A rare solitary fibrous tumour of the ascending mesocolon: a case report

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ABSTRACT

Solitary fibrous tumours are rare mesenchymal tumours which mostly arise from pleura. Such tumours occurring in the mesocolon are exceptionally rare. A 35-year-old man was referred to the general surgery department with a painless and nonpalpable mass in the right quadrant of the abdomen, which was detected incidentally on magnetic resonance imaging. The patient had no symptoms and the physical examination revealed no findings. The patient underwent surgical resection and excisional biopsy results revealed an intra-abdominal solitary fibrous tumour originating from the ascending mesocolon. He was discharged two days after surgery and remained disease-free at the end of the two-month follow-up period.

KEYWORDS

mesenchymal tumor – mesocolon – solitary fibrous tumor – abdominal tumor

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Introduction

Solitary fibrous tumours are uncommon spindle cell mesenchymal tumours that mainly originate from thoracic pleura.¹ Although abdominal solitary fibrous tumours have been described previously, involvement of the mesocolon is extremely rare; and a review of the literature revealed only two cases originating from the mesocolon.^{2,3} We describe a patient with a diagnosis of abdominal solitary fibrous tumour arising from the ascending mesocolon, who underwent elective surgical excision.

Case history

A 35-year-old man had been admitted three months previously to the urology outpatient department with burning sensation during urination. He was prescribed antibiotic therapy. As his complaints were not resolved after one week of therapy, further examination via magnetic resonance imaging (MRI) was conducted.

The abdominal MRI revealed a solid mass of 96 × 85 × 52 cm, which extends from right lower-abdominal peritoneal space into the psoas and iliacus muscles (Fig 1A). T1-weighted imaging showed heterogeneous hypointense signal intensity (Fig 1B) and T2-weighted imaging demonstrated minimal heterogeneous hyperintense signal intensity (Fig 1C).

The patient was referred to the general surgery department. He had a history of appendectomy and right inguinal

hernia operation. Haematological and biochemical laboratory evaluations, including the following tumour marker levels, were within normal levels: alpha-fetoprotein, cancer antigens 125 and 15-3, carcinoembryonic antigen. Gastro-duodenoscopy and colonoscopy revealed no abnormalities. An ultrasound-guided core needle biopsy was obtained and the results showed benign spindle-cell lesion, rich in collagen.

We planned complete surgical resection. On surgical exploration, a firm and encapsulated mass was detected in the right abdominal region. The mass originated from ascending mesocolon and was enclosed with omental adhesions. Consequently, complete tumour resection and partial omentectomy were performed to ensure safe surgical margins.

Gross examination of the tumour showed a well-defined and encapsulated mass with a size of 9.5 × 8 × 5 cm (Fig 2). The surgical specimen was analysed pathologically and histological evaluation demonstrated spindle-shaped cells with hypo- and hypercellular areas rich in collagen. There was no sign of cellular atypia, pleomorphism or necrosis. Immunohistochemical stains showed diffuse positivity for CD34, STAT6, vimentin and patchy positivity for Bcl2 (Fig 3). The tumour was immunonegative for ki67, S-100, desmin, smooth muscle actin, h-caldesmon and CD117. The tumour was diagnosed as a benign solitary fibrous tumour. The surgical margins were clear. The patient's long-term follow-up visits were planned and he was discharged two days after surgery without

Figure 1 Magnetic resonance images of the tumour: (a) frontal image demonstrated the mass in the right abdominal region; (b) transverse T1-weighted image (arrows); (c) transverse T2-weighted image (arrows).

Figure 2 Gross appearance of the surgical specimen (9.5 × 8 × 5 cm) showing a round, well-defined and encapsulated mass.

complications. He remained disease-free at the end of his two-month clinical follow-up period.

