

Clinical Features and Screening/Risk Reduction Recommendations for Familial Adenomatous Polyposis (FAP) and MYH-Associated Polyposis (MAP)

Classic FAP

- **Colorectal polyps and cancer:**
 - Development of >100 colorectal adenomatous polyps beginning by early teenage years
 - Without colectomy, most patients develop colon cancer by their late thirties to forties

Screening:

- Sigmoidoscopy or colonoscopy every 1-2 years starting by age 10-12
- Annual colonoscopy once polyps are detected until colectomy

Risk Reduction:

- Colectomy once adenomatous polyps are present. Decisions about timing and type of colectomy should include consideration of number and severity of adenomas, age, personal preferences, and prediction of polyposis severity and desmoid risk based on specific mutation (genotype-phenotype correlation), family history, and other risk factors. Colectomy is usually recommended once >20-30 adenomas or advanced histology are present.
 - Colectomy options include total proctocolectomy with ileal pouch anal anastomosis (IPAA) and total colectomy with ileorectal anastomosis (IRA)
 - Screening after IRA should include colonoscopy of the rectum every 6-12 months
 - Screening after IPAA should include colonoscopy of the ileal pouch every 1-2 years
 - Consider medications for chemoprevention (including nonsteroidal anti-inflammatory drugs (NSAIDs)), particularly through clinical trials
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- **Upper Gastrointestinal Tract Polyps and Cancer:**
 - ~50% lifetime risk of gastric polyps (mainly gastric fundic gland polyps but also gastric adenomatous polyps)
 - Gastric cancer risk is low in individuals with FAP in Western cultures (rates are higher in Japan and Korea)
 - ~50-90% lifetime risk of developing adenomatous polyps of the small bowel (usually the duodenum)
 - Lifetime risk of duodenal cancer is ~4-12%

Screening:

- Esophagogastroduodenoscopy (EGD) ideally using a side-viewing video endoscope beginning by age 25 or before colectomy and repeated every 1-3 years depending on severity of duodenal adenomas
- Consider additional small bowel imaging (small bowel enteroclysis or abdominal and pelvic CT) depending on symptoms and severity of duodenal adenomas

Treatment:

- Consider endoscopic or surgical removal of large, severely dysplastic or symptomatic adenomas
- Pancreaticoduodenectomy (Whipple procedure) may be necessary to treat severe duodenal adenomas

- **Extraintestinal Cancers:**

- ~2% lifetime risk of pancreatic or bile duct cancer
- ~1-2% lifetime risk of papillary thyroid cancer
- <1% lifetime risk of brain tumors (usually medulloblastoma)
- ~1-2% lifetime risk of hepatoblastoma (rare liver cancer that usually occurs by age 3)

Screening:

- Annual physical examination with palpation of the thyroid and consideration of follow-up ultrasound of thyroid if nodules are present
- Lifetime risks for these cancers are low and data are limited regarding efficacy of screening for these cancers, particularly specifically among individuals with FAP
- Consideration of screening for hepatoblastoma using abdominal ultrasound and measurement of serum alpha-fetoprotein every 3 months until age 3-5 years

- **Non-cancerous extraintestinal findings:**

- Osteomas (benign bony growths found mainly on the skull and mandible (jaw bone) in FAP that usually do not cause medical problems)
- Dental abnormalities including unerupted, congenitally missing, or extra teeth
- Congenital hypertrophy of the retinal pigment epithelium (CHRPE) (flat, pigmented lesions of the retina that do not cause medical or vision problems)
- Benign skin/subcutaneous lesions (including epidermoid cysts and fibromas)
- Desmoid tumors (benign fibrous soft tissue tumors) occur mainly in the abdomen or abdominal wall and may cause significant medical problems due to size, compression of organs, and/or interference with abdominal surgery
- Adrenocortical adenomas (benign masses in the adrenal gland that do not cause medical problems)

Screening and treatment:

- Annual physical exam including evaluation for extraintestinal findings
- Desmoid tumors can be treated based on severity and location with NSAIDs, anti-estrogens, chemotherapy, radiation, and/or surgical excision (often associated with a significant recurrence rate)

Attenuated FAP (AFAP)

- Milder and later-onset form of FAP which is less well-defined but as compared to classic FAP is characterized by fewer adenomas (usually <100 with a tendency toward rectal sparing), a later age of onset of adenomas (average age 35-45) and colorectal cancer (>40), and a lower risk of colorectal cancer and extracolonic features
- Generally defined as 10-99 colorectal adenomas or >100 adenomas at a more “advanced” age than classic FAP (e.g. >35-40 years old)
- Can also include other features of classic FAP including upper gastrointestinal polyps and cancer, thyroid cancer, and extraintestinal findings although desmoid tumors and CHRPE are rare in AFAP

Screening and treatment:

- Colonoscopy every 1-3 years beginning by age 18-20
- Esophagogastroduodenoscopy (EGD) ideally using a side-viewing video endoscope beginning by age 25 or before colectomy and repeated every 2-3 years depending on severity of duodenal adenomas
- Annual physical examination including evaluation for extraintestinal findings and palpation of the thyroid and consideration of follow-up ultrasound of thyroid if nodules are present
- Consider colectomy when greater than 20-30 adenomas or multiple adenomas with advanced histology develop. The surgery of choice with AFAP is usually total colectomy with ileorectal anastomosis (IRA)
- Screening after IRA should include colonoscopy of the rectum every 6-12 months
- Consider medications for chemoprevention (including NSAIDS) , particularly through participation in clinical trials

MYH-Associated Polyposis (MAP)

- Clinical findings and cancer risks in MAP are generally similar to AFAP but inherited in an autosomal recessive pattern.
- Clinical findings can include duodenal polyps and duodenal cancer. Extraintestinal findings have also been noted in some individuals.
- Screening and management recommendations are the same as for AFAP

References:

Burt RW and Jasperson KW (July 2008). *APC-Associated Polyposis Conditions*. Retrieved September 26, 2008, from www.ncbi.nlm.nih.gov/bookshelf/br.fcgi?book=gene&part=fap

National Comprehensive Cancer Network (NCCN) (2008). *NCCN Clinical Practice Guidelines in Oncology: Colorectal Cancer Screening v.2.2008*. Retrieved September 26, 2008, from http://www.nccn.org/professionals/physician_gls/PDF/colorectal_screening.pdf

Vassen HFA et al (2008). Guidelines for the clinical management of familial adenomatous polyposis. *Gut* 57: 704-713.