Advanced colonic carcinoma in children

Akhtar M Khan, CM Doig, AP Dickson

Summary

We report two cases of colorectal carcinoma in children with a delay in diagnosis due to the low index of suspicion of this pathology as the cause of presenting symptoms. We conclude that any child presenting with unexplained rectal bleeding and abdominal pain should be investigated with endoscopy and barium enema.

Keywords: colonic carcinoma, children

Carcinoma of the colon is extremely uncommon in children in the absence of underlying genetic disorder; as a result the low index of suspicion for this tumour as the cause of the presenting symptoms leads to advanced disease at diagnosis with subsequent poor prognosis. We present two cases reported as Dukes stage C carcinoma in 13- and 16-year-old children.

Case reports

Case 1

A 13-year-old boy presented as an emergency with failure to pass motions over five days and a four-day history of central abdominal pain increasing in severity and localising in the right iliac fossa with guarding. Rectal examination revealed a tender mass on the right side. Appendicitis was diagnosed, however, the appendix was found to be normal at surgery.

Postoperatively he failed to improve and a plain abdominal radiograph revealed large bowel dilatation proximal to the sigmoid colon (figure 1). Ultrasound examination was negative. Contrast enema revealed a mechanical obstruction in the sigmoid colon (figure 2) which was reported as a possible intussusception. Sigmoidoscopy revealed a nonnegotiable lesion 15 cm from the anus, and proceeded directly to a laparotomy. A stenotic lesion was found in the mid-sigmoid which macroscopically appeared neoplastic. There was no evidence of visceral or nodal spread. A Hartmanns procedure was performed and histology confirmed Dukes C adenocarcinoma. No predisposing factors were identified.

The patient died within nine months and was noted to have cerebral, peritoneal and skeletal deposits.

Case 2

A 16-year-old Asian girl with a history of surgically managed astrocytoma with post-operative chemo/radiotherapy at the age of five years, was admitted initially under medical

care for investigation of long-standing microcytic anaemia, upper abdominal pain and poor appetite. Ultrasound examination of the abdomen three months prior to admission was reported to be normal. Abdominal examination revealed a fullness of the right iliac fossa. Computed tomography demonstrated an increased thickness of the wall of the caecum as well as the ascending colon, suggestive of possible lymphoma in view of the previous chemotherapy. A subsequent colonoscopy revealed a rectal polyp which histologically showed marked epithelial dysplasia. At laparotomy, a large mass arising from the caecum and ascending colon was found adherent to the anterior abdominal wall. Visceral deposits were not identified. An extended right hemicolectomy was performed with limited resection of the anterior abdominal wall. Histology confirmed a Dukes C adenocarcinoma. Her prognosis is poor in the presence of residual abdominal wall tumour.

Discussion

Colorectal carcinoma is extremely rare in children, with a reported incidence of 1 in 10

Figure 1 Plain radiograph demonstrating the presence of dilated loops of large bowel proximal to the sigmoid colon

Department of
Paediatric Surgery,
Booth Hall
Children's Hospital,
Charlestown Road,
Blackley,
Manchester M8 7AA,
UK
AM Khan
CM Doig
AP Dickson

Correspondence to
Akhtar M Khan,
40 Alwen Avenue, Birkby,
Huddersfield HD2 2SJ,
UK

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Figure 2 Barium enema demonstrating the failure of contrast to negotiate the sigmoid colon

million in patients under 20 years of age.¹ As a result the low index of suspicion for this tumour in children and adolescence results in advanced disease at diagnosis and subsequently a poor prognosis. Rao *et al* demonstrated in 1985 that 67% of colonic carcinoma in children presented as Dukes D, 23% as stage C and only 10% as stage B.² This is in contrast to colorectal carcinoma in adults which is more often detected than Dukes B or C, due to a higher index of suspicion with subsequently a better prognosis than in children.

1 Takai S, Yamamura M. Carcinoma of the colon in children. *Jpn J Surg* 1988; 18: 341–5.

2 Rao BN, Pratt CB. Colon carcinoma in children and adolescents. *Cancer* 1985; 55: 1322–6.

3 Koh SJ, Johnson WW. Cancer of the large bowel in children. *South Med J* 1986; 79: 931–5.

Learning points

- incidence of colonic carcinoma 1 in 10 million in children <20 years of age, hence low index of suspicion
- 67% of cases of colonic carcinoma in children present with secondary spread
- symptomatic presentation is similar to adult cases
- consider barium enema and endoscopy in all children with unexplained rectal bleeding and abdominal pain

Colonic carcinoma in children has no predilection for sex.³ In adults, however, there is a 3:2 preponderance in males. Although acute abdominal obstruction is the most frequent method of presentation in children the signs and symptoms do not markedly differ from those in adults.⁴ Despite this, the delay in diagnosis leads to emergency laparotomy in 42.5% of cases in children. As our two cases illustrate, the low index of suspicion leads to delay in diagnosis, in our first case a laparotomy would have been more appropriate when the appendix was found to be normal to allow a complete assessment of the bowel. In addition, the barium enema was reported as a possible intussusception whereas in an adult this would probably have been regarded as suggestive of a neoplasm. Our second case shows that a mass in the right iliac fossa had not been diagnosed on examination or ultrasound scan three months earlier.

In conclusion, colonic carcinoma should not be excluded in children only on the basis of age. We recommend that colonoscopy and barium enema should be applied in paediatric patients with unexplainable rectal bleeding and abdominal pain.

4 Yamamoto K, Tanaka T. Carcinoma of the colon in children: case report and review of the Japanese literature. *J Gastroenterol* 1994; 29: 647–52.