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Case Report

Adenocarcinoma of the distal duodenum: two cases managed by pylorus preserving pancreatico-duodenectomy and adjuvant chemotherapy

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Primary adenocarcinoma of the duodenum is a rare tumour which accounts for less than 0.5% of intestinal malignancies [1, 2], and the optimum treatment is unknown. Previous surgical treatment has consisted of Whipple type pancreatico-duodenectomy or segmental resection [3, 4, 5], while chemotherapy has been confined to purely palliative cases[3,6,7]. In pancreatic diseases, pylorus preserving pancreatico-duodenectomy appears to offer advantages over the classical Whipple procedure [8, 9]. However, there are few reported cases employing this operation in duodenal carcinoma[10], and there are no reports of the efficacy of chemotherapy to improve prognosis following potentially curative surgery.

Case 1. A 64 year old male presented with symptoms and signs in keeping with gastric outlet obstruction. Barium meal revealed a stricture, suggestive of a tumour, in the third part of the duodenum (Figure). CT scan confirmed this and revealed no evidence of metastasis (Figure). Laparotomy confirmed a stenosing tumour of the third part of the duodenum. Intra-operative ultrasonography revealed no evidence of hepatic metastases. A pylorus preserving pancreatico-duodenectomy was performed and the patient made an uneventful postoperative recovery. Histological examination identified a primary duodenal adenocarcinoma with involvement of two local lymph nodes. Four courses of adjuvant chemotherapy, consisting of 5-fluorouracil, cisplatin, epirubicin and folinic acid were given, without significant complication. There was no evidence of ascites or recurrence on ultrasound scan at one year and he remains well 24 months following surgery.

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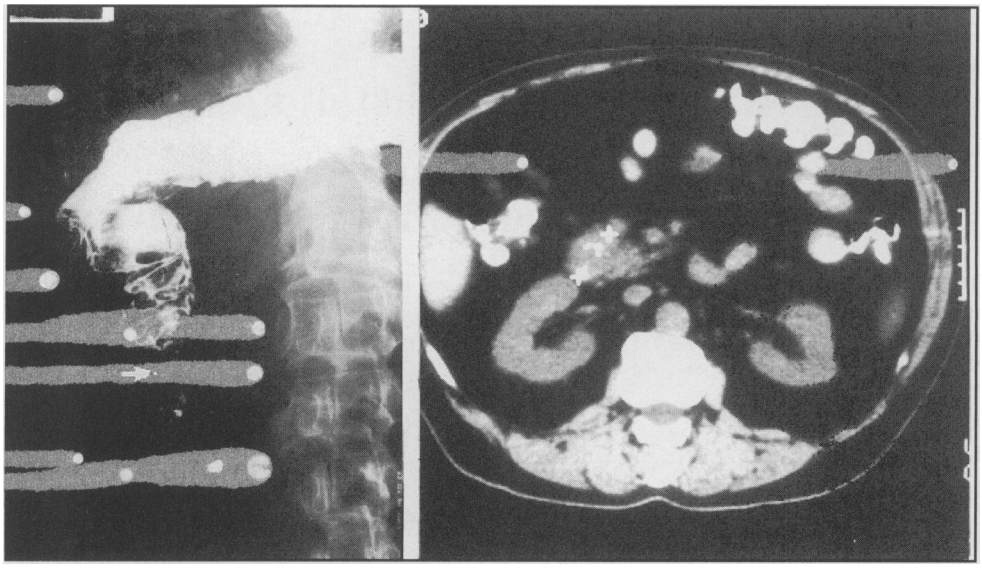

Fig. Barium meal and CT scan demonstrating a stricture in the third part of the duodenum (arrow) due to a 4 cm diameter solid lesion (seen between calipers).

Case 2. A 40 year old male presented with a two year history of epigastric pain, anorexia and weight loss, which had persisted despite long-term anti-ulcer medication. Endoscopy revealed an ulcerating lesion in the third part of the duodenum and biopsy identified this as an adenocarcinoma. CT scan confirmed the presence of a duodenal lesion but revealed no metastatic spread. Laparotomy confirmed a tumour of the third part of the duodenum with involvement of the transverse mesocolon. Intra-operative ultrasonography revealed no evidence of hepatic metastases. He underwent pylorus preserving pancreatico-duodenectomy and extended right hemicolectomy. Postoperatively he developed delayed gastric emptying which resolved spontaneously after one week. Histological examination revealed a primary duodenal adenocarcinoma with extension to the serosa but without lymph node involvement. He received four courses of chemotherapy (5-fluorouracil, cisplatin, epirubicin and folinic acid), without significant complication. He remains well 12 months following surgery.

DISCUSSION

Primary duodenal carcinoma is rare, accounting for 0.03 to 0.35% of all intestinal malignancies[1,2]. The proportion of lesions occurring in the 1st, 2nd, 3rd and 4th parts of the duodenum is 45%, 35%, 10% and 10%, respectively[11]. Tumours of the third part, are extremely uncommon[12]. Only 89 cases of infra-papillary duodenal carcinoma were cited in the literature from 1961-74[5,11], but duodenal carcinoma represents 25-48% of primary tumours of the small intestine[6,13]. The average age at presentation is sixty years, male to female ratio 3:1[1]. There is no racial predilection[14].

