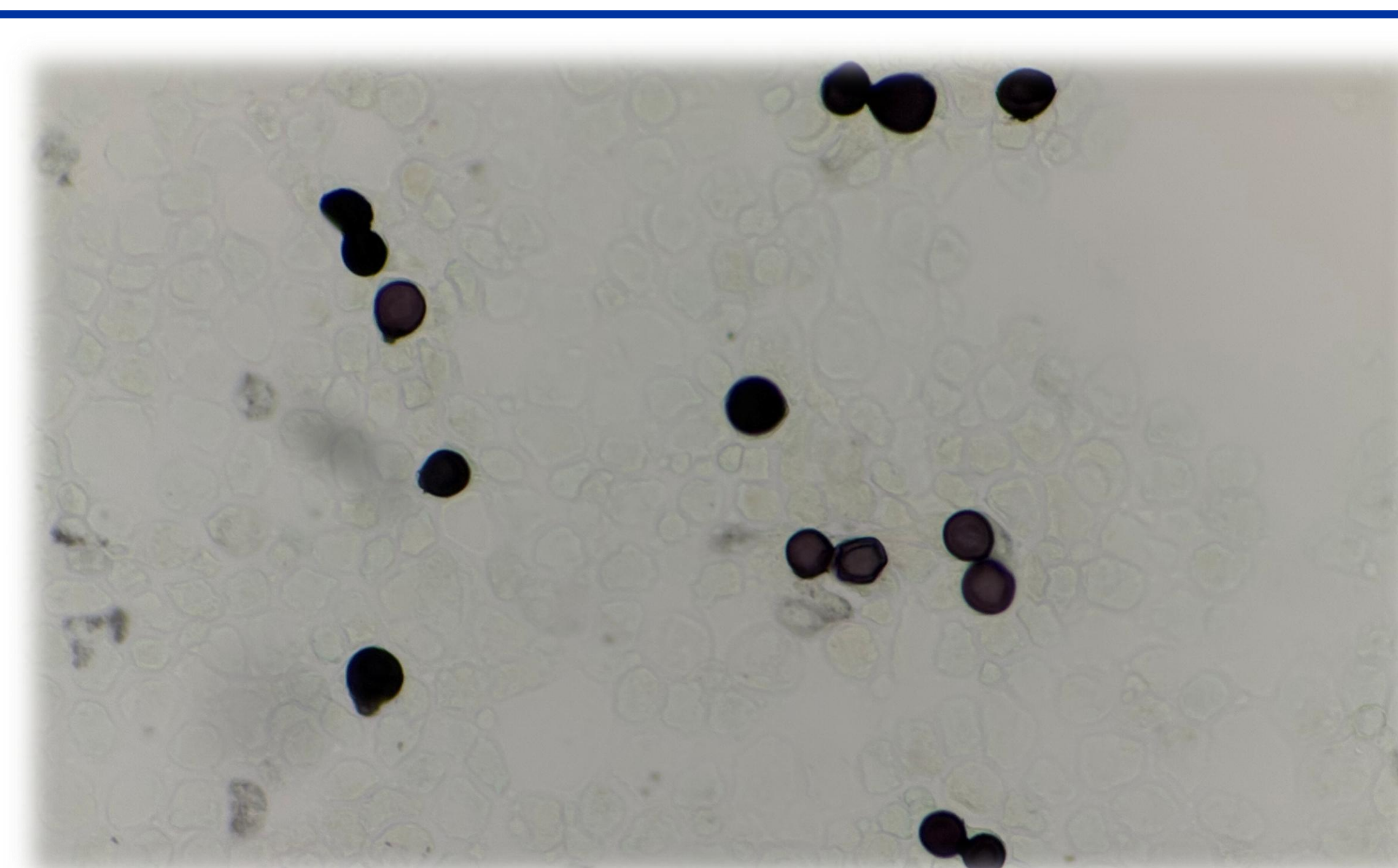


**Figure 3:** *Blastomyces* identified on GMS stain.

## Conclusions

**Low yield:** Only 8.0% of cultures were clinically relevant, and just 6.7% of cases had a clinically significant diagnosis on culture alone. The vast majority of culture-positive cases were contaminants clinically.

**Be selective:** Submit cultures from fine needle biopsies only after careful consideration, particularly if a neoplasm is suspected clinically.

**Protect tissue:** When the diagnosis is uncertain, a culture is more likely to waste tissue needed for diagnosis or molecular testing in neoplastic cases than to yield a clinically relevant result.