PathWays
InCyte Pathology News and Information

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PATHOLOGIST PROFILE

Amy Backer, MD

Dr. Amy Backer joined InCyte Pathology in June, 2002, following nearly two years in practice with Blue Mountain Pathology in Pendleton, Oregon. A graduate of the University of Vermont College of Medicine, Dr. Backer completed her internship and residency program in the pathology department there. She also completed a year long gastrointestinal surgical pathology fellowship at Beth Israel Deaconess Medical Center in Boston, Massachusetts.

Dr. Backer resides in the valley with her faithful companion, Zoe, a Labrador retriever, who she describes as "the smartest dog on earth." When not sitting at her microscope, Dr. Backer enjoys hiking, mountain biking, cooking and brewing beer. She enjoys working with her colleagues and serving the Spokane community as a member of InCyte Pathology.

Providing correct patient demographics, clinical history, and billing information saves office staff time and helps ensure accurate, reliable, and timely results.

WHO WAS DR. PAP? (Second of Three Parts)

Post-Doctoral Hypothesis: Cells Can Be Affected By Their Hormonal Environment

By Karen M. Ireland, MD and Felix Martinez, MD

Dr. George Papanicolaou found work in the United States in a medical-related field as a laboratory assistant under Dr. Charles Stockard in the Department of Anatomy at Cornell University Medical College. There he began investigating the sexual reproductive cycle of lower mammals using guinea pigs as models. His project was to determine when the guinea pigs were ovulating without killing them. In an attempt to see if the guinea pigs had a menstrual discharge vaginally, he used a nasal speculum, spread some of the vaginal debris on a glass slide and evaluated it microscopically. Seeing that the squamous cells from guinea pigs differed in their appearance at various stages of the estrous cycle, he hypothesized that human beings may well show similar changes. From this humble beginning developed the Pap smear. That same evening, he persuaded his wife to undergo a similar evaluation, the first of almost daily smears he performed on her for the next twenty years. (Mrs. Papanicolaou may have been the most overtested woman of all time!)

The results of the guinea pig studies were first published in the *American Journal of Anatomy* in September 1917, "The Existence of A Typical Estrous Cycle in the Guinea Pig with a Study of its Histologic and Physiologic Changes." Dr. Pap began studying the vaginal cytologic patterns in women in February 1925. From these studies came an article published in the *Journal of Anatomy* in 1933, "The Sexual Cycle in the Human Female as Revealed by Vaginal Smears." The samples were obtained from female workers at the New York Women's Hospital. An incidental finding in one of those smears was the presence of malignant cells. He followed this up with evaluations of women with known cancer and presented his new diagnostic technique at the Third Race Betterment Conference in Battle Creek, Michigan, January 2-5, 1928. The technique did not catch on with either clinicians or pathologists, both of whom thought that a tissue biopsy was required for diagnosis. Dr. Papanicolaou would spend many years defending the validity of exfoliative cytology as a diagnostic clinical tool. ▲

To be concluded in a future issue

Atypical Glandular Cells (Formerly AGUS)

By Felix Martinez, MD

The new Bethesda system guidelines for reporting of Pap smear results recommend replacing the terms "Atypical Glandular Cells of Undetermined Significance" with "Atypical Glandular Cells" and eliminates the category of "Atypical Glandular Cells Of Undetermined Significance, Favor Reactive." A discrete, separate category for endocervical adenocarcinoma in-situ (AIS) has been established as well as a new category of "Atypical Glandular Cells – Favor Neoplasia." These changes have little effect on the current reporting of cytology results at InCyte Pathology because we have never used "AGUS, favor reactive" and have been using the cytologic diagnosis of AIS since 1998. Also, the new guidelines recommend specifying whether the atypical glandular cells are of endocervical, endometrial, or unknown (not otherwise specified) origin.

The possible causes of Atypical Glandular Cells in a Pap smear are listed in Table 1.

