COLORECTAL NEOPLASIA—I: BENIGN COLONIC TUMOURS

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Classification of large bowel polyps

Epithelial

Adenoma: tubular; tubulovillous; villous

Metaplastic polyp

Mesodermal

Lipoma

Benign lymphoma

Leiomyoma

Haemangioma

Other rare tumours

Hamartoma

Juvenile polyps

Peutz-Jeghers polyp

The term "polyp" is often wrongly used synonymously with "benign colonic tumour." A polyp is a descriptive term for a pedunculated lesion. Not all polyps are tumours; not all polypoid tumours are benign; and not all benign tumours are polypoid.

Benign tumours can be classified into those of epithelial origin, those of mesodermal origin, and hamartomas.

Mesodermal tumours

Angiodysplasia viewed through a colonoscope.

Mesodermal tumours are usually sessile but may be polypoid. Lipoma and leiomyoma are not uncommon in post mortem material but are rarely symptomatic. If symptoms occur it is usually because of ulceration in the overlying mucosa with bleeding. Rarely they may cause intussusception.

Haemangioma

True haemangiomas are very rare but may cause life threatening bleeding. They should be distinguished from angiodysplasia—small telangiectatic lesions which occur in the elderly. These are too small to be diagnosed by any means other than colonoscopy or angiography; they are one of the causes of massive colonic bleeding.

Hamartoma

Facial features of Peutz-Jeghers syndrome.

Juvenile polyp

Juvenile polyps are the commonest polyps in children. They are histologically distinct from other polyps and can occur anywhere in the large bowel but are commonest in the rectum. They occur in girls and boys usually below the age of 10 years and may be familial.

They present with either prolapse through the anus or bleeding due to ulceration or autoamputation. They are not premalignant and may be treated by local endoscopic resection.

Peutz-Jeghers syndrome

Peutz-Jeghers syndrome is a rare disease which is usually familial. It causes pigmentation around the lips associated with characteristic intestinal polyps. The polyps are most common in the small intestine, though they can occur in the stomach or colon.

The microscopic appearance of the polyps is of a coralline arrangement of muscularis mucosa covered with epithelium. They often first present in childhood with intussusception or bleeding. The polyps have a low grade malignant potential. Treatment is difficult because of the widespread nature of the polyps and is confined to surgery to deal with the serious complications.

Epithelial tumours

Metastatic polyp viewed through a colonoscope.

Metaplastic polyps and adenomas

It is important to distinguish metaplastic polyps from true adenomas. Metaplastic polyps are tiny plaques 1-2 mm in size and they are not premalignant. The pathogenesis is unknown.

Barium enema radiograph showing a colonic adenoma.

Colonic adenoma.

Adenomas are premalignant lesions, although the risk of malignant transformation for an individual adenoma is low. The risk of malignancy increases with the size of the adenoma, and villous adenomas are more prone to malignant transformation than tubular adenomas.

Tubular adenomas are commonly multiple and may coexist with a carcinoma. The possibility of coincident carcinoma is greater when the polyps are multiple. They may be asymptomatic or cause bleeding, prolapse, or intussusception.

Histological slide showing tubular adenoma.

Familial adenomatous polyposis

Familial adenomatous polyposis is inherited through an autosomal dominant gene with incomplete penetrance. About 25% of cases are due to new mutations and patients do not give a family history. The affected colon is carpeted with hundreds of polyps. The disease develops in early adult life and inevitably undergoes malignant transformation about 10 years after onset. Patients often have other abnormalities, including multiple osteomas, epidermoid cysts, fibrous tumours, and periampullary tumours in the duodenum. These extracolonic manifestations are most prominent in Gardner's syndrome, which is now considered to be part of the spectrum of familial adenomatous polyposis.

Diagnosis of adenomas

Symptoms of tubular adenoma

- None
- Bleeding
- Prolapse
- Intussusception

Villous adenoma prolapsing through the anus.

Most adenomas are asymptomatic. An adenoma may be discovered incidentally when the colon is being investigated for a symptomatic lesion or as a result of a health screening programme. More than 10% of the population over 45 years might have asymptomatic adenomas.

