Colorectal Polyps

- Good Day,

Today will be talking about colorectal polyps. These are short notes

I strongly advise referring to a textbook in general surgery for studying as this is a big topic that cant be covered in a simple lecture.

The numbers and some of the information in this lecture may change with time and with referenced used as well as the location of the population

Polyps

- Mass lesions protruding from the intestinal mucosa toward intestinal lumen or elevating the mucosa toward the lumen
- defect in
  - Cell proliferation
  - Differentiation
  - Apoptosis

} of Normal Mucosa

- At least one polyp was found in 34.3 % of asymptomatic patients by screening colonoscopy

- Polyps are Mass lesions protruding from the intestinal mucosa toward intestinal lumen or elevating the mucosa toward the lumen , it represent a defect in Cell proliferation Differentiation or Apoptosis

- During screening colonoscopy one polyp is found in about one third of cases. It is a common pathology

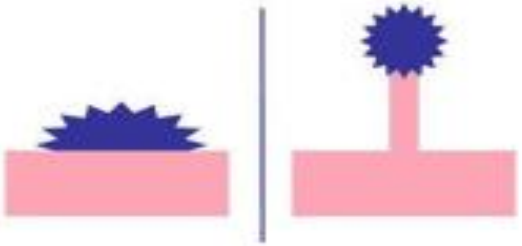
Classification of polyps

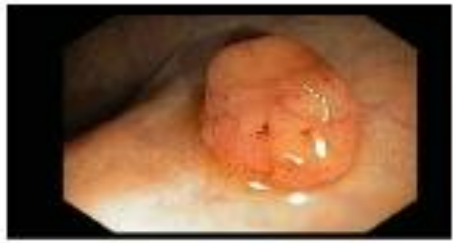
- Inflammatory : Inflammatory polyps
- Metaplastic : Metaplastic or hyperplastic
- Hamartomatous: Peutz-jeghers polyp, Juvenile polyps
- Neoplastic : Adenoma , carcinoma, carcinoid.

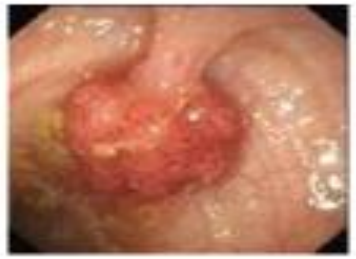
- Different classifications of polyps , according to histological examination polyps can be divided into :
- Inflammatory such as inflammatory polyps
- Metaplastic : either metaplastic or hyperplastic polyps
- Hamartomatous such as patient with Peutz-jeghers polyp, Juvenile polyps Or neoplastic such as adenoma , carcinoma.

Classification / Shape

- Sessile / Pedunculated







- Other method of classification is how it look morphologically either sessile of pedunculated

Neoplastic Colon Polyps Adenomas

- Epithelial tumour composed of abnormal glands of the large bowel
- Two-thirds of colon polyps are adenomatous polyps
- More common in men
- mostly located in the left colon
- Most adenomas (87 to 89%) are <1 cm in size

- According to the growth pattern of the glands
  - Tubular adenomas; 0 to 25% of the glands are villous
  - Tubulovillous adenomas: 25 to 75% of the glands are villous
  - Villous adenomas: if 75-100% of the glands are villous

Tubular	80–86 %,
Tubulovillous	8–16 %,
Villous adenomas	3–16 %

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Notes

- Most colorectal carcinomas are derived from benign adenomas (Adenoma-carcinoma sequence).
- 5 years from a clean colon to the development of invasive carcinoma.
- The distribution of adenomas throughout the large bowel is similar to that of carcinomas

- Removal of polyps reduce the risk of cancer. In fact : The incidence of colorectal cancer has been shown to fall with a long-term screening programme involving colonoscopy and polypectomy

- The malignant potential of adenomas depends on
  - size,
  - histological type,
  - degree of dysplasia

Dysplasia

- *Is the term describing the histologic abnormality* of an adenoma according to the degree of atypical cells.
- Low , moderate or high grade.
- High Grade: similar to carcinoma but limited to the epithelium.
- The larger the polyp the higher rate of dysplasia.

Table 9.2 Relation between type of adenoma and size of adenoma/degree of dysplasia

	Size of adenoma (%) [6]			Degree of dysplasia (%) [7]		
Type of adenoma	<1 cm	1–2 cm	>2 cm	Mild	Moderate	Severe
Tubular	77	20	4	88	8	4
Tubulovillous	25	47	29	58	26	16
Villous	14	26	60	41	38	21

Risk Factors ?