The American Society for Colposcopy and Cervical Pathology (ASCCP) met shortly after the new Bethesda 2001 guidelines were established and the organization drafted and developed algorithmic guidelines for management of patients with squamous intraepithelial lesions, LSIL, HSIL, ASC-US, and atypical glandular cells.

These algorithms are available on-line at www.consensus.asccp.org. An algorithm for management of a patient with a Pap finding of Atypical Glandular Cells (AGC) is illustrated in Figure 1.

A summary of recommended management strategies for AGC is outlined in Figures 2 and 3.

In contrast, the management of a patient with Atypical *Squamous* Cells – Undetermined Significance (ASC-US) is outlined in Figure 4.

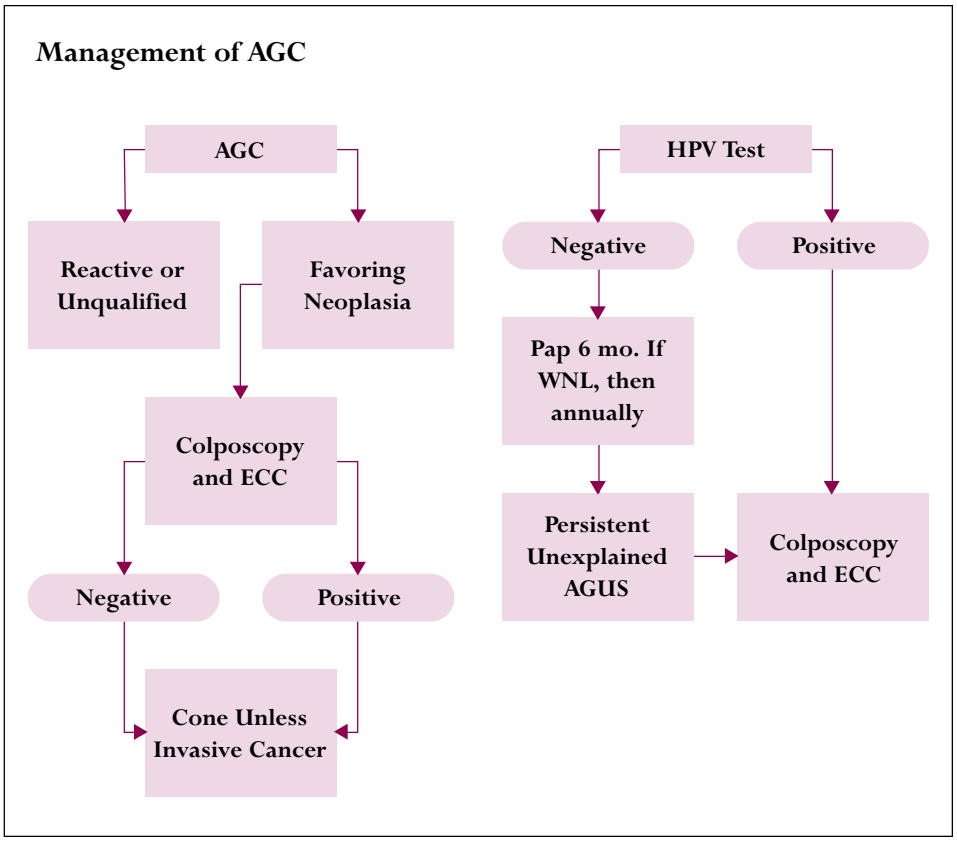
Figure 5 provides recommendations for patients with the rare Pap smear finding of psammoma bodies.

