CASE REPORT

Role of computed tomography and endoscopy in the management of alimentary tract lipomas

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Abstract

Four cases of alimentary tract lipomas are described. While conventional radiology is unable to differentiate these tumours from the much commoner carcinomas, computed tomography and endoscopic examination may allow a definitive diagnosis thus sparing the patient major surgery. In selected cases endoscopic polypectomy is feasible and safe.

Lipomas of the alimentary tract are uncommon benign tumours which can present a diagnostic and therapeutic problem. The preferred treatment is observation or local excision. Since pre-operative diagnosis and differentiation from malignant tumours can be difficult, patients are sometimes subjected to more extensive surgical procedures than warranted. Both computed tomography and endoscopy can contribute to management decisions in gastrointestinal lipomas. We describe a series of four patients to highlight the ways in which these newer modalities helped in management.

Case reports

PATIENT 1

A 49 year old Chinese man presented with a three year history of non-specific central abdominal pain and change in bowel habits. Abdominal palpation revealed an inconstant mass to the right of the umbilicus. This mass was soft and mobile and approximately 3 cm in diameter. Abdominal ultrasonography suggested that this mass may be colonic. Barium enema examination (Fig 1) showed a pedunculated 4 cm polypoid lesion in the caecum. Colonoscopy showed that the overlying mucosa was intact and the tenting and cushion signs were demonstrable. Colonoscopic polypectomy was attempted but failed. The preoperative diagnosis was that of polyp, query lipoma. At surgery a large mass was found in the caecum and a right hemicolectomy was performed. Histology confirmed a colonic lipoma. The patient recovered uneventfully and was asymptomatic on follow up three months later. The lipoma had presumably been causing intermittent intussusception resulting in the abdominal pain and mass.

PATIENT 2

A 45 year old Chinese man presented with a three year history of variable bowel habits and vague abdominal pain. Physical examination was unremarkable. A barium enema and small bowel series showed a polypoid lesion in the distal ileum approximately 3 cm in diameter (Fig 2). The clinical impression was that of an ileal polyp nature, query. Retrograde ileoscopy was performed using a colonoscope. A pedunculated polyp was identified and removed by snare diathermy (Fig 3). The histological diagnosis was that of lipoma. The patient recovered uneventfully and remained asymptomatic at follow up two months later.

PATIENT 3

A 54 year old Chinese woman presented with a two month history of an aching sensation in the left iliac fossa. General and gynaecological examinations were unremarkable. Barium enema examination showed no abnormality. Sigmoidoscopy showed a 3 cm sessile lesion in the posterior wall of the rectum 12 cm from the

Figure 1: Barium enema of patient 1 showing a large caecal polyp.

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Figure 2: Small bowel study of patient 2 showing an ileal polyp.

Figure 3: Solitary pedunculated ileal polyp from patient 2 consists of a well defined fatty submucosal mass covered by attenuated mucosa.

anus (Fig 4). The overlying mucosa was intact and the tenting and cushion signs positive. Biopsy of the surface mucosa showed no abnormality while repeated deep biopsies through the same site did not yield any useful diagnostic information. The clinical diagnosis was that of a submucosal polyp or lipoma. A coagulation screen before polypectomy showed a prolonged partial thromboplastin time subsequently shown to be caused by the absence of Factor XII. The patient was advised that her polyp was likely to be benign, and that it was best left alone. She was concerned that a malignancy was not entirely excluded, however, and endoscopic polypectomy was therefore performed through a flexible sigmoidoscope under cover with fresh frozen plasma. The polyp was removed and the diagnosis of lipoma confirmed histologically (Fig 5). The patient recovered uneventfully but continued to have occasional left iliac fossa discomfort although she stated that this was less severe than before polypectomy.

PATIENT 4

A 68 year old Chinese woman presented with a 10 month history of dysphagia when eating solids. She was, however, able to tolerate soft foods and her weight had been maintained. A barium swallow examination showed a 5 cm mass in the lower oesophagus with intact overlying mucosa (Fig 6). This was confirmed at oesophagoscopy which showed, in addition, positive tenting and cushion signs. Computed tomography of the lesion showed a uniform mass with a low Hounsfield value indicating that it consisted mainly of fat. (Fig 7). A diagnosis of oesophageal lipoma was therefore made. After discussion with the patient and her family it was decided that she be managed conservatively. She continued to have dysphagia of variable severity although 18 months later her lesion had enlarged in size on barium swallow.

