MCLAREN, HEALTH CARE POLICY/ PROCEDURE	SUBJECT: KOH Procedure (Potassium Hydroxide) SCOPE: Point of Care			PROCEDURE PAGE 1 of 2 ISSUED BY: D. Hagerman
	EFFECTIVE DATE: 8/16	REVIEW DATE:	REVISED: 2/19	APPROVED BY:

PRINCIPLE

10% KOH is a strong alkali used to digest cellular elements and other contaminants that would otherwise obscure the presence of fungal elements (e.g. pseudohyphae and yeast). Its use with brain biopsies is limited because artifactual material resembling yeast cells result. Brain biopsies should be evaluated with a Gram stain. KOH dissolves squamous cells and lyses red blood cells.

SCOPE

All McLaren Health Care physicians, including McLaren Medical Group (MMG) Managed sites and practices managed by their subsidiary hospital performing Provider Performed Microscopy.

POLICY

1. The KOH procedure is a moderate complexity test. Staff must follow all Provider Performed Microscopy (PPM) guidelines. See Provider Performed Microscopy (PPM) procedure.
2. Personnel will undergo training and perform a competency quiz upon hire and annually thereafter.
3. The completed quizzes will be graded and signed by the POC Coordinator and will be returned to the practices for review and retention in the practice.
4. All testing personnel must be tested for colorblindness before performing patient tests.
5. Examination of KOH prep shall be performed by a provider using bright field or phase contrast microscopy.
6. Universal precautions must be followed during the collection of specimen and performance of test. Appropriate protective equipment must be worn.
7. Due to the moderate complexity of this CLIA-waived test, alternate proficiency testing will be performed by all testing personnel and will be performed twice a year.

REAGENTS and MATERIAL

KOH Reagent vial
Microscope slides
Pipettes
Coverslips
Gloves

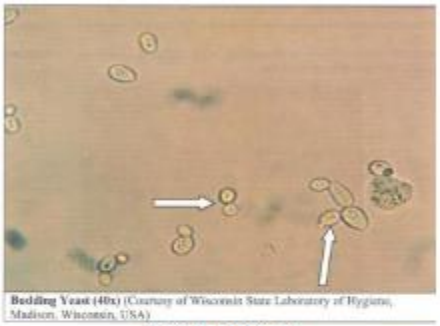
Precautionary Notes:
Store at room temperature, 15° - 30°
Do not use after expiration date.

QUALITY CONTROL

Commercial controls are not available. Reference material and/or the intranet can be used as a resource to aid in identification.

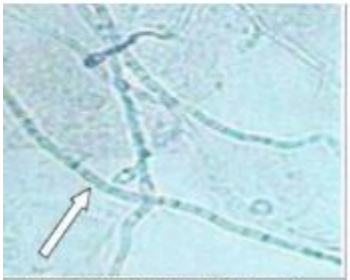
PROCEDURE

1. Place 1-3 drops of KOH in the center of a clear glass slide.
2. Place a fragment of tissue, purulent material, or scraping in the KOH.
   a. Tease the material well enough with the corner of a coverslip to give a thin preparation or break up the material with a sterile biological probe.
   b. Check the slide immediately for a "fishy", amine odor and note presence or absence. (The odor indicates anaerobic bacteria overgrowth.)
3. Allow the slide preparation to rest for up to 5 minutes for vaginal specimens and up to 30 minutes for other specimens to allow cellular tissue and other debris to dissolve.
   a. Optional: Gently warm slide to facilitate clearing of the specimen.
   b. NOTE: Overheating may cause crystallization of the KOH
4. Cover with a coverslip.
   a. Gently press on slide to help disperse tissue material.



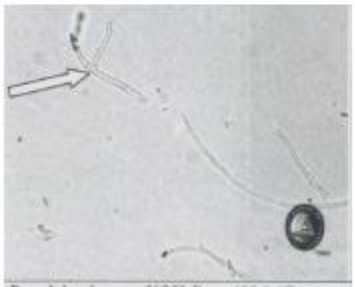
Budding Yeast (40x) (Courtesy of Wisconsin State Laboratory of Hygiene, Madison, Wisconsin, USA)

Budding Yeast



lohyphae in Wet Prep (400x) (Courtesy of nsin State Laboratory of Hygiene, Madison, nsin, USA)

Pseudohyphae (w/o KOH)



Pseudohyphae on KOH Prep (66x) (Courtesy of the College of American Pathologists, Northfield, Illinois, USA)

Pseudohyphae with KOH

INTERPRETATION and RESULTING

- Examine under low power (10X) for budding yeast and pseudohyphae and under high (40X) or oil immersion objective with a bright-field or contrast microscope to verify presence of fungal elements.
- Fungal elements should become visible in thick, viscid, or opaque specimens following treatment with 10% KOH. Look for branching of hyphae and septa. Yeast cells with budding should be seen if positive.
- Document in the patient's medical record the KOH result, initials, and date performed.

LIMITATIONS

- KOH can grow fungus if stored beyond the expiration date. Do not use if solution appears cloudy.
- Cotton strands from the swab may resemble fungal elements.

REFERENCES

Isenberg, H.D., et. al., Eds., Essential Procedures for Clinical Microbiology, ASM Press, Washington, D.C., 1998.
Massachusetts General Hospital-Pathology Service, KOH Test Procedure
BD 10% Potassium Hydroxide Insert

9/17: alternate proficiency
1/18: PPM Procedure
2/19 Updated procedure with pics