


A Case Report of Autoimmune Hemolytic Anemia with Deep Vein Thrombosis in a 16-year-old Girl - Is It Systemic Lupus Erythematosus?

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ABSTRACT

Introduction: Systemic lupus erythematosus (SLE) is an autoimmune disease with various clinical manifestations. Multiorgan involvement is associated with a worse prognosis. SLE in pediatrics is rare, with an estimated incidence of 0.3–0.9 per 100,000 children. **Case:** A 16-year-old Asian girl was admitted with pain, swelling, and a bluish discoloration with blisters on the right leg for 6 days. She had a history of facial rash, hair loss, and oral ulcer. Doppler ultrasound showed deep vein thrombosis in the right lower extremity with acute thrombosis, with visible soft-material intraluminal thrombus. Coombs test was 4+ positive. Elevated total bilirubin 2.2 mg/dL, indirect bilirubin 0.9 mg/dL, and elevated reticulocyte 5.2%. ANA test result is borderline 0.8, and anti-DS DNA negative. CT angiography showed proximal total occlusion of the right dorsalis pedis artery, DVT along the external iliac vein, femoral vein, and popliteal vein to the proximal 1/3 of the right posterior tibial vein. Diagnosis of an autoimmune disease leading to autoimmune hemolytic anemia and deep vein thrombosis was suspected. Her condition improved after corticosteroids and anticoagulant treatment. **Conclusion:** A 16-year-old girl was diagnosed with autoimmune hemolytic anemia, deep vein thrombosis, and suspected systemic lupus erythematosus. Early recognition of unusual manifestations of SLE is important.

Keywords: Autoimmune hemolytic anemia, case report, deep vein thrombosis, systemic lupus erythematosus.

ABSTRAK

Pendahuluan: Lupus eritematosus sistemik (LES) merupakan penyakit autoimun dengan berbagai manifestasi klinis. Keterlibatan multiorgan berkaitan dengan prognosis yang lebih buruk. LES pada anak merupakan kasus langka, dengan perkiraan insiden sebesar 0,3–0,9 per 100.000 anak. **Kasus:** Seorang anak perempuan Asia usia 16 tahun dirawat dengan nyeri, pembengkakan, dan perubahan warna kebiruan di kaki kanan dengan tampilan *blister* selama 6 hari. Pasien memiliki riwayat ruam wajah, rambut rontok, dan ulkus oral. Pemeriksaan ultrasonografi Doppler menunjukkan trombosis vena dalam di ekstremitas bawah kanan dengan trombosis akut, dan trombus intraluminal material lunak. Tes Coombs positif 4+. Bilirubin total meningkat 2,2 mg/dL, bilirubin tidak langsung 0,9 mg/dL, dan retikulosit meningkat 5,2%. Hasil tes ANA adalah *borderline* 0,8, anti-DS DNA negatif. CT angiografi menunjukkan oklusi total proksimal arteri dorsalis pedis kanan, DVT sepanjang vena *iliaca* eksternal, vena *femoralis*, dan vena *poplitea* hingga 1/3 proksimal vena *tibialis* posterior kanan. Dugaan diagnosis penyakit autoimun yang mengarah pada anemia hemolitik autoimun dan trombosis vena dalam. Kondisi pasien membaik setelah terapi *corticosteroid* dan antikoagulan. **Simpulan:** Seorang anak perempuan berusia 16 tahun didiagnosis menderita anemia hemolitik autoimun, trombosis vena dalam, dan diduga menderita lupus eritematosus sistemik. Perlu pengenalan dini manifestasi LES yang tidak umum. **Muhammad Buchori, Ivan Joalsen Mangara Tua, Fidel Corona, Kevin Sanjaya, Laily Mulyani. Sebuah Laporan Kasus Anemia Hemolitik Autoimun dengan Trombosis Vena Dalam pada Gadis 16 Tahun - Apakah Lupus Eritematosus Sistemik?**

Kata Kunci: Anemia hemolitik autoimun, laporan kasus, trombosis vena dalam, lupus eritematosus sistemik.

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INTRODUCTION

Systemic lupus erythematosus (SLE) is a systemic disease characterized by extensive inflammation of the blood vessels and connective tissue and affects one or several organs of the body, such as the kidneys, skin, blood cells, and nervous system; it is episodic with periods of remission interspersed by periods of increase disease activity.[1] SLE is characterized by the formation of pathogenic autoantibodies against nucleic acids and their binding proteins caused by self-intolerance to the body cells. The clinical manifestations of SLE are highly variable, with unpredictable disease courses, immunological and laboratory abnormalities, and various disease consequences. Clinical manifestations in the skin, joints, kidneys and other organ systems do not always appear together, instead they can develop along with the course of the disease. This disease is a clinical syndrome accompanied by immunological abnormalities; the most important is the presence of antinuclear antibodies.[1,2]