Discussion

Alimentary tract lipomas are uncommon tumours with an incidence of approximately one of 600 necropsies.¹ The most common location is the colon, followed by the small intestine.² They

Figure 4: Endoscopic appearance in patient 3 (a) before and (b) after endoscopic polypectomy.

Figure 5: Rectal lipoma from patient 3 is composed of mature adipocytes covered by attenuated rectal mucosa. (Haematoxylin and eosin.)

rarely occur in the stomach and oesophagus.² There is an equal sex ratio and the peak age of presentation is in the seventh decade.¹⁻³ Excluding lesions discovered incidentally at autopsy, up to two-thirds of cases are symptomatic, the frequency of symptoms being proportional to tumour size. In one series,¹ no tumour under 1 cm caused symptoms compared with three quarters of tumours over 4 cm. The more common symptoms are abdominal pain or discomfort, occult or overt blood loss and intussusception.^{1,3-5} Oesophageal lipomas can present with dysphagia¹⁶ while rarely colonic lipomas can prolapse through the anus.^{2,5}

Lipomas present radiologically as intraluminal filling defects which can be difficult to differentiate from the commoner benign polyps and cancers. Useful clues include a smooth surface and the 'squeeze' sign manifested by changes in contour and configuration as a result of peristalsis.¹ Endoscopic clues to a diagnosis of lipoma have also been described⁷ and include the 'tenting' sign (easy retractability of normal mucosa overlying the lesion) and the 'cushion' sign (a sponge like impression made by biopsy forceps as they are advanced into the lesion). Routine biopsies yield normal mucosa but repeated deep biopsies through the same site may reveal adipose tissue. In our experience, these signs, although helpful, do not usually allow a definitive diagnosis to be made.

Computed tomography reliably differentiates fat from other tissues. Megibow *et al*⁸ were able to diagnose a duodenal and a colonic lipoma before surgical or endoscopic confirmation. Heiken *et al*⁹ diagnosed four more cases by this method. A low absorption density distinguishes

Figure 6: Barium swallow of patient 4 showing an oesophageal tumour.

Figure 7: Computed tomogram appearance of patient 4 showing an oesophageal mass with a low Hounsfield value.

fat from other tissues and from faecal material. Gastrointestinal liposarcomas are extremely rare, and those which have been examined by computed tomography were usually heterogeneous with septa and areas of non-fatty tissue.⁹ A homogenous lesion with a low Hounsfield value can therefore safely be diagnosed as lipoma.⁹

While some patients with minimal or no symptoms are best left alone local excision may be the preferred treatment in most other cases.^{2,8,9} Up to half of the patients in reported series, however, have undergone major resections, often because cancer could not be ruled out,^{2,15} although this proportion has gone down in recent years.² A confident preoperative diagnosis lessens the likelihood of patients undergoing unnecessarily high risk operations.

While most gastrointestinal lipomas are sub-mucosal in location, up to two-thirds become pedunculated,³ perhaps because of their pliable nature. Therefore endoscopic extirpation can sometimes be safely carried out, avoiding the need for open surgery.

We have learned a great deal from these four patients. In retrospect, we could have improved our management of the first patient by performing computed tomography of the lesion. It would have confirmed our preoperative diagnosis and a local excision would then have sufficed. The second patient illustrates the value of endoscopic polypectomy in selected patients. Management of the third patient could also have been improved if a computed tomogram of the polyp had been performed. We would then have been better able to firmly reassure the patient as to the benign nature of the lesion. We were able to make a confident diagnosis of an oesophageal lipoma in the fourth patient and hence avoid major surgery.

Our recommendation for the management of gastrointestinal lipomas can be summarised as follows: a lipoma has to enter the differential diagnosis of any polypoid lesion of the gastrointestinal tract if the mucosal surface is regular and if the tumour is pliable on conventional radiology. Should the lesion be accessible to

endoscopic examination, elicitation of tenting and cushion signs as well as biopsy of overlying mucosa may be helpful. The lesion should also be subjected to computed tomography with intraluminal contrast after good bowel preparation. Should endoscopic findings be suggestive, and computed tomographic findings definitive for unseptated fat, no action other than observation may be indicated. If symptoms necessitate removal, endoscopic polypectomy may be feasible if the lesion is accessible and pedunculated or extra peritoneal. If endoscopic removal is inappropriate, a confident preoperative diagnosis will allow the surgeon to perform the minimum procedure necessary.

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