Symptoms may be bleeding or prolapse of the polyp through the anus, or, rarely, intussusception. Diarrhoea or discharge of mucus occurs in patients with multiple polyps or, typically, in those with villous adenoma. Extreme potassium loss from a villous adenoma may result in hypokalaemia, but this is rare.

Many adenomas are either palpable by rectal examination or easily seen on sigmoidoscopy. Total colonoscopy is the best investigation for detecting adenomas, but high quality double contrast barium enema examination is almost as good.

When an adenoma is discovered it is important to ask, "Has it undergone malignant transformation?" If the tumour is palpable hard areas suggest malignancy, as does ulceration of the polyps seen on endoscopy. Large tumours are more likely to be malignant. Finally, tumours shown to be villous on histological examination are more commonly associated with malignancy.

The second question must be, "Is the adenoma solitary?" It is well known that adenomas may be multiple and be associated with large bowel cancer at another site. A full investigation of the whole colon is essential.

Treatment of adenomas

(Top) Polyps viewed through a colonoscope.
(Bottom) Snared polyps.

Colon with familial adenomatous polyposis.

Treatment of adenomas

Single polypoid adenoma

- Transanal excision
- Colonoscopic snare

Familial adenomatous polyposis

- Colectomy and ileorectal anastomosis
- Total proctocolectomy and ileostomy
- Proctectomy and ileoanal pouch

Villous adenoma

- Transanal submucous resection
- Posterior transsphincteric excision
- Anterior approach excision

Solitary adenomas

Many adenomas are pedunculated and can be removed after ligation of the pedicle, either directly after prolapsing the tumour through the anus or by snare diathermy through a sigmoidoscope or colonoscope.

A small sessile lesion can be snared or excised in the submucosal plane or destroyed by hot diathermy forceps through the colonoscope. A large sessile lesion in the rectum can be destroyed by diathermy or submucous dissection, but dealing with large sessile polyps colonoscopically may be hazardous.

Complete excision biopsy is desirable for good pathological assessment, and for this reason diathermy destruction is less satisfactory. If the pathologist discovers carcinoma in the polyp but without invasion up to the line of resection then no further action is required. If the line of section is involved surgery, as for carcinoma, is indicated.

In moderately sized sessile or large tumours (>5 cm) surgical excision is probably the safest option. At operation a colotomy and local excision or a small segmental resection can be used. Polyps in the rectum can be removed through the anus or by the transsacral approach.

Once a patient has been rendered free of polyps, he or she should be offered repeat colonoscopy every five years because of the risk of developing further adenomas.

Familial adenomatous polyposis

Surgery is indicated in patients with familial adenomatous polyposis before malignant transformation occurs. Many patients can be identified by careful screening of families of known patients. Congenital hypertrophy of the retinal pigmented epithelium is highly specific for familial adenomatous polyposis and is easily detected on ophthalmological examination. It can be discovered before polyps develop. Affected people can also be identified with 95% confidence by DNA screening.

Total colectomy with ileorectal anastomosis, followed by regular outpatient surveillance of the residual rectum and treatment of polyps endoscopically as necessary, has commonly been used but has the disadvantage that all series contain patients in whom rectal cancer has developed. Some surgeons therefore advocate proctocolectomy, although this has the disadvantage of a permanent ileostomy. Recently ileoanal anastomosis with an ileal pouch has been introduced; some believe this to be the treatment of choice, but not all patients have a satisfactory functional result.

Few patients with familial adenomatous polyposis develop cancers after they have undergone prophylactic colectomy. However, they require long term follow up because of the extracolonic manifestations, especially ampullary tumours in the duodenum.

Villous tumours

Careful assessment is necessary to exclude secondary tumours and malignant transformation in patients with villous tumours. In the lower or mid rectum full assessment is possible and for a benign lesion local excision is appropriate. For an extensive lesion in the upper rectum or colon an appropriate colonic or rectal excision with anastomosis is indicated.

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