Data from the Centers for Disease Control and Prevention (CDC) shows the incidence of SLE is 5.1 per 100,000 people, and the prevalence of SLE is 178 per 100,000 people in America, while in Asia, the incidence is 7.6 per 100,000 people and the prevalence is 54–94 per 100,000 people.[3] SLE is a rare childhood disorder with an estimated incidence of 0.3–0.9 per 100,000 children and a prevalence of 3.3–8.8 per 100,000 children. SLE is rare in children under 5 years of age and before adolescence. Women are affected more often than men; the ratio increases with age. [4,5] Prevalence of SLE in Indonesia, based on a survey by Kalim, *et al*., in Malang, was 0.5% of the total population, about 1.25 million cases. Diagnosis of SLE is a challenge and often delayed due to the variety of clinical manifestations. Delays in diagnosis and treatment may increase mortality.[6]

CASE

A 16-year-old Asian girl with chief complaints of pain and swelling in the right lower leg. The lower right leg had a bluish discoloration with the appearance of blisters six days before admission, and she also had a fever for one month before admission. Complaints on the right lower leg worsened with swelling and pain from the knee downwards. The patient looked pale and easily tired. She was hospitalized in a local hospital for three days and referred to the Emergency Unit of Wahab Sjahranie's General Hospital. She had no similar history nor autoimmune disease, but had a history of rash in the face region, hair loss, and oral ulcer. Her grandmother had diabetes and hypertension. Her Hb 4.7 g/dL, the peripheral blood morphology in the local hospital was normocytic normochromic, anisocytosis, polychromic, anemia gravis, and thrombocytopenia with suspected hemolytic anemia. Coombs test was positive. She was diagnosed with a suspicion of an autoimmune disease leading to warm and cold-type autoimmune hemolytic anemia (AHA). She received 2 units of PRC transfusion in the local hospital.

The patient is the first of 2 siblings, born by vaginal delivery, at term, with birth weight 2,800 g and birth length 47 cm; she immediately cried and had no history of cyanotic or active resuscitation. The mother did not have any risk factors. Basic immunization had been completed according to schedule by the Ministry of Health and had no developmental disorders.

On admission, the patient weighed 48 kg and height of 150 cm, overweight according to weight/height CDC chart; she was moderately ill, awake, blood pressure 135/71 mmHg, regular pulse of 122x/minute, respiratory rate 24x/minute, temperature 36.8°C, and oxygen saturation 98%. On physical examination, the patient looked anemic and icteric; she had shortness of breath and right leg edema, pain upon palpation, and cold extremity on the first to fifth toes of the right foot. The tone, muscle power, and reflexes were equal and normal in all four limbs. The sensation was intact, but she had trouble walking because of pain. The right femoral, popliteal, and dorsal pulses were absent. Oxygen saturation in each right toe was 91%, 90%, 80%, undetectable, and 96%, respectively. Her left-side artery and oxygen saturation were normal. She had bluish discoloration and bullae with a size of 0.4 cm on the right dorsal foot (**Figure 1**). Her other physical examinations, including cardiovascular, respiratory, and abdominal exams, were normal.

Laboratory results showed anemia, thrombocytopenia, decreased potassium, prolonged prothrombin time (PT), activated partial thromboplastin time (aPTT), and blood in the urine (Hb 6.8 g/dL, hematocrit 20.8%, leukocyte 8.190/µL, platelet 109,000/µL, MCV 92.3 fL, MCH 30.4 pg, MCHC 32.9 g/dL, glucose 140 mg/dL, sodium 133 mmol/L, potassium 2.4 mmol/L, chloride 104 mmol/L, blood urea 17.1 mg/dL, creatinine 0.6 mg/dL, PT 47.4 seconds, aPTT 16 seconds, INR 1.14; Urinalysis: +3 of blood, 10–15 of leukocyte and 15–20 of red blood cells per high power field with amorphous crystal. Doppler ultrasound showed deep vein thrombosis

Figure 1. Pre-treatment; the right leg had a bluish discoloration with blisters and edema.

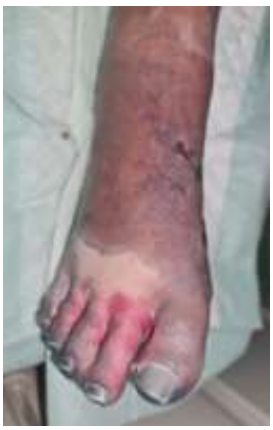

Figure 2. Post-treatment fondaparinux injection for 7 days; necrotic tissue in the tip of toes.

in the right lower extremity with acute thrombosis and visible soft-material intraluminal thrombus. The chest x-ray was suggestive of pneumonia. The patient had coagulation workups, CT angiography for possible thrombus, and an immunology test for possible SLE.

The patient was diagnosed with acute limb injury with deep vein thrombosis, hemolytic anemia, thrombocytopenia, pneumonia, and hypokalemia. The treatment was transfusion of 480 mL packed red cells and 400 mL thrombocyte concentrate, correction of hypokalemia with 25 mEq KCl 7.4%, fondaparinux 2.5 mg subcutaneous daily for seven days, zinc ointment and elastic bandage on the affected limb.

