Digestive Diseases Pathology: Evolving concepts in the diagnosis of colorectal polyps

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Disclosure Information

I hereby declare that I have had business or personal interests in the following industrial enterprises since 1 September 2016:

**Name of the enterprise / Nature of the interest**

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Case History

- 63-year-old female with history of a transverse colon polyp
- Diagnosed as tubular adenoma on prior biopsy (slides not available for review)
- Referred to a different hospital and underwent endoscopic mucosal resection of a 20 mm residual transverse colon polyp
POSSIBLE LYMPHOMA

STAY CALM
Atypical Colorectal Lymphoid Infiltrate - Five Questions

1. Is there mucosal effacement?

2. Dense or atypical follicles?

3. Follicular colonization and/or lymphoepithelial lesions?

4. Atypical large cell population?

5. Is there a predominant plasma cell component?
Monocytoid/Plasmacytoid Cells
Mitotic Activity
Hemosiderin
Scattered Large Cells
Russell Bodies, no Dutcher Bodies
Five Questions

1. Is there mucosal effacement? YES
2. Dense or atypical follicles? NO
3. Follicular colonization and/or lymphoepithelial lesions? YES
4. Atypical large cell population? NO
5. Plasma cells predominate? NO
Atypical Colorectal Lymphoid Infiltrate - Immunostains

Reactive versus a small B-cell lymphoma:

- **Three-stain Panel** (favor reactive): CD20, CD3, CD21

- **Expanded Panel** (favor lymphoma): CD20, PAX5, CD3, CD21, CD23, CD5, CD10, BCL6, CD43, Cyclin D1, BCL2, Ki-67 (kappa and lambda ISH, if plasma cell rich)
Expanded Panel

CD20, PAX5: Pan-B-cell

CD21, CD23: Follicular dendritic meshworks
CD3: T-cell
CD5, CD43: T-cell antigens that can be aberrantly expressed on B-cells (CD5 = CLL/SLL; CD43 = MZL)

CD10, BCL6, BCL2, Ki-67: Germinal center markers

Cyclin D1: Rule out Mantle cell lymphoma
PAX5
CD10
CD43
Ki-67
Cyclin D1
Colorectal Extranodal Marginal Zone (MALT) Lymphoma

- Colon and rectum are uncommon sites for MALT lymphoma, but otherwise similar to gastric MALT lymphoma
- Dense and extensive lymphoid infiltrate
- Centrocyte-like or monocytoid cells
- Plasmacytic differentiation, can be extreme
- Lymphoepithelial lesions with crypt destruction
- Follicular colonization
- May potentially transform into DLBCL
Outcome and Treatment

- 20 cases reported (1994-2006)
- 4 in transverse colon, size 1.5 – 8 cm, age 47-75, similar M:F
- Often no symptoms, but may have fecal occult blood or hematochezia
- Treatment ranged from polypectomy to hemicolecetomy with and without chemotherapy
- *H. pylori* eradication was performed in about half of colorectal MALT lymphoma patients as the only therapy
- All patients had no evidence of disease, up to 35 months

ANOTHER COLON POLYP – DIFFERENTIAL DIAGNOSIS
Five Questions

1. Is there mucosal effacement? YES

2. Dense or atypical follicles? YES

3. Follicular colonization and/or lymphoepithelial lesions? NO

4. Atypical large cell population? NO

5. Plasma cells predominate? NO
Low Grade
CD21
CD3
Reactive T-cells can be prominent and the number can exceed the neoplastic B-cells in some intestinal lymphomas.

Mucosal architecture is not always effaced by lymphoma involving the intestines.
CD5
Ki-67
Intestinal Follicular Lymphoma

- Duodenum is most common site, particularly at ampulla of Vater, and is distinct from conventional follicular lymphoma
- Colon and rectal FL represent 1% and 2%, respectively, of GI follicular lymphoma (89% in duodenum).
  - In one study of 12 patients, mean age 58.7, 5 stage 1 (primary GI FL), 7 stage IV (systemic)
  - Elevated lesions in all cases (papular, n=4; polypoid, n=4, flat elevated plaque-like, n = 4), no ulceration
RECTAL POLYP – DIFFERENTIAL DIAGNOSIS
Case/photomicrographs courtesy of Dr. Ken Batts, Minneapolis, MN
Polymorphous population
Immunophenotyping

CD20

CD3

CD68

CD138
B-cells not in diffuse sheets
No dense or atypical follicles
No follicular colonization or LEL
No atypical large cell population
Scattered plasma cells, no sheets of plasma cells

So … not clearly lymphoma
But it really looks like lymphoma! What are we missing?
T-CELL LYMPHOMA?  PLASMA CELL NEOPLASM?  IGG4?
Treponema pallidum immunostain
“Rectal Tonsils”

- Prominent localized reactive lymphoid hyperplasia in the rectum
- Usually under 4 cm and just above the dentate line
- Mimics lymphoma, primary differential is MALT lymphoma
- Immunohistochemical evaluation shows variable reactive follicular hyperplasia
- Non-clonal
- Exclude infections such as *Treponema pallidum* or *Chlamydia trachomatis*
A more typical reactive lymphoid infiltrate in the colon
Five Questions

1. Is there mucosal effacement? NO

2. Dense or atypical follicles? NO

3. Follicular colonization and/or lymphoepithelial lesions? NO

4. Atypical large cell population? NO

5. Plasma cells predominate? NO
CD20
CD21
Intestinal Lymphoid Hyperplasia

- Relatively common, may be idiopathic and incidental
- Inflammatory bowel disease
- “Diversion” colitis
- Some immunodeficiency disorders such as common variable immune deficiency
WHAT ELSE?
Mantle cell lymphoma

- Can present as lymphomatous polyposis (can involve long stretches of bowel), usually ileocecal region
- Aggressive disease, usually has involvement of mesenteric lymph nodes and prognosis is similar to other cases of mantle cell lymphoma
- CD5 positive, Cyclin D1 positive, t(11;14)
Mantle cell lymphoma

Two variants recognized based on SOX11 staining:

- SOX11 positive classical variant
  (unmutated/minimally mutated IGHV, involves lymph nodes or extranodal sites, can become blastoid or pleomorphic)

- SOX11 negative variant (mutated IGHV, presents as indolent leukemic mantle cell lymphoma, without lymph node involvement, secondary mutations result in aggressive form)
Other considerations

- **Chronic lymphocytic leukemia (CLL)** – very rare, systemic disease

- **Post-transplant lymphoproliferative disorders (PTLD)** – non-destructive or polymorphic
  - EBV ISH positive
  - May be clonal, may respond to reduced immune suppression
Indolent lymphoid lesions that may involve colon

- Indolent T-cell lymphoproliferative disease of the GI tract
  - Dense/non-destructive infiltrate of small T-lymphocytes with clonal T-cell receptor, does not progress

- NK cell enteropathy
  - Medium to large atypical lymphoid cells, NK cell immunophenotype, EBV ISH negative, TCR negative, does not progress
Colorectal lymphoma – non-polypoid/destructive lesions

- Burkitt lymphoma
- T-cell lymphomas
- Diffuse large B-cell lymphoma (DLBCL)
- High grade B-cell lymphoma
- PTLD – monomorphic
- Classical Hodgkin lymphoma (CHL)
THANK YOU