Peutz-Jeghers syndrome

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SUMMARY We report 3 cases of the Peutz-Jeghers syndrome presenting in early childhood, and consider the need for surgical intervention.

In 1896 Sir Jonathan Hutchison described twin girls with pigmented spots on their lips,¹ one of these girls later died in her twenties from intestinal obstruction due to intussusception. Her twin sister was symptom-free until her fifties when she succumbed to carcinoma of the breast. In 1921 Peutz reported 7 patients who displayed pigmented lesions on the lips plus intestinal polyposis,² and Jeghers *et al.*³ in 1949 reported 10 cases of their own, and reviewed a further 12 patients each of whom had shown abnormal mucocutaneous pigmentation with intestinal polyposis. He concluded that the condition was inherited as a Mendelian dominant.

Case reports

Case 1. This boy, born on 18 February 1962, was diagnosed in 1967 as having the Peutz-Jeghers syndrome after presenting with pigmented lesions on the lips and gums. A barium meal showed multiple small-bowel filling defects consistent with intestinal polyps. No other member of his family displayed mucocutaneous pigmentation or had a history of intestinal disorder.

He was admitted to hospital after an episode of melaena in 1968 which was managed conservatively. He remained under outpatient review until 1974 when he was admitted as an emergency with a history of colicky, central abdominal pain associated with vomiting. He was tender in the left iliac fossa and a small-bowel intussusception was evident on the plain x-ray. A barium study earlier in 1974 had shown a large jejunal polyp, which was thought to have initiated an intussusception responsible for his presenting symptoms.

At laparotomy he was found to have a compound jejunal intussusception with the head of one lesion palpable in the substance of the second. The compound intussusception was reduced and the two polyps which had initiated each intussusception were removed by enterotomies at the site of the polyps.

Histologically both polyps proved hamartomatous, supporting the diagnosis of the Peutz-Jeghers syndrome. He remains asymptomatic.

Case 2. This girl, born on 14 November 1974, presented at age 10 months with bleeding from a rectal polyp which was protruding from the anus. The polyp was removed and histology showed it to be hamartomatous. The pathologist raised the possibility of the Peutz-Jeghers syndrome, but at that time the patient showed no evidence of abnormal mucocutaneous pigmentation, and her family history was negative for pigmentation and intestinal polyposis. (Subsequent events made clear the diagnosis of Peutz-Jeghers syndrome, so her presentation at age 10 months makes her the youngest case to be reported.)

In 1978 she was referred because of pigmented lesions on her lips (Fig. 1), associated with recurrent bouts of colicky abdominal pain and vomiting. A barium meal showed multiple small-bowel filling defects, and retrospectively it was seen that an

Fig. 1 Case 2 at age 4, showing typical pigmented lesions of the lips.

intussusception in the second part of the duodenum had been demonstrated at that examination. Later that year, she developed an acute abdominal distension and an audible gastric splash (particularly evident at her dancing classes). Plain x-rays showed a grossly dilated stomach, and a duodenal jejunal intussusception was demonstrated by barium meal. At laparotomy she was found to have two separate intussusceptions—one duodenojejunal and the other jejunojejunal—which were reduced. One large polyp ($4 \times 3 \times 3$ cm) was palpable in the second part of the duodenum (Fig. 2) with three more polyps palpable in the upper jejunum; these were all removed by enterotomies. No other polyp was evident in the small or large bowel. Histology of the polyps showed them to be hamartomatous with different cell types represented in the epithelium, mainly Panneth and goblet cells (Fig. 3).

Case 3. This girl, born on 13 August 1966, was first admitted in 1972 with central abdominal pain and vomiting; her abdomen was then soft with no tenderness or masses. Pigmentation of the lips was noted and the possibility of the Peutz-Jeghers syndrome raised. The child's father and paternal uncle had pigmented lesions on the lips, but no history of intestinal disorder.

She reappeared in 1978 with a history of chronic colicky pain and pigmentation of the lips. A barium enema failed to show any lesion, but the barium meal (Fig. 4) showed multiple small-bowel polyps with many transient intussusceptions.

