Case Report
A Case of Recurrent Mesocolon Myxoid Liposarcoma and Review of the Literature

Amar M. Eltweri,1 Gianpiero Gravante,2 Sarah Louise Read-Jones,3 Sonpreet Rai,2 David J. Bowrey,1 and Ian Gordon Haynes2

1 Leicester Royal Infirmary, University Hospital of Leicester, Leicester LE1 5WW, UK
2 Department of Colorectal Surgery, George Eliot Hospital, Nuneaton CV10 7DJ, UK
3 Department of Histopathology, George Eliot Hospital, Nuneaton CV10 7DJ, UK

Correspondence should be addressed to Amar M. Eltweri; amareltweri@hotmail.com

Received 2 August 2013; Accepted 16 September 2013

Background. Liposarcoma is the second most common soft tissue sarcoma affecting predominantly the retroperitoneal space and extremities. Mesenteric liposarcoma is uncommon and occurs in the small bowel mesentery. In this paper we report the case of a recurrent mesocolon myxoid liposarcoma manifesting 6 years from the initial right hemicolectomy for the primary tumour.

Case Report. A 41-year-old female presented with a 4-day history of signs and symptoms indicative of small bowel obstruction, subsequently confirmed on plain abdominal X-ray. In 2006 she underwent a right hemicolectomy for a myxoid liposarcoma grade 1-2 infiltrating the small and large bowels. The specimen weighed almost 3 kilograms with dimensions $25 \times 22 \times 11$ cm. The removal was radical with free margins and an intact tumour capsule. Postoperatively, no adjuvant therapy was indicated and close followup was recommended.

1. Introduction

Liposarcoma is a group of malignancies of mesenchymal origin that arise from adipose tissue. The incidence peaks in the fourth to sixth decades of life [1]. CT and MRI are important imaging modalities in determining tissue characteristics, the size of the tumour, and invasion into surrounding structures [2]. When feasible, the main treatment is surgical resection followed by adjuvant chemotherapy and/or radiotherapy [3]. Important prognostic factors include the histological classification and tumour site and size [4] while positive surgical margins are key predictors for local recurrence [3].

Liposarcomas are usually located in the lower limbs of adults [1, 4], rarely in the small bowel mesentery and even less frequently in the mesocolon. In this report, we present the case of a recurrent mesocolon myxoid liposarcoma manifesting six years from the initial right hemicolectomy and review the literature regarding mesenteric liposarcomas.

2. Case Report

A 41-year-old female presented to the emergency department with a four-day history of signs and symptoms indicative of abdominal obstruction. Her past medical history included hypothyroidism due to autoimmune thyroiditis, managed with levothyroxine. In 2006 she underwent a right hemicolectomy for a myxoid liposarcoma grade 1-2 infiltrating the small and large bowels. The specimen weighed almost 3 kilograms with dimensions $25 \times 22 \times 11$ cm. The removal was radical with free margins and an intact tumour capsule. Postoperatively, no adjuvant therapy was indicated and close followup was recommended.
During the current admission she was dehydrated, hae-modynamically stable, and pyrexial. Abdominal examination revealed a distended abdomen, tympanic to percussion, with no signs of peritonism or abdominal wall hernias. Blood investigations showed a raised urea (8.7 mmol/L) and WCC $14.2 \times 10^9$. Abdominal X-ray revealed grossly dilated small bowel loops. The initial treatment was conservative with nil by mouth, intravenous fluid resuscitation, nasogastric tube, and urinary catheter for fluid balance. After twenty-four hours the patient showed no signs of improvement and underwent an exploratory laparotomy. An adhesional band was found to be the cause of the small bowel obstruction and was divided. The entire small bowel was viable and no evidence of intra-abdominal or peritoneal metastasis was identified. However, a dark purple, smooth pelvic mass was found attached to the pelvic wall by a small stalk with similar macroscopic appearance to that of splenic tissue (Figure 1). The mass was carefully detached off the pelvic wall and sent for final histological analysis.