Discussion

Solitary fibrous tumour is a rare ubiquitous tumour originating from the mesenchyme and is characterised by its fibrous nature and hypervascularity.¹ Solitary fibrous tumours most commonly arise from the pleura, but extra-pleural tumours have been reported in nearly every anatomical location of the human body. Abdominal solitary fibrous tumours have been described in the liver, stomach, kidney, adrenal glands, urinary bladder, prostate gland and uterus.⁴ A solitary fibrous tumour in the mesocolon is an extremely rare clinical entity and, to the best of our

knowledge, there are only two other cases in the literature, both reporting a tumour in the mesocolon.^{2,3}

Extrapleural solitary fibrous tumours are most commonly observed in adults with a wide age range of 20–70 years and tend to affect both genders equally.¹ They are usually slow-growing, painless masses with no clinical symptoms, unless they compress adjacent anatomical structures.^{2,4} They can be detected via imaging techniques such as MRI or computed tomography. Macroscopically, most solitary fibrous tumours are well circumscribed, frequently encapsulated masses that are 1–25 cm in size. Solitary fibrous tumours are typically tan-white, firm and multinodular in appearance and may have haemorrhagic and myxoid changes.¹

Histopathological examination is essential in the diagnosis of solitary fibrous tumours. These tumours are composed of uniform and ovoid spindle cells dispersed along thin parallel collagen fibres. The tumour cells have minimal cytoplasm, small elongated nuclei, inconspicuous nucleoli and fine nuclear chromatin. Additionally, the tumours exhibit a haphazard or patternless arrangement with stag-horn type vessels in collagenous stroma.² The histological differential diagnosis of extra-pleural solitary fibrous tumours includes tumours with mesenchymal contents such as desmoid, inflammatory pseudotumor, mesenteric fibromatosis, gastrointestinal stromal tumour, desmoplastic mesothelioma, leiomyoma and leiomyosarcoma.⁴

Immunohistochemical studies are essential to differentiate spindle-cell tumours. A vast majority of solitary fibrous tumours stain positive for CD34, STAT6, Bcl2, CD99, beta-catenin, vimentin and are usually negative for actin, desmin, h-caldesmon, smooth muscle actin and CD117. Within these markers, STAT6 and CD34 are highly specific for solitary fibrous tumours and indispensable in diagnosis.⁴

Solitary fibrous tumours are mostly benign and have a favourable prognosis. However, solitary fibrous tumours can, rarely, show malignant character (13–23%), and invade the surrounding tissues.² Malignant forms usually display tumour necrosis, cytological atypia, increased mitotic activity (≥ 4 mitoses per 10 high-power fields), increased cellularity and infiltrative margins.¹

Complete surgical resection with intact borders is the effective therapeutic choice,⁴ and there is no need for chemotherapy or radiotherapy.⁵ Since solitary fibrous tumours in extra-pleural locations are mostly benign,² close follow-up may not be necessary in each case. Close follow-up is recommended if malignant features are observed in pathological examination,² and because late recurrence up to 20 years is possible after treatment, long-term surveillance may be beneficial.¹

Conclusion

In conclusion, solitary fibrous tumours are rare and usually benign, and should be included in the differential diagnosis of tumours with mesenchymal contents. Solitary fibrous tumours remain asymptomatic unless they create pressure on surrounding tissues, thus recognising them may be

Figure 3 Pathological examination of the neoplasm: (a) spindle-shaped cells with hypo- and hypercellular areas (haematoxylin and eosin, magnification $\times 4$); (b, c) the neoplastic cells demonstrate strong positivity for immunohistochemical staining with CD34 (b) and STAT6 (c) (magnification $\times 10$ and $\times 20$, respectively); (d) Bcl2 staining shows patchy positivity (magnification $\times 10$).

challenging. Although imaging techniques may be helpful in identifying the tumour, it is difficult to make a definitive diagnosis before surgery, and pathological examinations are critically important. The primary treatment of solitary fibrous tumours is surgical removal of the tumour with a clean margin. The prognosis is favourable after surgery.

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