

ADENOCARCINOMA OF THE SMALL BOWEL

- Primary small bowel tumors account for approximately 2% of all GI malignancies despite making up 75% length of alimentary tract
- 40% of small bowel malignancies (45% of these in duodenum, 45% in jejunum and 10% in ileum) arise from pre-malignant adenomas similar to colon CA.

Risk Factors Include

- FAP
 - These patients develop multiple adenomas throughout the small bowel and colon.
 - In retrospective analysis from Johns Hopkins in 1992, Offerhaus et. al, found that the relative risk for duodenal adenocarcinoma for patients with FAP was 330 versus the general population.
 - There was no significant increase for patients with regard to jejunal or ileal adenocarcinomas
- HNPCC
 - Lifetime risk is 1-4%, over 100X greater than the general population
- Crohn's Disease
 - The increased risk usually begins 10 years after onset of the disease.
 - In these patients the location of the tumors is more often in the ileum
- Celiac Sprue
 - A 2001 survey from Green et al., found that people with sprue have a relative risk of 67 for developing adenocarcinoma of the small bowel

Symptoms

- Patients with early disease are usually asymptomatic
 - Abdominal pain
 - Weight loss
 - Bleeding
 - Nausea
 - Vomiting

Exam

- Patients often have a normal examination
 - May see peritoneal signs if perforation has occurred
 - Rarely will have a palpable mass
 - Jaundice from biliary obstruction
 - Guaiac-positive stools if bleeding

Labs

- If tumor is causing bleeding, a CBC might show a person to be anemic
- CEA levels can be elevated
- If ampullary obstruction, could see hyperbilirubinemia

Imaging and Procedures

- KUB might show evidence of a small bowel obstruction (dilated loops, air fluid levels)
- CT scan could show the actual tumor as well as local spread and metastasis
- Upper GI series with small bowel follow through will show abnormalities in 53-83% of patients with adenocarcinoma of small bowel
- Upper GI endoscopy with small bowel enteroscopy can be used to biopsy tumors of the duodenum and jejunum
- Colonoscopy with retrograde ileoscopy to biopsy tumors of the ileum

Staging

- Tis: carcinoma in situ
- T1: tumor invades lamina propria or submucosa
- T2: tumor invades muscularis mucosa
- T3: tumor invades through muscularis into subserosa or into mesentery or retroperitoneum with extension of less than 2cm
- T4: tumor penetrates visceral peritoneum or directly invades other organs
- N1: positive nodes
- M1: positive metastases

Stage 0	Tis	N0	M0
Stage1	T1-2	N0	M0
Stage2	T3-4	N0	M0
Stage3	T any	N1	M0
Stage4	T any	N any	M1

Treatment

- Unfortunately most small bowel tumors are asymptomatic until relatively late in their course.
- In a study by Ouriel et. al, 70% of patients with node negative tumors were alive after five years versus only 13% for node positive tumors
- Surgical resection is still the mainstay of treatment for small bowel adenocarcinomas
 - Tumors in the proximal duodenum are treated with pancreatoduodenectomy
 - Tumors in the distal duodenum, jejunum or proximal ileum are treated with wide surgical excision (margins of 5 cm)
 - Tumors in the terminal ileum are treated with resection and right hemicolectomy
- Chemotherapeutic agents have not been studied too extensively given the low prevalence of small bowel adenocarcinoma
 - In the Ouriel study, 6 patients with metastatic disease were treated with 5-FU based regimens versus 6 patients with metastatic disease who were not treated.
 - The mean survival was 10.7 months versus 4 months respectively.
 - Also, 6 patients with recurrent disease were treated with chemotherapy versus 21 patients with recurrent disease who were not treated.
 - The mean survival was 11.5 months versus 7.9 months

References

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