Symptoms associated with duodenal carcinoma are abdominal pain, weight loss (each present in 74% of cases), vomiting and anaemia (each present in 55% of patients)[15]. These symptoms are non-specific, the clinical picture often

mimicking peptic ulceration. However, as in our second case, there is failure to respond to ulcer healing medication. This emphasises the importance of considering rarer diagnoses, such as duodenal carcinoma, in cases where symptoms persist despite standard upper gastrointestinal investigation and anti-ulcer treatment. Late presentations include biliary obstruction with jaundice or an abdominal mass[6, 16]. The absence of specific symptoms and signs, coupled with the rarity of the condition, means that diagnosis is frequently delayed. The average time to correct diagnosis from initial consultation is between 7-10 months[6, 17] – in one of our cases, symptoms were present for two years before a definitive diagnosis was made. Consequently, a high index of suspicion is essential if the condition is to be recognised early.

Even with early referral, investigations may fail to make the diagnosis, thus making recognition difficult. Barium studies may not detect small tumours in the third part of the duodenum, since special posturing is necessary to visualise this region[11]. The accuracy of barium studies in this area is, therefore, 75% or less[4]. Barium studies are particularly valuable in lesions of the fourth part of the duodenum, which are often not reached by endoscopy. In general, however, duodenoscopy is preferable to barium studies, as it allows both direct visualisation and biopsy of the lesion. Failure to visualise the distal part of the duodenum limits the reported sensitivity to 89%[7], thus emphasising the importance of distal duodenoscopy during routine upper gastrointestinal endoscopy. We found computerised tomography and intraoperative ultrasonography useful in assessing local or distant spread, and therefore of benefit in determining the potential for curative resection of the tumour [18].

The preferred surgical procedure for treatment of distal duodenal carcinoma remains to be determined. Surgical options include palliative bypass, pancreatico-duodenectomy and local segmental resection. Although one series reported a significantly different survival at one year between pancreatico-duodenectomy and segmental resection (62% versus 45%, respectively), this was not maintained at five years (25% versus 20%)[5]. The low number of patients surviving five years probably explains this finding. Segmental resection is associated with a higher incidence of recurrence due to the limited resection of regional lymphatic and adjacent tissue [3]. The technique may still have a place in high risk patients or in patients with very small lesions, where satisfactory tumour clearance can be achieved with a tension free anastomosis. However, since regional spread is frequently encountered, radical surgery offers the best chance of cure. Pancreatico-duodenectomy is therefore recommended.[3, 4, 5] Admittedly there is patient selection, but the five year survival following pancreatico-duodenectomy is 40-45%, compared to the overall five year survival for duodenal carcinoma of 5-17% [3, 5, 6, 19, 20]. In pancreatic carcinoma, pylorus preserving pancreatico-duodenectomy is claimed to be easier, less time consuming and associated with less blood loss, a shorter hospital stay and better weight gain than the classical Whipple procedure[9]. In addition, the incidence of dumping, diarrhoea and enterogastric reflux are lower [20]. Claims that this operation is complicated by transient delayed gastric emptying and marginal ulceration more frequently than in the Whipple procedure have not been substantiated [21, 22]. Isotope studies have shown that delayed gastric emptying is common in both procedures, there being no significant difference in emptying of both liquids and solids between both techniques[22]. In one of our

cases, a delay in gastric emptying occurred but this was transient and resolved within one week. The advantages of pylorus preservation therefore, appear to outweigh the disadvantages and it seems logical to apply this technique to distal duodenal carcinomas.

Experience with adjuvant chemotherapy in duodenal carcinoma is also limited. Previous reports have restricted chemotherapy to purely palliative cases. Results in these poor prognosis patients have been promising, with a significant improvement in mean survival [3,4,6,7,11,3]. It is also suggested that postoperative palliative treatment with combined chemo-radiotherapy is associated with a better survival than that obtained by surgery alone[11,13]. Chemotherapy should, therefore, prove beneficial in better prognosis cases. In our limited experience, the combination of pylorus preserving pancreatico-duodenectomy and adjuvant chemotherapy is well tolerated. Combining adjuvant chemotherapy with pylorus preserving pancreatico-duodenectomy should, theoretically, provide the maximal chance of cure without significant increase in side effects.

Survival in duodenal carcinoma is related to the extent of tumour spread. The lack of specific symptoms results in two thirds of patients presenting with metastases, 32% having paraduodenal and 33-67% regional nodal involvement [5,17,23]. One of our cases had local nodal involvement. Median survival for cases without metastases and those with paraduodenal or regional nodal involvement is 42, 16 and 6 months, respectively [23]. The overall survival is generally poor, being 67% at one year and 5-17% at five years [5,6]. Even after potentially curative resection, five year survival rarely exceeds 15-25 %[6]. Infra-papillary tumours are thought to be associated with a better prognosis than supra-papillary lesions, the mean survival being 31-46 months compared to 27- 30 months, respectively [6,12].

We believe that combined modality treatment has a definitive role in the treatment of potentially curative cases of distal duodenal carcinoma. The rarity of the condition means that, even with longer follow-up, no single unit will see sufficient cases to draw conclusions or develop formalised guidelines on treatment. A prospective multicentre trial of this condition is required.

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