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Localised lymphoid hyperplasia of the spleen mimicking metastatic colorectal adenocarcinoma

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Case report

An otherwise healthy 35-year old female was diagnosed with a new splenic mass on surveillance computed tomography (CT) scans 8 years following an ultra-low anterior resection for a T3N1M0 rectal adenocarcinoma and 6 years after a video-assisted thoracoscopic (VAT) right-upper lobe wedge resection for a solitary pulmonary metastasis. Her primary rectal cancer was managed by neoadjuvant chemoradiotherapy, together with adjuvant chemotherapy following surgery. The new splenic mass appeared as a 12 mm well-circumscribed hypoattenuating lesion that was concerning for a metastasis (Fig. 1). Her CEA level at the time was 1.8 μg/L and she remained asymptomatic. There were no other concerning lesions seen on imaging or on colonoscopy and no lymphadenopathy was identified. An ^{18}fludeoxyglucose positron emission tomography (FDG-PET) scan confirmed moderate avidity of the splenic lesion (Fig. 2) and she went on to undergo a laparoscopic splenectomy. Her postoperative course was uncomplicated and was discharged on day 6.

Pathological examination revealed a spleen weighing 129 g containing a 13 × 10 × 8 mm variegated pale and dark brown tumour. Histological assessment of the tumour showed central sclerosis with an associated moderately cellular chronic inflammatory cell infiltrate including numerous plasma cells, together with enlarged reactive lymphoid follicles. Immunohistochemistry was negative for metastatic carcinoma, while immunoperoxidase studies confirmed that the nodule was predominantly of a B cell type, with focal transformation of the germinal centres and no malignant cell

population. The overall findings were favoured to represent a region of localised lymphoid hyperplasia.

Discussion

The condition was first described in 1983, when isolated, solitary splenic nodules due to reactive lymphoid hyperplasia were reported in seven patients.[1] Six out of the seven cases were diagnosed following staging laparotomy with splenectomy for malignant lymphoma and a further case after a splenectomy for autoimmune haemolytic anaemia.[1] There were no other reports of the condition until 2016, when a case of localised lymphoid hyperplasia mimicking a potential malignancy was identified following a diagnostic laparoscopic splenectomy performed after concerning surface features of the spleen were incidentally noted at the time of laparoscopic cholecystectomy.[2] In our case, the indication for splenectomy was due to suspicious surveillance imaging appearances, namely, a discrete hypoattenuating splenic mass that was FDG-PET avid in the context of a patient with a history of malignancy.

Diffuse lymphoid hyperplasia of the spleen is a benign condition that usually appears as a generalised proliferation of the lymphocytic cell population involving either splenic white and/or red pulp.[3] In the case of localised lymphoid hyperplasia, this rare process occurs in a localised fashion, forming discrete, well-circumscribed nodules. Differential diagnoses of splenic nodules are wide and varied and include both benign and malignant causes. Benign aetiologies comprise infectious causes (eg. *E. coli*, *Peptostreptococcus* species, tuberculosis), vascular anomalies (eg. haemangiomas, hamartomas, lymphangioma) and inflammatory conditions (eg. sarcoidosis). Malignant causes include primary malignancies (primary lymphoma,

haemangiosarcoma) and secondary malignancies, which although uncommon, include secondary lymphoma or metastases originating from melanoma, breast, lung, ovary or other gastrointestinal cancers.[4-7] The diagnosis of localised lymphoid hyperplasia remains difficult and often requires a splenectomy for complete histological assessment. Macroscopically, the nodules appear as one or more tan-white, fleshy circumscribed lesions within the spleen and may resemble lymphoma.[1,2] Splenomegaly often occurs with diffuse lymphoid hyperplasia, but is not seen in localised lymphoid hyperplasia. Microscopic features include localised, well-circumscribed aggregates of lymphoid cells with clusters of secondary follicles which may include a surrounding zone of T cells.[2] The aetiology and pathophysiology of the condition remains unknown, but likely represents a reactive process to some form of antigenic stimulation.[1]

This is the first case of localised lymphoid hyperplasia of the spleen identified on surveillance CT and PET scan in a patient undergoing surveillance for a history of colorectal adenocarcinoma. Although surgery was indicated due to concerning imaging features and the inability to exclude metastatic disease, this report highlights the need for a broad set of differential diagnoses when it comes to splenic masses so that patients can be well informed and consented for surgery.

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Fig. 1. Computed tomography (CT) scan showing a 12 mm well-circumscribed solitary hypoattenuating splenic mass.

Fig. 2. ^{18}Fludeoxyglucose positron emission tomography (FDG-PET) scan demonstrating a 1 cm PET-avid lesion of the spleen.