A Case of Inflammatory Pseudotumour of the Spleen with EBV Infection Complicated by Idiopathic Thrombocytopenic Purpura

T. Klimis, E. Mylonakis, A. Kostourou, G. Vlachos, M. Glynatsis

Abstract

Aim – Background: Reports of inflammatory pseudotumour (IPT) of the spleen with Epstein-Barr virus (EBV) infection complicated by idiopathic thrombocytopenic purpura (ITP) are very rare. The pathogenesis of this tumour has remained obscure, with most authors agreeing that IPT of the spleen is a non-neoplastic, reactive condition. IPT of the spleen often poses diagnostic difficulty because it forms an infiltrative mass which has clinical, radiological and gross pathologic features that suggest a malignant lymphoma, vascular malformations, but also inflammatory myofibroblastic tumour (IMT) and inflammatory pseudotumour-like follicular dendritic cell tumour (IPT-FDC).

Methods: Herein, we report a case of IPT of the spleen with EBV infection in a 51-year-old woman who presented with symptoms of ITP. The results of abdominal ultrasonography and computed tomography (CT) showed the presence of a splenic mass. She had been observed for 12 months with the diagnosis of a possibly benign neoplasm such as haemangioma or granulomatous disease; the tumour grew, necessitating an open splenectomy for diagnostic and curative goals.

Results: Histopathologic examination showed an inflammatory pseudotumour with spindle cells positive for EBV by in situ hybridization. When examined immunohistochemically, the spindle cells were focally positive for SMA, vimentin and CD68, and negative for CD21, CD23, CD35 and ALK, thus excluding IMT and IPT-FDC tumour. No evidence of recurrence of thrombocytopenia or subsequent development of other neoplasm was noted 18 months after splenectomy.

Conclusion: Splenic IPT can be considered as a benign reactive tumoral lesion. It is important to distinguish it from other conditions using a combination of clinical, histologic, and immunophenotyping findings. We believe that EBV infection may have played a role in the pathogenesis of splenic IPT and the development of thrombocytopenic purpura.

Key words: Inflammatory Pseudotumour, spleen, idopathic thrombocytopenic purpura, EBV infection

Introduction

Inflammatory pseudotumour (IPT) is a rare mass lesion with histological features of non-specific inflammation and mesenchymal repair. IPT was described in numerous anatomic sites including the spleen[1-5] Splenic IPT is a very rare tumour-like lesion that often poses diagnostic difficulties because the clinical and radiological findings are obscure[2,3,5,6]. IP of the spleen is predominantly seen in women with non-specific symptoms such as abdominal pain, fever and occasionally idiopathic thrombocytopenic purpura (ITP).

Herein, we report the case of a patient with splenic IPT associated with Epstein-Barr virus (EBV) that was simultaneously complicated by ITP.

Case Report

A 51-year-old woman was hospitalized because of a bleeding tendency in her skin and normochromic, normocytic anaemia. Physical examination did not reveal organomegaly or lymphadenopathy. Her past medical
history included radical hysterectomy for leiomyoma of the uterus and chronic gastritis. She occasionally took NSAIDs for knee pain. The other laboratory findings at that time were as follows: platelets 7000/mm$^3$ (normal range 150-350000 mm$^3$), white blood cells 12000 with normal differential counts, haemoglobin (Hb) 11.39g/dl, haematocrit (Ht) 31.8% and C-reactive protein level 5.73 mg/dl (normal range 0.2 mg/dl). The erythrocyte sedimentation rate was 70mm/h. A coagulation test showed no significant abnormalities. A bone marrow biopsy was normocellular with an increased number of megakaryocytes. She was serologically negative for the hepatitis B surface antigen test. On her admission, abdominal ultrasonography (US) revealed a solitary hypoechoic mass, measuring 2cm in diameter, located in the mid-anterior of a normal sized spleen. Abdominal computed tomographic scanning (CT) confirmed the presence of a well-demarcated hypodense splenic mass measuring 2cm in diameter. There was no suggestion of additional space-occupying lesions in the surrounding structures, nor evidence of lymphadenopathy.

The differential diagnosis included haemangioma or granulomatous disease. A diagnosis of ITP was suggested, and immunosuppressive therapy with prednisone was recommended (1.2 mg/kg). Both her platelet counts and bleeding tendency showed rapid improvement and prednisone was stopped.

Repeated episodes of bleeding tendency on the skin of the thorax and a profound thrombocytopenia were noted during the interruption of therapy with prednisone.

The splenic tumour, carefully observed for 12 months with serial CT scans, showed a slight increase in its size, reaching up to 2.6 cm in diameter.

Hence, open splenectomy was performed for diagnostic purposes and for therapy.

The postoperative course was uneventful, and the patient remains disease-free 18 months after splenectomy.

The removed spleen weighed 120g. The cut surface showed a well-defined, solid, grayish, white mass measuring 2.6 cm. (Figure 1) The splenic parenchyma was otherwise normal in appearance.

Histologically, the splenic lesion was composed of spindle cells against a background of inflammatory cellular elements, including lymphocytes, histiocytes, eosinophils, plasma cells and clusters of giant cells (multinuclear) (Figure 2a). The spindle cells did not form a conspicuous fascicular or storiform pattern. No significant nuclear atypia or atypical mitoses were evidenced. Well-formed granulomas were absent. The Gram, Groccot and Ziehl-Neelsen stains were all negative. In situ hybridization for EBV (EBER) showed abundant EBV-infected cells that included proliferating oval and spindle cells (Figure 2b), whereas background lymphocytes and plasma cells were uniformly negative.

Immunohistochemical studies, (kappa and lambda immunoglobulin light chains, CD3 and CD20), showed that the plasma cells and lymphocytes were polyclonal and T-lymphocytes predominated. The spindle cells were focally positive for SMA (Figure 2c), vimentin and CD68. Follicular dendritic cell markers CD21, CD23 and CD35 were negative. Stains for CD15, CD30, ALK-1, HHV type 8 and S-100 were all negative.

These findings were consistent with the features of a splenic inflammatory pseudotumour.

**Discussion**

The term inflammatory pseudotumour of the spleen was first used by Cotelingam and Jaffe [1] in 1984 to describe a well-defined mass composed of an admixture of inflammatory cells and a spindle cell proliferation. Since then, several other cases and small case series of IPT in the spleen have been reported. Our investigation of the literature revealed 83 reported splenic IPT cases up to now. Among these, only six patients including ours (one male and five females, with ages ranging from 20 to 65 years) were reported to suffer from concomitant ITP [4-6,9].

The precise aetiology and pathogenesis of IPT are not yet fully understood. There is a general consensus that it might represent the non-specific result of a variety of mechanisms [2,6,10]. However an intraparenchymal haemorrhage, related in some patients to ITP, might occasionally be the initial event in the development of IPT [1,6]. In our case, profound thrombocytopenia may have predisposed to splenic parenchymal haemorrhage. The presence of ITP in some patients, and also the high content of plasma cells in this lesion, may support the hypothesis that IPT represents an autoimmune process[7]. However, the splenic tumour had gradually enlarged after ITP was alleviated by oral prednisone. Immunosuppressive therapy