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Case Report

A rare cause of hypersplenism; splenic amyloidosis induced by familial mediterranean fever

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Background: Familial Mediterranean Fever (FMF) is an inflammatory disease characterized by fever and serositis attacks. The most important complication of the disease is the development of AA type amyloidosis. Amyloid most often accumulates in the kidney, liver, spleen and heart. Splenomegaly may be seen secondary to inflammatory response without developing amyloidosis in FMF patients. Although splenic amyloidosis has an asymptomatic nature but in the literature several cases of spontaneous splenic rupture due to splenic amyloidosis have been reported. There are no reported cases of hypersplenism due to AA type amyloidosis in the literature so that our case has importance in this respect.

Case summary: A 30-year-old female patient with diagnosis of FMF and proteinuria for 3 years was admitted to the nephrology outpatient clinic because of weakness, palpitation and swelling of the legs. She had anemia and thrombocytopenia. She had a recent history of hospitalization due to frequent erythrocyte transfusion requirements. Bone marrow related diseases and immunologic causes were excluded during the evaluation of bicytopenia. Patients history revealed that she had amyloid deposition in kidney. The patient's need for frequent blood transfusion was attributed to hypersplenism. Splenectomy was performed and amyloid deposition was detected in the spleen. After splenectomy, hemoglobin and platelet counts were increased.

Conclusion: We present a case with hypersplenism secondary to AA type amyloidosis and who were treated with splenectomy. If cytopenia and splenomegaly were detected in FMF patients then hypersplenism must be considered and splenectomy must be kept in mind for the treatment.

Keywords: familial mediterranean fever • hypersplenism • splenic amyloidosis

Introduction

FMF is an autosomal recessive inflammatory disease characterized by fever and serositis attacks. The most feared complication of the disease is renal failure due to amyloid deposition in the kidney. FMF is the most common cause of secondary amyloidosis. Amyloidosis generally accumulates in organs such as the kidneys, liver and heart [1].

Splenomegaly was identified in 30-50% of patients with FMF but amyloidosis was not detected in the majority of rectal biopsies of these patients. Splenomegaly might be seen secondary to the inflammatory response without amyloidosis. Amyloid deposition in the spleen has been reported in 5-10% of patients with amyloidosis due to primary or secondary causes [1,2]. Splenic amyloidosis is usually asymptomatic, and a few cases of spontaneous splenic rupture have been reported [1,3]. Hypersplenism is a clinical condition characterized by the overgrowth of the spleen and the destruction of one or more cell lines in the spleen. We present a case with hypersplenism secondary to AA type amyloidosis and who were treated with splenectomy. There are no reported cases of hypersplenism due to AA type amyloidosis in the literature so that our case has importance in this respect.

Case report

A 30-year-old female patient with diagnosis of FMF and proteinuria for 3 years was admitted to the nephrology outpatient clinic because of weakness, palpitation and swelling of the legs. She had M694V homozygot MEFV mutation and using colchium 2 mg/day and losartan 50 mg/day. She had a recent history of hospitalization due to frequent erythrocyte transfusion requirements and so that liver and bone marrow biopsies were performed. Liver biopsy was consistent with amyloid deposition. Bone marrow biopsy was reported as hypercellular bone marrow with erythroid serial hyperplasia. Primary hematologic pathologies were excluded due to results of normal peripheral blood smear evaluations, absence of lymphadenopathy and negative JAK2 mutation analysis. The patient had nephrotic proteinuria so that renal biopsy was performed and pathology revealed the

amyloid deposition in kidney.

Upon detection of bicytopenia on hemogram examination, she was hospitalized for further investigation. On physical examination, pulse rate was 116/min and rhythmic, and blood pressure was 100/60 mmHg. She had pale conjunctivas and skin, 2/6 systolic murmur on mesocardiac focus. Abdominal examination revealed hepatosplenomegaly and the spleen was painless, hard and reached to the inguinal region. Bilateral pretibial two positive edema was present. Other systemic examinations and vital signs were normal. Complete blood count of the patient was as follows; Hb: 5.3 g/dL, WBC: 10.8 × 10^3/u, Platelet: 71 × 10^3/u. The biochemical labarotory results were as follows; Blood urea nitrogen (BUN): 123 mg/dL, creatinine: 4.29 mg/dL, albumin: 2.3 g/dL, LDH: 239 U/L, total bilirubin: 0.4 mg/dL, iron: 6 Bg/dL, TDBK: 186 µg/dL, ferritin: 44.5 ng/ml, B12: 284 pg/mL. 12.1 g/day proteinuria was detected on urine examination. Other biochemical parameters were unremarkable. In abdominal ultrasonography (USG) and portal vein Doppler USG examination the liver was 170 mm and spleen was 200 × 90 mm.The diameter and flows of portal and splenic vessels were increased and thrombosis was not detected. Both of the kidney were in normal sizes and had grade 2 echogenicity.

