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Pathology Update

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New Staff Pathologist to join SaraPath July 2013

Dr. Jason Tedesco

We are happy to welcome Dr. Jason Tedesco to SaraPath Diagnostics, starting July 1st, 2013.

He is a board certified Anatomic and Clinical Pathologist who has done fellowship training in Hematopathology and Anatomic Pathology with a special focus in Breast and GYN Pathology at Vanderbilt University Medical Center in Tennessee.

Prior to that he served as a resident in Anatomic and Clinical Pathology at Vanderbilt. He earned his B.S. in Biology with Highest Honors in 2003 and his M.D. in 2007 from UNC Chapel Hill.

He is a member of Phi Beta Kappa and received multiple awards and other honors.

In addition, he has published a number of papers related to Hematopathology and general Pathology.

We welcome him, his wife and young family to the Sarasota area!

Images: SaraPath, internet

Special points of Interest:

- Dr. Tedesco
- Celiac disease
- Dr. White
- Molecular corner
- ID corner
- Interesting case

Celiac disease - what is it?

It is quite common for small intestinal/duodenal biopsies to list "rule out celiac disease".

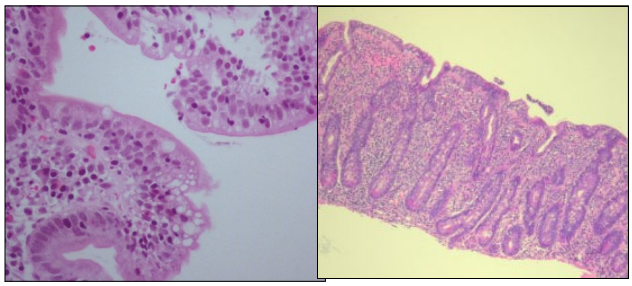
Gluten sensitive enteropathy is a major cause of malabsorption which may lead to uncomfortable abdominal symptoms. These include diarrhea, steatorrhea, gas, weight loss, fatigue, failure to thrive and delayed puberty.

The onset can be in infancy/childhood or even as late as in the 40's in people with HLA-DQ2 and HLA-DQ8.

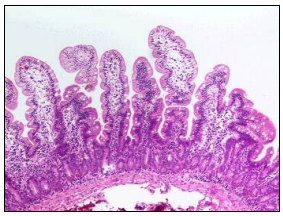
It's more common in type 1 diabetes, autoimmune thyroiditis, Sjogren's and selective IgA deficiency.

This disorder is related to an abnormal response to dietary gluten which is present in wheat, oats, barley and rye. Contained within, gliadin protein binds to intestinal transglutaminase and can result in a foreign appearing antigen to which an immune response is elicited. This may result in intraepithelial lymphocytosis, variable villous crypt destruction with possible flattening and at worst a colonic-like mucosal appearance. The intraepithelial lymphocytes are most often polyclonal T suppressor/cytotoxic CD8+ T cells and can be highlighted by immunostains to CD3.

Pathologic features: Gold standard ->



Intraepithelial lymphs **Total atrophy**



Normal villi

There are pathologic staging criteria by Corazza and Villanacci and the older modified Marsh-Oberhuber.

Clinical lab tests are also employed in the work up: Anti tissue transglutaminase antibodies (tTG IgA) with high sensitivity (>90% and specificity >95%) are a good 1st line screen, endomysial antibody, total IgA and sometimes deamidated gliadin antibodies.

The treatment is avoidance of gluten by dietary removal which can reverse the effects, but this may be difficult to adhere to.

Long term complications may include small intestinal T cell lymphoma.

SaraPath Staff Pathologist retires

Dr. James White

Dr. White had been working approximately 35 years! Although he retired in 2012, we are still missing his steady keel as a guiding force at SaraPath and SMH. We wish him, his wife and extended family the best in the future.