- age.
- lack of fruits and vegetables,
- fat-rich diet,
- low folate intake,
- excessive alcohol consumption, increased
- Smoking
- Physical inactivity
- Family history
- acromegaly

Progression

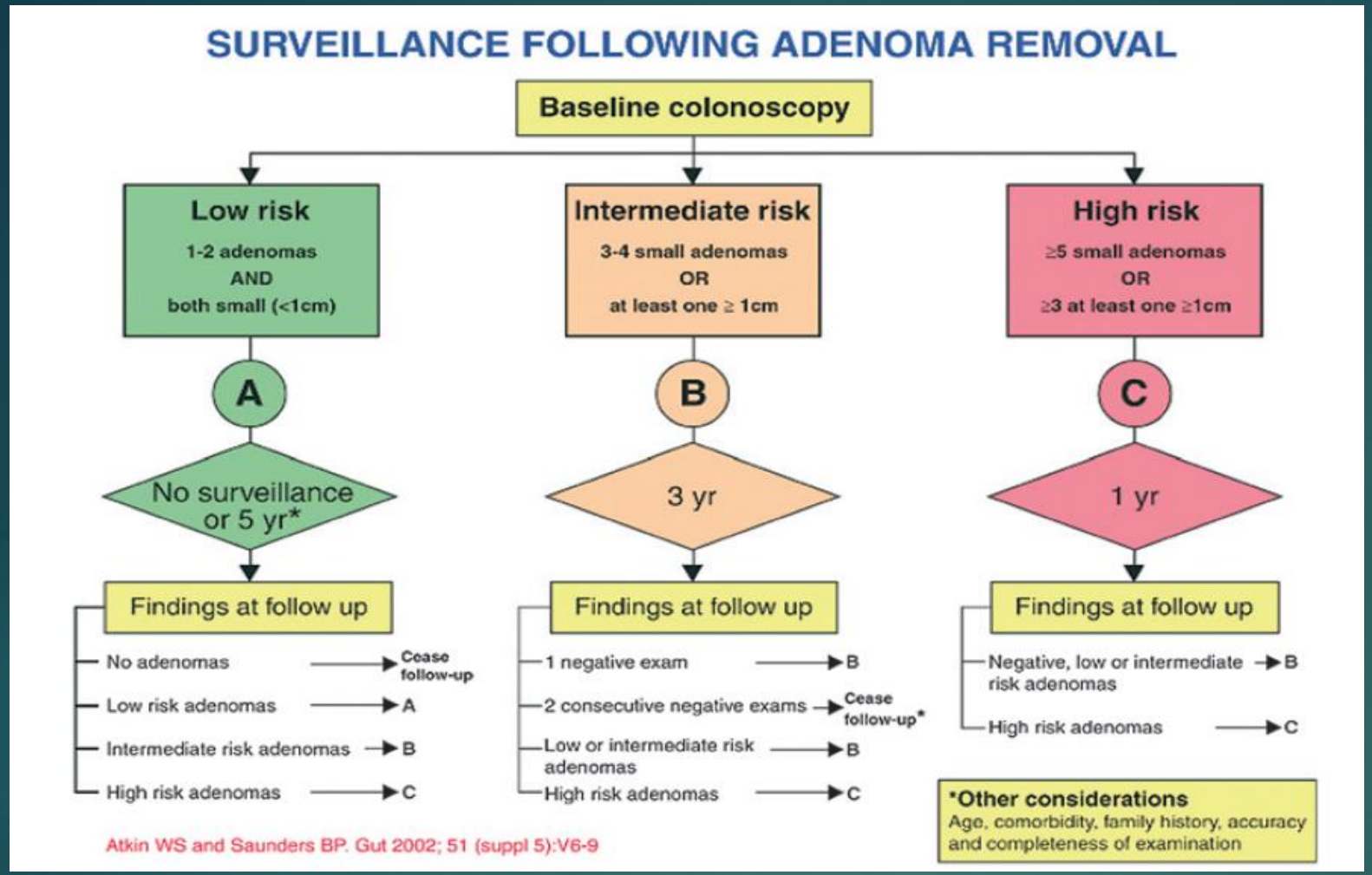
- Aspirin
- Non-steroid anti-inflammatory

reduce frequency

Risk of malignancy

The size and the histopathological type of the determine the risk of malignancy in a polyp
In addition the location and the number
Based on this we arrange for timing if the follow up colonoscopy for each patient.