After the laparotomy the patient had an uncomplicated recovery and was discharged home on the eighth postoperative day. Histology confirmed a recurrence of the previous myxoid liposarcoma (Figure 2). One month later a CT scan of the chest, abdomen, and pelvis showed a new well-defined oval hypodense mass in the right iliac fossa adjacent to the anastomotic surgical sutures site that was suspicious for recurrence (Figure 3). In light of these findings, the patient has been referred to the regional sarcoma centre for further management.

3. Discussion

According to the World Health Organisation classification of tumours [5], liposarcomas are divided into well-differentiated/dedifferentiated, pleomorphic, myxoid/round cell, and mixed type liposarcoma (Table 1). Myxoid liposarcoma is a mesenchymal malignant tumour composed of uniform
### Table 1: Liposarcoma classification and characteristics according to the World Health Organisation classification of tumours [5].

| Type                           | Incidence | Recurrence                                      | Prognostic factor                                                                                     | Mortality rate | Survival                        |
|-------------------------------|-----------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------|---------------------------------|
| Atypical lipomatous tumor "ALT"/well differentiated "WD" | 40–45%    | Lesions located in a surgically amenable soft tissue do not recur following WLE with clear margin | Anatomic locations “deep soft tissue liposarcoma carries high risk”                                   | 0% for ALT of extremities to 80% for WD in the retroperitoneum  | 6–11 years when followed up for 10–20 years |
| Dedifferentiated               | 10%       | 40% local recurrence and 15–20% for distant metastasis | Anatomic locations (retroperitoneum carries the worst clinical behaviour) High histological grade (≥5% RC areas), presence of necrosis, and TP53 overexpression carries unfavourable prognosis | 28–30% at 5-year followup (this figure is higher at 10–20-year followup) | —                               |
| Myxoid                        | 10%       | Prone to recur locally and one-third develop metastasis | Tumour depth, size, >20 mitosis in 10 HPFs, and presence of necrosis carries a worse prognosis | —              | —                               |
| Pleomorphic                   | 5%        | 30–50% metastasis rate                          | —                                                                                                     | 40–50% mortality | Patient dies within a short period of time |
| Mixed type                    | Extremely rare |                                           | —                                                                                                     | —              | —                               |

Round to oval primitive nonlipogenic mesenchymal cells and a number of small signet-ring lipoblasts in a myxoid stroma with a characteristic branching vascular pattern. It is also called round cell liposarcoma and it is the second most common liposarcoma subtype. It usually presents during the fourth and fifth decades of life as a large painless mass in the deep soft tissue of the extremities. More than two-thirds of the myxoid liposarcoma cases occur within the muscles of the thigh and rarely occur in the subcutaneous tissues or the retroperitoneum. The presence of necrosis usually indicates a poor prognosis [5]. Myxoid liposarcoma is likely to recur locally and one-third of cases develop distant metastasis [5]. The sites of reported metastasis and/or recurrence of liposarcoma were local, cardiac, hepatic, mesenteric, bone, and pulmonary [3, 6, 7]. The overall survival ranges between 6 and 20 years [8].

Through literature review, only five mesenteric liposarcomas of the mesocolon have been published to date [3, 9–11]. Among them only one was recurrent [12]; therefore our case represents the second recurrence of a myxoid liposarcoma arising from the mesocolon reported in the literature. Benedict first described mesenteric liposarcomas in 1946 as a recurrent liposarcoma of the transverse mesocolon. Since then, various cases have been presented (Table 2). Mesenteric liposarcomas affect both the male and female sex equally and are more evident during the fifth to seventh decade of life. It may present in any age group and has been reported in patients as young as 15 years old [13]. The clinical presentation varies and includes abdominal pain, distension, palpable mass, constipation, vomiting, and weight loss (Table 2). CT and MRI investigations add important data for the differential diagnosis and each histological type has different radiological characteristics [2, 14]. The mesenteric liposarcomas have CT attenuation less than that of muscle and MRI signal intensity similar to that of water. Before contrast enhancement, the myxoid components appeared to be cystic on CT attenuation and MRI signal intensity and they appeared to be solid after contrast enhancement [14]. In our case the CT scan appearance was a well-defined oval hypodense uniform mass with a central rounded higher density soft tissue area within it.