She was subsequently admitted as an emergency in June 1979 with a 6-day history of intermittent abdominal pain associated with bile-stained vomiting. On examination her abdomen was soft with no guarding, but a mass was palpable in the right iliac fossa. A barium meal showed a high small-bowel intussusception. At laparotomy three small-bowel intussusceptions were found. The proximal jejunal intussusception was compound and antegrade led by a polyp 17 cm from the duodenojejunal flexure. Once it was reduced the proximal jejunum appeared chronically thickened and dilated.

More distally a second jejunal intussusception was found, this being retrograde. At its apex was a polyp 67 cm from the duodenojejunal flexure. There was yet a third ileo-ileal intussusception with a polyp 113 cm from the duodenojejunal flexure. In addition a Meckel's diverticulum was found at 155 cm (38 cm from the ileo-caecal valve).

Each intussusception was reduced in turn, the proximal two polyps being removed by enterotomy at their site. The Meckel's diverticulum was excised and the third polyp was removed through the residual enterotomy.

Fig. 2 (Case 2.) One of the polyps being removed by enterotomy.

Fig. 3 (Case 2.) A photo-micrograph of the polyps showing different cell types in the epithelial layer, both Panneth and goblet cells are visible. $\times 30$.

Fig. 4 (Case 3.) Barium meal showing multiple small bowel filling defects representing polyps.

A week after the operation she developed a further small-bowel intussusception. A second laparotomy was performed and an irreducible mid small-bowel intussusception was found. Resection of this was required. Examination of the resected bowel showed that the lead point in this case was an oedematous suture line at the site of removal of the second polyp. 30 cm of small-bowel were resected. She has subsequently remained well.

Discussion

The essentials for diagnosis of this syndrome are: (1) the presence of abnormal mucocutaneous pigmentation, and (2) the presence of polyps of a

hamartomatous nature in the alimentary tract. There may be a family history of the condition.

The pigmented lesions are flat, bluish-black spots of 2 to 4 mm in diameter, composed of melanin and melanocytes. Although generally found on the lips and in the buccal cavity, they can be present on the palms of the hands or the soles of the feet, or on the trunk and the anal mucocutaneous junction. The spots develop within 5 years of birth and tend to fade after puberty.

The polyps can occur anywhere in the alimentary tract but generally are present between the cardia of the stomach and the anus, most of them in the jejunum and ileum with a decreasing incidence in the colon, rectum, stomach, and duodenum.⁶ The polyps are described as hamartomata, as the epithelial elements are representative of the cells indigenous to that area of the alimentary tract in which they arise, more than one cell type being found in the epithelial layer of the polyp. The stroma is formed from smooth muscle elements of muscularis mucosae origin.

The polyps have been considered by many to be premalignant but Dozois *et al.*⁴ reviewed 321 reports of Peutz-Jeghers syndrome and added 5 cases of their own. They found 11 reported cases of gastrointestinal malignancy. They concluded that gastrointestinal tract carcinoma and hamartomatous polyps could coexist in the same person, since the location of the tumours did not correspond to the location of the hamartomatous polyps; furthermore, if the Peutz-Jeghers polyps were predisposed to malignancy, more cases of carcinoma should have occurred. They considered that the polyp itself did not undergo malignant change, but that a patient with the Peutz-Jeghers syndrome appeared to have a 2% risk of developing gastrointestinal cancer, which is higher than that of the general population.

McAllister and Richards, who studied a series of 20 patients with this syndrome, recommend conservative surgery with reduction of the intussusception and local polypectomy via enterotomy.⁵ If laparotomy is undertaken sufficiently early, the intussusception can be reduced without the need for bowel resection as was the case in Cases 1 and 2. The hamartomatous polyps tend to develop in waves at intervals of several years between each presentation, therefore, the patient may well require further surgery and the need to conserve the bowel, particularly the small-bowel, is stressed.

Surgery may also be required on an elective basis to improve the quality of life made intolerable by repeated attacks of abdominal pain as in Case 3.

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