- Size and type of polyp.
  - >1cm tubular polyp: 35% risk of cancer
  - 2cm villous polyp: 50% risk of cancer
  - Villous adenoma has higher cancer potential than tubular.
- Proximal location
- Number of Polyps
- Overall, the yearly rate of conversion from adenoma to carcinoma has been estimated to be 0.25%, but the risk is higher (the risk of carcinoma is 2.5 % in 5 years, 8 % in 10 years, and 24 % in 20 years after the diagnosis for polyps 1 cm in diameter)

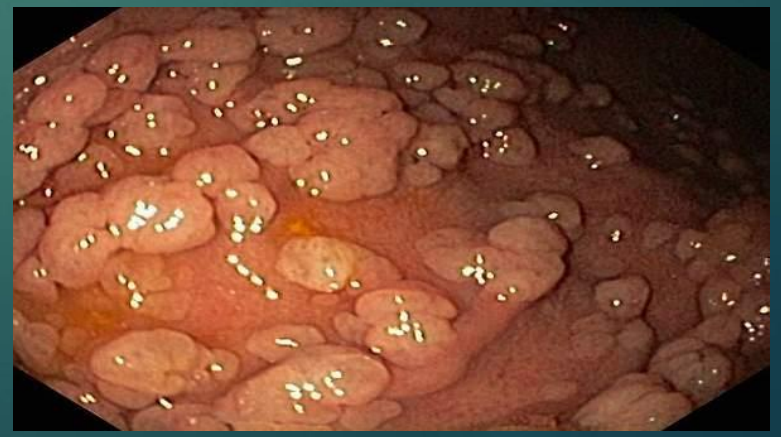


The British Society of Gastroenterology (BSG) and the Association of Coloproctology for Great Britain and Ireland (ACPGBI) commissioned this update of the 2002

- This slide represent guild line from the British society of gastroenterology for colonoscopy after removal of adenoma . You can see the divide patients into low and intermediate and high risk groups.
- Accordingly the surveillance colonoscopy can be planned.

Familial Adenomatous polyposis

- Feature:
  - Autosomal Dominance inheritance
  - Mutation APC gene at chromosome 5
  - Hundreds of Colorectal polyps (2nd -3rd decade)
  - Doudenal polyps
  - Multiple extra-intestinal manifestation
  - Lifetime risk of malignancy is 100%



- One of known interties is familial adenomatous polyposis, it s an Autosomal Dominance inheritance
- There is Mutation APC gene at chromosome number 5
- Patients develop Hundreds of Colorectal polyps at the 2nd and 3rd decade of life
- Association with possible Doudenal polyps
- And Multiple extra-intestinal manifestation as shown in the next slide

- Lifetime risk of malignancy is 100%

Extra-Colonic features

This is a list of extra intestinal manifestation of the FAP .

TABLE 26-1. Extracolonic features of FAP

System	Feature	Frequency (%)
Upper gastrointestinal tract	Upper gastrointestinal adenomas	95
	Upper gastrointestinal carcinoma	5
	Fundic gland polyps	40
Connective tissue	Osteomas (especially jaw)	80
	Desmoids	15
Dental	Unerupted and supernumerary teeth	17
Cutaneous	Epidermoid cysts	50
Endocrine	Adrenocortical adenomas[4]	5
	Papillary thyroid carcinoma[5]	1
Hepatobiliary	Biliary tract carcinoma	<1
	Hepatoblastoma	<1
Central nervous system	CHRPE	75
	Tumors (especially medulloblastoma)	<1

FAP – diagnosis

- In order to diagnose FAP, either you do than by demonstrating the presence of 100 or more colorectal adenoma during colonoscopy or the presence of APC gene mutation in 80% of cases.
- A New mutation in the APC gene can occur In 20% of cases .
- Milder form Attenuated FAP where is less number of polyps in the colon and rectum.

- If family mutation is known, Predictive genetic testing in early teens.

Otherwise

- Clinical Survillance
  - Annual flexible sigmoidoscopy starting 13-15 of age… if no polyps then colonoscopy started at 20.
  - Flex sig or colon. Anytime if sypmtomatic
  - If there are no adenomas by the ageof 30 years, FAP is unlikely.