Note that if a patient has a stenotic cervix and has either ASCUS or AGC Pap results, cervical dilatation and endocervical sampling or LEEP has been recommended (see Figure 3). ▲

TABLE 1

Causes of AGC	Neoplastic	Non-Neoplastic
Reactive Endocervical Cells		*
Tubal Metaplasia of Endocervix		*
Repair		*
Polyp (Endocervical/Endometrial)		*
Endocervical Microglandular Hyperplasia		*
Endocervical Reserve Cell Hyperplasia		*
Prior Conization/Surgery to Endocervix		*
Brush Sampling of Atrophy		*
Brush Sampling of Benign Lower Uterine Segment		*
Endometrial Hyperplasia		*
HGSIL with Endocervical Glandular Involvement	*	
Endocervical Adenocarcinoma In-Situ	*	
Endometrial Adenocarcinoma	*	
Ovarian Carcinoma	*	
Metastatic Carcinoma	*	

FIGURE 1



References

1. Solomon, D., Schiffman, M., Tarone, R. *Comparison of Three Management Strategies for Patients with Atypical Squamous Cells of Undetermined Significance:* baseline results were randomized trial. J Natl Cancer Inst (United States), February 21, 2001, 93(4) 293-9.

2. JAMA 2002; 287:2120-2129 (Mangement) Wright, T.C., Cox, J.T., Massad, L.S., et al, 2001 *Consensus Guidelines for the Management of Women with Cervical Cytologic Abnormalities.*

FIGURE 2

Management for AGC

- Colposcope all with ECC
- Positive for High-Risk Viratypes – Consider cone biopsy if ECC is negative and Cytology is strongly suspicious for adenocarcinoma (consult with a Pathologist for cytology review)
- Cone if any suggestion of AIS or adenocarcinoma
- EMB, D&C, or hysterectomy if suspect endometrial origin
- Consider HPV testing

FIGURE 3 **Follow-Up of Abnormal Cytology**

AGC Initial Evaluation

Age < 40	Colposcopy, ECC, EMB if obese/diabetic/ oligoovulatory/clinical suspicion for malignancy
Age > 40	Colposcopy, ECC, EMB
Stenotic Cervix (preventing Endocervical Evaluation)	Cervical dilation and endocervical sampling or LEEP

FIGURE 4 **Follow-Up of Abnormal Cytology**

Atypical Squamous Cells – Undetermined Significance (ASC-US)

ASCUS HPV Positive (+)	Perform colposcopy. If negative, then restart screening (2 close-interval Paps before returning to regular interval testing).
ASCUS HPV Negative (–)	Repeat cytology in 12 months. Additional ASCUS HPV negative Pap tests do not require colposcopy.
ASCUS and HPV status is unknown	Recall for HPV testing, colposcopy, or re-Pap 3 times at 6-month intervals. If a re-Pap is positive, perform colposcopy.

FIGURE 5 **Follow-Up of Abnormal Cytology**

Psammoma Bodies on Pap Tests

Asymptomatic, normal pelvic exam and no malignant cells	Pelvic ultrasound and endocervical biopsy
Symptomatic, abnormal pelvic exam or malignant cells on Pap test	Evaluate carefully as indicated

PROFILE

Jeanne Barker

In June, 1980, Jeanne began working for Pathology Associates Medical Laboratories as a courier/phlebotomist, looking for a diversion from being "just a housewife and mother." After ten years of drawing blood and speeding around the Spokane area, she transferred to the Histology Department to be a laboratory assistant. Her main responsibility is setting up and assisting the pathologists and pathologist assistants with the grossing of specimens. Over the last thirteen years, Jeanne's duties have included maintaining and changing the tissue processors, distributing slides for pathologist review and chemical management.

Jeanne has been an advocate for safety in the lab, specifically interested in reducing hazardous chemicals (such as formalin) and ergonomically improving the histotechnologists' workstations. She feels her move to the Histology Department was a great one. Jeanne has also served on several committees that have planned fun events for InCyte employees.

When not at work, Jeanne is busy with her family. Her two sons have blessed her with four grandchildren. To Jeanne, the old adage "Grandchildren are a delight" is true. Her other interests include collecting antiques, gardening and collecting diet books.

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PathWays has items of interest for office personnel and assistants as well as for physicians, nurse practitioners, nurses and physician assistants. We recommend that, upon completion of circulation, your copy of ***PathWays*** be filed in the InCyte Pathology *Anatomic Pathology Services Manual* for future reference.

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