The only curative treatment for a mesenteric liposarcoma consists of a wide excision and clear surgical margins followed by adjuvant radiotherapy in high risk patients [15]. It is reported that neoadjuvant chemotherapy helps in reducing the size of the primary tumour and renders the tumour resectable without the need for en bloc resection of the adjacent organs. However, the role of adjuvant chemotherapy remains unclear [3].

### 4. Take Home Messages

1. Patients with previous history of liposarcoma should be treated with high index of suspicion, even after five years of disease-free followup.
2. CT scan is an ideal investigation to detect any evidence of disease recurrence as well as to identify the possible cause of small bowel obstruction.
3. Followup of these patients in regional sarcoma centres is ideal and research to investigate the role of adjuvant chemotherapy is required.
Table 2: Demographic and clinical characteristics of published cases of mesenteric liposarcomas.

| Author                        | Age/sex | Presentation                             | Location                                      | Primary/ secondary | Size (cm) | Weight (kg) | Type                        | Followup | Recurrence   |
|-------------------------------|---------|-----------------------------------------|-----------------------------------------------|--------------------|-----------|-------------|------------------------------|----------|--------------|
| Ishiguro et al. [3]           | 30 y/M  | Abdominal distension                    | Terminal ileum mesentery and right sided mesocolon | Primary            | 30 cm     | —           | Myxoid                      | 26 m     | Yes (abdominal) |
| Nakamura et al. [16]          | 77 y/F  | Fever                                   | Ileocecal mesentery                           | Primary            | 10.5 × 7 × 7 cm | —         | Pleomorphic                  | 7 m      | No           |
| Cha [17]                      | 76 y/F  | Abdominal mass and frequent micturition  | Small bowel mesentery                         | Primary            | 5 × 4.3 × 4.2 cm | —         | Well differentiated         | —        | —            |
| Jukic et al. [4]              | 77 y/M  | Constipation, weight loss, vomiting, and abdominal distension | Small bowel mesentery (multiple) | Primary | 35 × 15 × 15 cm | 23.5 kg | Well diff./dediff. and pleomorphic | 8 days | RIP           |
| Zhianpour and Sirous [9]      | 35 y/M  | Abdominal mass                          | Sigmoid mesocolon                             | Primary            | 50 × 40 × 10 cm | —         | Well differentiated         | 24 m     | No           |
| Benedict [12]                 | 56 y/F  | Constipation, belching, and feeling bloated | Transverse mesocolon                         | Recurrent          | 12.5 cm (5 in) | —         | Low-grade liposarcoma        | 11 m     | No           |
| Núñez Fernández et al. [18]   | 67 y/F  | Abdominal mass                          | Jejunal mesentery                             | Primary            | 8.5 × 75 cm | —         | Myxoid                      | 12 m     | No           |
| Tomita et al. [6]             | 47 y/F  | Abdominal distension, frequent urination, and constipation | Ileal mesentery | Metastatic | 28 × 23 × 22 cm | 1.8 kg | Myxoid                      | 7 m      | Yes (liver and heart) |
