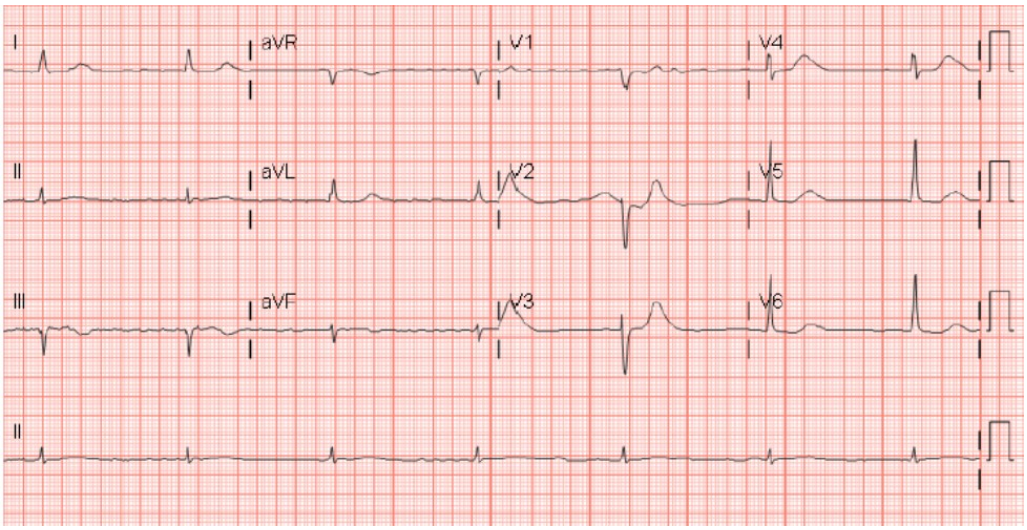
What is the next best step in patient management?

A) Obtain electrolytes
B) Administer calcium gluconate
C) Emergent hemodialysis
D) IV magnesium

3) A 55-year-old male with history of congestive heart failure, hypertension and ischemic cardiomyopathy is admitted for nausea, vomiting and diarrhea of 2 days duration. EKG was obtained and is shown below.



What is the most likely cause of the EKG findings?

A) Electrolyte imbalance
B) Drug related
C) Myocardial ischemia
D) Pericardial effusion

Answers on page: 12

ASK A PATHOLOGIST

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QUESTION: My patient has a palpable neck mass that is suspicious for malignancy, and I am considering ordering a fine needle aspiration (FNA) versus a core needle or open biopsy. Which type of biopsy will have the fastest result from pathology?

ANSWER: Fine Needle Aspiration (FNA) is the most rapid method of obtaining a tissue diagnosis. FNAs are performed manually by pathologists, clinicians or surgeons for the assessment of palpable masses, and may also be performed under ultrasound or CT guidance for non-palpable lesions. FNA biopsy can be useful in the diagnosis malignancies, certain infections (fungal, viral, protozoal), inflammation (granulomas, sarcoidosis) or infiltration (amyloidosis). The advantages of FNA biopsy can be summed up in the acronym **SAFE**: **S**imple; **A**ccurate; **F**ast; **E**conomic.

For palpable lesions, FNA can be performed on an outpatient basis or at the patient's bedside in the hospital. It has the best safety record of any method of procuring tissue for a morphologic diagnosis. No other biopsy can be processed as rapidly as an FNA biopsy—open tissue or core needle biopsies must be fixed in formalin and embedded in paraffin for several hours and even intra-operative frozen sections take several minutes to freeze and stain with H&E. FNA samples are air-dried and stained with Diff Quick stain which requires about one minute, and slides can then be examined wet without a cover slip at the time of FNA. Microscopic evaluation by a pathologist at the time of FNA is referred to as **R**apid **O**n-**S**ite **E**valuation or **ROSE**, and can be used to confirm that the obtained sample is adequate/diagnostic to rapidly triage additional testing that may be needed for that specimen (for example, a portion might be sent for flow cytometry if the specimen suggests a lymphoproliferative process), and to give the patient and clinician a preliminary diagnosis at the time of FNA.

Risks of FNA include pain and anxiety, hematoma or minor bleeding, vasovagal reaction, nerve damage, infection, and tumor necrosis. The needles used for FNA are usually 23 gauge or smaller, the same or smaller than needles used for routine phlebotomy. Anesthetic is generally not required. Non-image guided FNA should not be performed if the patient has a bleeding disorder, has a skin infection at the FNA site, is extremely uncooperative or agitated, or if the mass is not palpable.

Send your questions to coberlye@health.missouri.edu to be published in future editions of the Missouri Hospitalist.

ID Corner

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Laboratory Diagnosis of Infections

Ever wonder what type of culture or test to order to diagnose an infection? Well, the IDSA has published guidelines which are arranged by anatomical site, with lots of tables that tell you what culture, Smear, PCR or serologic test to obtain to optimally make a diagnosis of an infection:

Baron EJ et al. A guide to the utilization of the microbiology laboratory for diagnosis of infectious diseases: 2013 recommendations by the Infectious Diseases Society of America (IDSA) and the American Society for Microbiology (ASM). Clin Infect Dis 2013; 57:485.

http://www.idsociety.org/uploadedFiles/IDSA/Guidelines-Patient_Care/PDF_Library/Laboratory%20Diagnosis%20of%20Infectious%20Diseases%20Guideline.pdf