Case Report

A Case of a Gastrointestinal Stromal Tumour (GIST) Derived from the Jejunum: An Unusual Blood Supply from the Inferior Mesenteric Artery (IMA)

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INTRODUCTION

Recently the concept of gastrointestinal stromal tumour (GIST) has been established for mesenchymal undifferentiated spindle cell tumour especially based on the immunohistological research. Most tumours that have been named as leiomyoma or leiomyosarcoma could be in the category of GIST [1]. 70% of GISTs occur in the stomach, 20–30% in the small intestine and 10% in the oesophagus [1,2]. This report demonstrates a case of a GIST, which originated from the jejunum, and showed an eccentric blood supply phenomenon. We present this case with radiological and pathological findings.

CASE REPORT

A 69-year-old male was admitted to hospital on May 28, 1999, with a two-month history of abdominal pain and a low-grade fever. The diagnosis of an intraabdominal abscess was made based on a barium enema and computed tomography (CT) scanning. After a course of antibiotics, he was discharged since his symptoms had abated. On January 4, 2000, he was referred to our hospital with recurrence of his symptoms.

His general physical condition was normal apart from his temperature of 36.9°C. During physical examination, a soft, smooth and tender mass was palpable in left side of the abdomen. Laboratory data showed inflammatory response; WBC 17000/µl, CRP 12.9 mg/dl. A stool examination was positive for occult blood.

Radiological examination

The enhanced CT examination at the time of the first admission revealed an irregular lobulated cavity lesion with air-fluid level, which was located in the left abdomen (Fig. 1). The surrounding soft tissue density of the mass was enhanced. This lesion did not communicate with the lumen of the alimentary tract. The oral contrast material was not displayed in the cavity.

At the same admission, T1 weighted MRI revealed that the margin was iso intensity as muscles. The centre of the lesion showed low intensity (Fig. 2). On T2 weighted MRI, the margin was high intensity compared to muscles. The centre of the lesion was high intensity equal to water (Fig. 3).

The second enhanced CT after one-month of observations showed the diminution of the central cavity, but the surrounding lesion had increased in size and lobulation had become expansive.

Enhanced CT scans after another five months at the time of the admission in our hospital showed the lesion had increased in size again.

Contrast radiographs of the small intestine tract using barium showed displacement of the jejunum to the right side, but neither irregularity of the jejunum mucosa nor any leakage was demonstrated (Fig. 4).

Barium enema showed some diverticula at the sigmoid colon.

Superior mesenteric arteriography showed partial blood supply to the tumour from the jejunal artery (Fig. 5). Inferior mesenteric angiography showed that the left colic artery was the main feeder to the tumour (Fig. 6).

PATHOLOGY

At surgery, the mass was demonstrated to be fixed focally to the jejunum 90 cm from the Treitz’s fascia, as well as adherent to the descending colon, omentum, mesentery and the peritoneum. The tumour was dissected from surrounding
The tumour measured 13 cm × 14 cm in size, and the cut surface of the tumour showed a grey and solid mass, whilst the centre cavity contained bloody necrotic tissue. The mucosal surface of the jejunum was focally depressed, but showed no ulceration.

Microscopically, the tumour consisted of dense proliferation of neoplastic spindle cells arranged in a fascicular, interlacing pattern with storiform areas (Fig. 7). Where it was adjacent to the jejunal wall, the tumour cells merged into the musculature of intestinal wall (Fig. 8). Focal necrotic areas were observed. The mitotic count was 10–15/10HPF. Immunohistological staining showed positive reactivity for CD117 (C-kit protein), as well as for vimentin and CD34. The final diagnosis was a malignant gastrointestinal stromal tumour (GIST) that had originated from the jejunum.

**DISCUSSION**

Formerly, GISTs had been categorized in leiomyoma, leiomyosarcoma, and schwannoma. Recently, pathological
studies have demonstrated the possibility that GIST is a tumour deriving from the intestinal mesenchymal precursor cell and the crucial diagnostic criteria for GIST is positive immunoreactivity for C-kit (CD117) [1,2]. Typical features of GIST are of a solitary, large lesion with circumscribed margins and necrotic change. They grow into the lumen or outwardly into the subserosa in response to an expansive growth pattern [3]. Sometimes a malignant GIST of the small intestine may invade to the adjacent structures [3]. CT and MRI will reflect these features. The findings are helpful
to differentiate GIST from other tumours, such as mesenteric desmoid, lymphoma, carcinoma and metastasis [4–6]. Concerning our case, the radiological examinations except angiography did not show any evidence about the primary site of the tumour. We hypothesized the origin as the sigmoid colon or the peritoneum according to the angiography. However, the pathological findings demonstrate the derivation of the tumour as the muscularis propria of the jejunum. The tumour predominantly grew into the peritoneal cavity and adhered to the sigmoid colon, peritoneum, and mesentery. As a result, the IMA became the main blood supply to the tumour rather than the SMA. This case is rare, exemplifying the contradiction between angiograms and pathological findings, which demonstrates the possibility that the main feeding arteries to a neoplasm can arise from the adherent tissues.

REFERENCES