| Pawel et al. [13]             | 15 y/F  | Vomiting and abdominal pain             | Small bowel mesentery                         | Primary            | Large "unresectable" | —         | Pleomorphic                  | —        | Unresectable tumour |
| Nagawa et al. [7]             | 33 y/M  | Vomiting and abdominal pain             | Ileal mesentery and omentum                  | Metastatic         | 8 × 5 × 5 cm | —         | Round cell                  | 1.3 m    | Lung, liver, and bone mets |
| Cerullo et al. [19]           | 55 y/M  | Abdominal distension and weight loss    | Mesentery                                     | Primary            | 40 cm     | 9 kg        | Well differentiated         | 12 m     | No           |
| Yuri et al. [1]               | 73 y/M  | Abdominal mass                          | Duodenal mesentery                            | Primary            | 12.4 × 9.6 cm | 0.5 kg | Well differentiated         | 6 m      | No           |
| Hirakoba et al. [14]          | 65 y/F  | Abdominal mass                          | Jejunal mesentery                             | Primary            | 16 × 13 × 9 cm | 0.7 kg | Well differentiated         | —        | —            |
| Jain et al. [15]              | 50 y/M  | Abdominal mass, fever, and weight loss  | Jejunal mesentery                             | Primary            | 20 × 20 cm | 1.8 kg | Pleomorphic                  | —        | —            |
| Goel et al. [10]              | 48 y/M  | Abdominal pain and nausea               | Sigmoid mesocolon and mesorectum             | Primary            | —         | —         | Well differentiated         | —        | —            |
| Panagiotopoulos et al. [20]   | 71 y/M  | Abdominal pain and distension           | Small bowel mesentery                         | Recurrent          | 10 × 9 × 7 cm | —         | Dedifferentiated            | —        | Incomplete resection |
| Amato et al. [11]             | 75 y/F  | Constipation, abdominal pain, change in bowel habit, constipation, dyspeptic syndrome, and meteorism | Sigmoid mesocolon | Primary | 2 cm | — | Well differentiated | 24 m | No |
| Calò et al. [21]              | 43 y/M  | Abdominal pain                           | Small bowel mesentery                         | Primary            | 20 × 16 cm | 2.1 kg | Well differentiated         | 33 m     | No           |
| Author          | Age/sex | Presentation                                      | Location                      | Primary/secondary | Size (cm) | Weight (kg) | Type        | Followup | Recurrence  |
|-----------------|---------|--------------------------------------------------|-------------------------------|-------------------|-----------|-------------|-------------|----------|-------------|
| Manson [22]     | 60 y/F  | Vomiting, abdominal pain, weight loss, and distension | Small bowel mesentery “ileum” | Primary           | —         | —           | Well differentiated | 1 m      | No          |
| Current case    | 41 y/F  | Abdominal pain, distension, and vomiting         | Mesocolon                    | Recurrent         | 12 × 11 × 6 cm | 0.3 kg      | Myxoid      | 2 m      | Yes (current episode) |
5. Conclusions
Mesenteric liposarcoma is a rare soft tissue malignancy with high risk of metastasis and recurrence. We are adding to the literature the second case of a recurrent mesocolon liposarcoma 6 years after complete excision of the liposarcoma lesion.