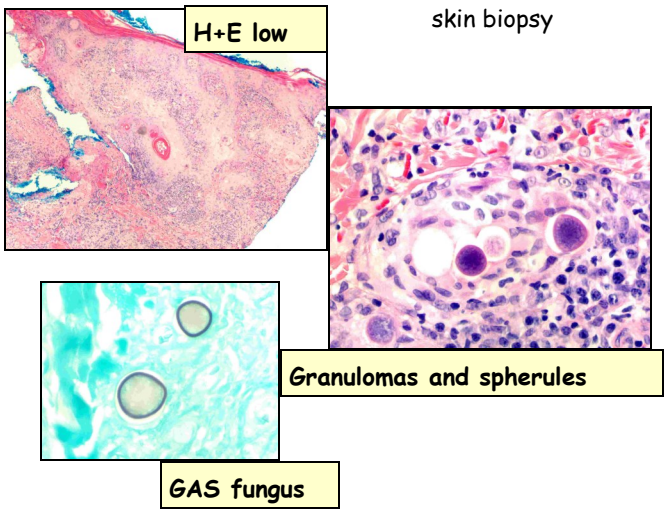
Images: Internet, SaraPath

Molecular corner

Immunostains (IHC) are employed to subclassify tumors as to site of origin. Sometimes overlapping and unusual IHC patterns are obtained. Help can be derived by researching published papers, using Textbooks (e.g. (Dabbs) and the immunoquery site. However, sometimes a tumor may remain undiagnosed by these means.
At this point, there are several additional options.
One is to send the case out to a tertiary University Pathology group that may offer additional IHC or other special studies including molecular assays.
Another is to have the referring clinician to request a gene profiling assay. The block of tissue or unstained slides are sent out.
There are multiple labs performing these tests including Biotheranostics CancerType ID, Rosetta Genomics miReview, others and Pathworks Tissue of Origin - latter no longer available.
Biotheranostics uses the differential expression of 92 genes to aid in the determination of tumor site of origin. Tumor RNA is harvested and then subjected to RT-PCR. Based on the analysis, a percentage probability score is made to the reference database.
Rosetta Genomics miReview assay is based on microRNA analysis versus a known database. miRNA's are more stable and some are tumor specific.

Infectious disease corner

46 year old male, skin biopsy



Diagnosis: Coccidiodes immitis involving skin.

Description: Granulomatous reaction to fungal organisms. T hese are larger spherules containing endospores.

More info: Endemic in Southwest USA desert. Can involve immunocompromised hosts.

Treatment: Antifungal treatment.

Images: Internet, SaraPath

Intravascular large B cell lymphoma

Clinical: 72 yo male with factor V Leiden deficiency and DVTs's, chronic cough/pneumonia on antibiotics and steroids. Found to be cytopenic. Possible MDS .

Histology: Clusters and aggregates of large tumor cells with some slight discohesion present within vascular spaces in the marrow.

IHC: B cell CD20+, keratins-, A103-, CD34+ vascular spaces.

Pathologic diagnosis: Intravascular large B cell lymphoma.

Treatment for this patient: R-CHOP therapy.

Follow up: None available.

Another case in SaraPath archives: CNS disease and confusion.

Discussion: Rare and somewhat unusual subtype of large B cell lymphoma. Previuosly referred to angiotropic lymphoma. Can involve the skin, CNS and other extranodal sites. Lymph node, blood and spleen involvement is rare.

Intravascular nature is attributed to lack of tumor cell homing receptors including CD29 beta 1 integrin and CD54 ICAM-1 adhesion moieties. Without these, binding to the vascular wall and transmigration is not possible.

Thus, the tumor cells fill vascular spaces, often small ones and can lead to hypoxia.

This is an aggressive lymphoma that responds poorly to chemotherapy and is often widespread.

Refs: Who classification of Tumours of the Haematopoeitic and lymphoid systems IARC Press 2008, internet

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Images: SaraPath

72 yo male with cough and cytopenias