The patient's need for frequent blood transfusion was attributed to hypersplenism caused by overgrowth of the spleen. The patient had abdominal pain secondary to splenomegaly and compression symptoms so that after 3 ünit blood tarnsfusion splenectomy was performed. The pathology revealed the amyloid deposition in the spleen. After splenectomy, a spontaneous increase in hemoglobin and platelet counts were detected.

The complete blood count results of the patient at baseline and in the postoperative period are shown in Table 1. The patient who needed hemodialysis treatment in the preoperative period was began to 3 time per week hemodialysis treatment in the postoperative period.

Discussion

FMF is one of the diseases that cause growth of the spleen without amyloid deposition. Splenomegaly is reported in 30-50% in FMF patients [1]. A lower rate of splenomegaly has been reported in asymptomatic FMF patients than in symptomatic patients [4]. Amyloid deposition in the spleen may not cause any symptom if the spleen is of moderate size. However, as a result of massive splenomegaly, splenic rupture, bleeding disorders hypersplenism and related cytopenias might be seen. Occasionally, spontaneous rupture of the spleen has been reported in patients with amyloidosis due to dilatation of the spleen volume, splenic stenosis, vascular thinning and hypoperfusion. Spleen rupture was associated with 30-day mortality [3]. The literature review shows that AL amyloidosis is the most common etiology in cases of splenic rupture due to splenic amyloidosis, and AA amyloidosis is rare (Table 2). The incidence of spontaneous splenic rupture is two times higher in males than females, and patients commonly present during their mid-fifties [3].

Hypersplenism is characterized by splenomegaly, anemia/leukopenia/thrombocytopenia or a combination of these and the amelioration of cytopenias after splenectomy. Due to the increased size of the spleen and hyperviscosity, the cells are trapped within the and the passage time of the cells through the spleen is prolonged.

Table 1. Patient's baseline and postoperative complete blood count results.

	Baseline	Postoperative 1st. day	Postoperative 3rd. day
Hb (g/dL)	5,3	9,3	10
WBC (x10^3/u)	10,8	14,8	17,3
Plt (x10^3/u)	71	125	291

Table 2. Several cases of spontaneous splenic rupture due to splenic amyloidosis in the literature.

Gender; Age	Presenting symptom	Etiology	Mortality
M 64	Epigastric pain, hypotension	AL amyloidosis MM	Exitus
M 68	Epigastric pain, hypotension	AL amyloidosis, MM	Exitus
M 50	Chest pain, syncope	After ASCT, AL amyloidosis	Exitus
F 62	Acute abdominal pain.	AA amyloidosis, IE	Alive
M 63	Shock, hemoperitoneum	AA amyloidosis, RA	Alive
F 67	Bloody CAPD exchange fluid	ESRD, peritoneal dialysis	Alive

MM: Multiple Myeloma; ASCT: Autologous Stem Cell Transplantation; IE: Infective Endocarditis; RA: Rheumatoid Arthritis; ESRD: End-Stage Renal Disease

For these reasons, patients are susceptibile to infections and bleeding disorder and may need frequent blood transfusions. Hypersplenism is one of the indications for splenectomy and blood related disorders and complications improve after splenectomy [5-11]. Our patient underwent splenectomy due to the need for frequent transfusion and compression findings, with the possibility of rupture and hemorrhage, and then hematologic parameters were ameliorated.Our case is the first one that report the hypersplenism due to AA type amyloidosis. There have been no reports of hypersplenism due to AA type amyloidosis and only splenic rupture cases have been reported in the literature.

Conclusion

If cytopenia and splenomegaly were detected in FMF patients then hypersplenism must be considered and splenectomy must be kept in mind for the treatment.

Conflict of interest

None.

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