Conflict of Interests
All authors declare no conflict of interests and this case report did not require any funding support.

Authors’ Contribution
All authors have contributed in the paper concept, reviewing the initial and final drafts. Dr. Sarah Louise Reed-Jones provided the histopathology slide images.

References
[1] T. Yuri, T. Miyaso, H. Kitade et al., “Well-differentiated liposarcoma, an atypical lipomatous tumor, of the mesentery: a case report and review of the literature,” Case Reports in Oncology, vol. 4, no. 1, pp. 178–185, 2011.
[2] T. Kim, T. Murakami, H. Oi et al., “CT and MR imaging of abdominal liposarcoma,” The American Journal of Roentgenology, vol. 166, no. 4, pp. 829–833, 1996.
[3] S. Ishiguro, S. Yamamoto, H. Chuman, and Y. Moriya, “A case of resected huge ileocolonic mesenteric liposarcoma which responded to pre-operative chemotherapy using doxorubicin, cisplatin and ifosfamide,” Japanese Journal of Clinical Oncology, vol. 36, no. 11, pp. 735–738, 2006.
[4] Z. Jukic, I. Brcic, M. Zovak, M. Vucic, A. Mijic, and B. Kruslin, “Giant mixed-type liposarcoma of the mesentery: case report,” Acta Clinica Croatica, vol. 51, no. 1, pp. 97–101, 2012.
[5] C. D. M. Fletcher, K. K. Unni, and F. Mertens, Eds., World Health Organization Classification of Tumours. Pathology and Genetics of Tumours of Soft Tissue and Bone, IARC Press International Agency for Research on Cancer, Lyon, France, 2002.
[6] H. Tomita, K. Yamaguchi, M. Matsuo, T. Ohno, Y. Nishimoto, and Y. Hirose, “Metastatic myxoid liposarcoma in the mesentery: what is debated? Case report and a review of the literature,” The American Surgeon, vol. 72, no. 1, pp. 68–70, 2006.
[7] H. Nagawa, N. Tsuno, H. Saito, and T. Muto, “Ileal obstruction due to metastatic liposarcoma: a case report,” Gastroenterologica Japonica, vol. 28, no. 5, pp. 706–711, 1993.
[8] T. Hasegawa, K. Seki, F. Hasegawa et al., “Dedifferentiated liposarcoma of retroperitoneum and mesentery: varied growth patterns and histological grades—a clinicopathologic study of 32 cases,” Human Pathology, vol. 31, no. 6, pp. 717–727, 2000.
[9] M. Zhianpour and M. Sirous, “Abdominal imaging huge liposarcoma of the sigmoid mesocolon: a case report,” Iranian Journal of Radiology, vol. 7, no. 4, pp. 251–253, 2010.
[10] A. K. Goel, S. Sinha, A. Kumar, A. K. Karak, and T. K. Chattopadhyay, “Liposarcoma of the mesocolon—case report of a rare lesion,” Surgery Today, vol. 24, no. 11, pp. 1003–1006, 1994.
[11] G. Amato, A. Martella, F. Ferraraccio et al., “Well differentiated ‘lipoma-like’ liposarcoma of the sigmoid mesocolon and multiple lipomatosis of the rectosigmoid colon. Report of a case,” Hepatogastroenterology, vol. 45, no. 24, pp. 2151–2156, 1998.
[12] R. B. Benedict, “Liposarcoma of the mesentery,” Annals of Surgery, vol. 124, no. 3, pp. 519–523, 1946.
[13] B. R. Pawel, J. P. de Chadarevian, S. Inniss, P. Kalwinski, S. R. Paul, and W. H. Weintraub, “Mesenteric pleomorphic liposarcoma in an adolescent,” Archives of Pathology and Laboratory Medicine, vol. 121, no. 2, pp. 173–176, 1997.
[14] M. Hirakoba, K. Kume, M. Yamasaki, K. Kanda, I. Yoshikawa, and M. Otsuki, “Primary mesenteric liposarcoma successfully diagnosed by preoperative imaging studies,” Internal Medicine, vol. 46, no. 7, pp. 373–375, 2007.
[15] S. K. Jain, A. Mitra, R. C. Kaza, and S. Malagi, “Primary mesenteric liposarcoma: an unusual presentation of a rare condition,” Journal of Gastrointestinal Oncology, vol. 3, no. 2, pp. 147–150, 2012.
[16] A. Nakamura, S. Tanaka, H. Takayama et al., “A mesenteric liposarcoma with production of granulocyte colony-stimulating factor,” Internal Medicine, vol. 37, no. 10, pp. 884–890, 1998.
[17] E. J. Cha, “Dedifferentiated liposarcoma of the small bowel mesentery presenting as a submucosal mass,” World Journal of Gastrointestinal Oncology, vol. 3, no. 7, pp. 116–118, 2011.
[18] M. J. Núñez Fernández, A. García Blanco, A. López Rodríguez et al., “Primary mesenteric liposarcoma of jejenum: presentation like a cystic mass,” Minerva Medica, vol. 96, no. 6, pp. 425–428, 2005.
[19] G. Cerullo, D. Marrelli, B. Rampone, E. Perrotta, S. Caruso, and F. Roviello, “Giant liposarcoma of the mesentery. Report of a case,” Annali Italiani di Chirurgia, vol. 78, no. 5, pp. 443–445, 2007.
[20] N. Panagiotopoulos, C. Kyriakides, R. A. Weerakkody et al., “Recurrent dedifferentiated liposarcoma arising from the small bowel mesentery: a case report,” Journal of Gastrointestinal Cancer, vol. 43, no. 1, supplement, pp. 175–177, 2012.
[21] P. G. Caló, S. Farris, A. Tatti, M. Tuveri, G. Catani, and A. Nicolosi, “Primary mesenteric liposarcoma. Report of a case,” Il Giornale di Chirurgia, vol. 28, no. 8-9, pp. 318–320, 2007.
[22] J. M. Manson, “Mesenteric liposarcoma, a rare cause of intestinal obstruction,” British Journal of Surgery, vol. 38, no. 151, pp. 394–396, 1951.