  - Up to 50% of patients with FAP have congenital hypertrophy of the retinal pigment epithelium (CHRPE), which can be used to screen affected families if genetic testing is unavailable

Treatment of FAP

- Treatment of FAP
- Surgery is Prophylactic as Carcinoma of the large bowel develops 10–20 years after the
- onset of the polyposis

- Procto-Colectomy + restorative surgery is the operation of choice
- sulindac and celecoxib : cause regression of the polyps but require frequent examination.
- Upper GI Surveillance after the age of 30 looking for Doudenal Polyps . Every 2 years

Surgical option for FAP

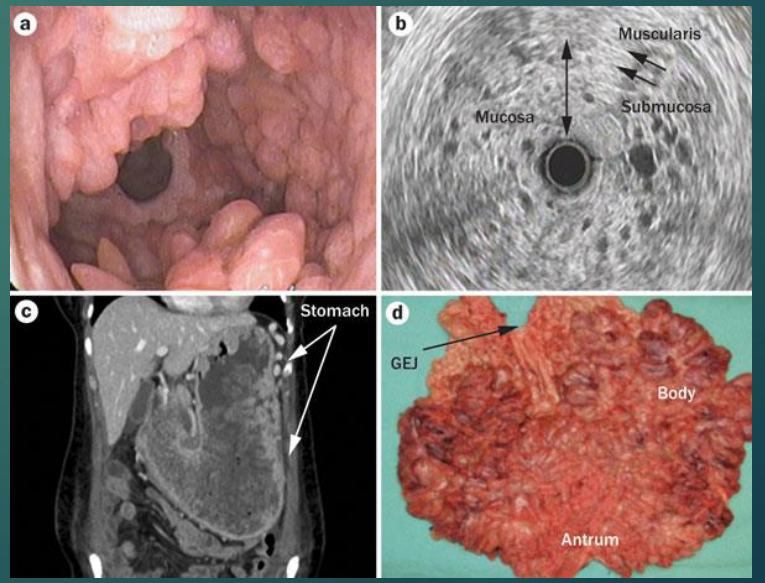
1- colectomy with ileorectal anastomosis (IRA)

2- restorative proctocolectomy with an ileal pouch–anal anastomosis (RPC);

3- total proctocolectomy and end ileostomy.

Juvenile Polyposis

- Juvenile polyps: hamartomas that lack smooth muscle histologically, having poor anchorage to bowel wall. Eventually amputate and disappear
- Around the age of 4. blood around stool.
- Multiple polyps in rectum , colon and stomach In 50%.
- Rare
- 50-200 polyps
- Risk of cancer 30-50%
- Autosomal dominant
- Treatment: polypectomy / colectomy

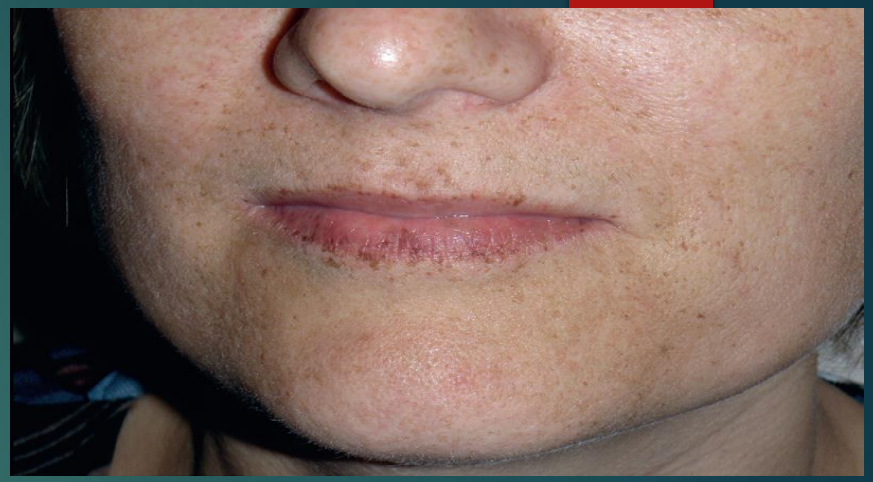


Juvenile polyp

- This is a bright red, glistening pedunculated sphere (‘cherry tumour’)
- Present in infants and children and can stay into adult life.
- Patient present with bleeding, pain and prolapse during defaecation.
- polyp has no tendency to malignant change It has a unique histological structure with large mucus-filled spaces covered by a smooth surface of thin rectal cuboidal epithelium

- Treatment is excision

Peutz–Jeghers syndrome



- an autosomal dominant condition
- characterised by:
  - mucocutaneous pigmentation
  - gastrointestinal hamartomatous polyps.

Peutz followed the family for 87 years and the member of the family developed bowel obstructions and cancers

Self reading

- The topic colorectal polyps is evolving and it is not limited to what been said earlier. I advise you all to related to a reference book for more details as well as reading about the other types of polyps, Such as
- Hyperplastic polyps
- Sessile serrated polyps
- Serrated polyposis syndrome
- Traditional serrated polyps
- Inflammatory polyps