



# **Quarter 1 In Review**

At Associates in Pathology, one of our main points of focus is case turnaround time (TAT). TAT for pathology specimens is an indicator of efficiency. TAT affects coordination of patient care, which in turn impacts satisfaction of both physicians and patients. We handle a variety of case types, each with their own TAT guidelines. Non-Gynecologic Cytology, FNAs, and Surgical Pathology cases have a goal of 90% signed out within 2 working days, Molecular cases are within 3 working days, and Gynecologic Cytology (Pap Smears) are within 7 working days.

Frozen section analysis is an essential tool utilized during surgery by offering the surgeon a rapid diagnosis; therefore frozen section TAT has direct impact on patient's therapy and safety during/after surgery. With respect to our Intraoperative Single Frozen Sections, we strive to have a call back to surgeons in 20 minutes or less.

FUN FACTS ABOUT CYTOLOGY

- Evaluate cell samples (body fluids, Pap smears, FNAs) to detect precancerous, malignant, or infectious conditions (fungal, viral, parasitic)
- Currently AIP has 3 Cytologists on staff
- Pap smears are the majority of day-to-day work
- Provide on-site evaluation for adequacy of FNAs

The chart above reviews AIP's TAT for 2023 Quarter 1.

Pap Smears with different levels of dysplasia due to HPV



Negative

Low-Grade

High-Grade

### INTERESTING CASE OF THE QUARTER: METASTATIC SARCOMATOID RENAL CELL

- **Received to AIP Laboratory** 
  - 32 cm intussuscepted small bowel segment with attached mesentery
  - 4.5 cm distal tumor is associated with retracted serosa
  - Distal tumor invades through bowel wall
  - Proximal tumor is bi-lobed and cerebriform measuring 7.5 cm in greatest dimension
  - Proximal tumor invades through bowel wall
  - Matted lymph nodes are present in mesentery with tumor replacement
  - Tumor cells are positive for OSCAR, pancytokeratin, CD10 and PAX-8
  - DOG-1 and CD117 are negative
- Facts
  - Sarcomatoid dedifferentiation appears in 5% of all RCC, but is present in 20% of all metastatic RCCs
- Histology
  - Spindle cells with high cellularity and atypia coexisting with epithelial component





### Sarcomatoid Renal Cell Carcinoma



#### Her-2 Staining Weak Positivity Strong Positivity



## CHANGES IN PATHOLOGY

Her-2 is a cell receptor involved in cell proliferation that, when over expressed, can be targeted with the monoclonal antibody drug Herceptin (traztuzumab). Recent studies with a new monoclonal antibody/chemotherapeutic drug, Enhertu (traztuzumabderuxtecan), have shown that low level expression of Her-2 can also be targeted, resulting in improved survival.



Enhertu binds to the Her-2 protein (light green) on tumor cells, then moves inside the cell, where the deruxtecan portion of the drug (yellow) is released and kills the cell.

Credit: Int J Mol Sci. April 2021. DOI: 10.3390/ijms22094774. CC By 4.0.



# SPECIAL STAIN OF THE QUARTER: GROCOTT METHENAMINE-SILVER NITRATE FUNGUS STAIN (GMS)

#### Purpose

- Demonstrate fungal organisms in tissue sections
- Cell walls stained black of fungal organisms
- Performed manually by histotechnologists
- Polysaccharides in fungal cell wall are oxidized to aldehydes by chromic acid
  - Chromic acid is a strong oxidant
  - Helps suppress the weaker
    background collagen fibers and
    basement membranes
  - Only substances that possess large quantities of polysaccharides (fungal cell walls, glycogen, mucin) will remain reactive with methenamine-silver
    - Reducing to visible metallic silver
- Methenamine gives the solution alkaline properties necessary for reaction
- Sodium borate acts as a buffer
- Silver impregnation with methenaminesilver staining takes place in 60°C water bath

Clinical Information: 50 year old female with pulmonary nodule

#### Diagnosis: Pulmonary Blastomyces dermatitidis

Photo 1: Routine H&E stain shows atypical squamous proliferation with embedded inflammatory cells, the differential diagnosis includes squamous cell carcinoma vs infection.



Photo 2: Grocott Methenamine-Silver (GMS) shows numerous large fungi with broad-based budding and thick membranes.