Coombs test was repeated and showed 4+ positive; further examinations showed elevated total bilirubin 2.2 mg/dL, 1.3 mg/dL direct bilirubin, and 0.9 mg/dL indirect bilirubin, elevated reticulocyte 5.2%, elevated erythrocyte sedimentation rate (ESR) 108 mm/hour. ANA test 0.8 (neg<1.0), anti-DS DNA 33 IU/ml (neg<138). Contrast-enchanted computed tomography (CT) angiography showed proximal total occlusion of the right dorsalis pedis artery without collaterals, DVT along the external iliac vein, femoral vein, popliteal vein to the proximal 1/3 of the right posterior tibial vein, right knee joint effusion, left pneumonia and bilateral pleural effusion (**Figure 3**).

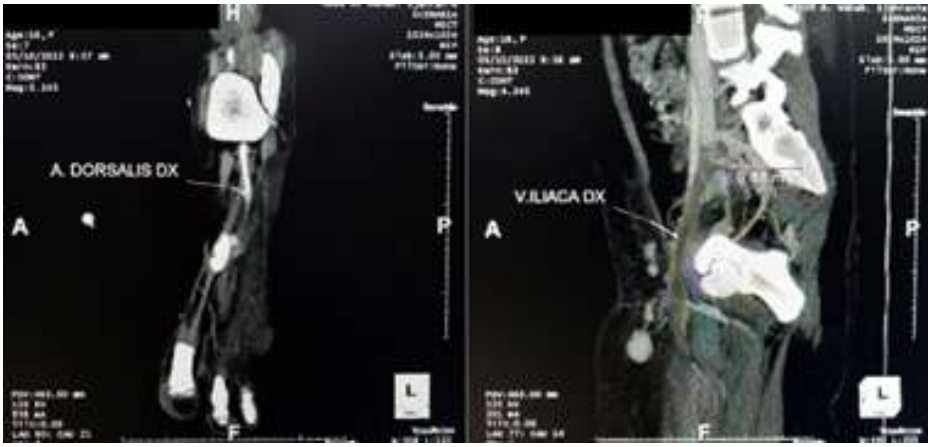

Figure 3. Computed tomography-angiography showed total occlusion of the right dorsalis pedis artery and DVT (*deep vein thrombosis*) along the external iliac vein to the proximal 1/3 of the right posterior tibial vein.

The presumed diagnosis was systemic lupus erythematosus. Despite the negative ANA test and Anti-DS DNA, she had a history of rash on the face region, hair loss, and painless oral ulcer with hemolytic anemia. The patient had four criteria out of the 11 criteria of the ACR 1997 criteria.[1] On the second day, methylprednisolone injection 30 mg three times daily was given. The patient had a gradual improvement in pain in the right leg.

On the fifth day, her laboratory follow-up was improved (**Table**). The treatment was continued, and she was given an albumin capsule 500 mg three times per day. On the ninth day, her laboratory results had further improved. The patient had no pain and had a slight bluish discoloration on the tips of her toes (**Figure 2**). She was subsequently discharged with oral methylprednisolone slowly tapered off for nine days, rivaroxaban 20 mg daily for three months, zinc ointment, and an elastic bandage on the affected limb.

Table. Laboratory examination results.

Parameters		May 05th, 2022	May 08th, 2022	May 10th, 2022	May 12th, 2022	May 15th, 2022
Hemoglobin	g/dL	4.7	6.8	7.1	9.0	8.0
Hematocrite	%	14	20.8	21.9	26.9	27.2
Leucocyte	/mm^3	11,900	8,190	7450	8,930	10,800
Platelet	/mm^3	120,000	109,000	93,000	103,000	124,000
MCH	pg	27.2	30.4	24.6	29.2	29.22
MCV	fL	95.8	92.3	74.4	87.8	87.7
MCHC	g/dL	32.0	31.4	32.4	33.3	32.9
Ureum	mg/dL	76.5	17	-	-	39.4
Creatinine	mg/dL	1.2	0.6	-	-	0.4
AST	UI/L	-	-	-	-	61
ALT	UI/L	-	-	-	-	191
Blood Glucose	mg/dL	120	140	-	-	108
Natrium	mmol/L	-	133	133	133	132
Kalium	mmol/L	-	2.4	2.8	4.4	3.7
Chloride	mmol/L	-	104	103	107	96
Total Bilirubin	mg/dL	-	2.2	-	-	2.4
Direct Bilirubin	mg/dL	-	1.3	-	-	3.1


Parameters		May 05th, 2022	May 08th, 2022	May 10th, 2022	May 12th, 2022	May 15th, 2022
SGOT	U/L	-	-	-	61	40
SGPT	U/L	-	-	-	191	130
Albumin	g/dL	4.1	3.7	-	2.8	-
PT	Second	-	1.04	-	-	-
APTT	Second	-	47.4	-	-	-
INR		-	1.14	-	-	-
ESR	mm	-	-	108	-	-
Reticulocyte	%	-	-	5.2	-	-
Urine Routine						
Warna/Kekeruhan		Yellow cloudy	-	-	Yellow cloudy	
Berat jenis/PH		1,020/5.0	-	-	1,020/7.5	
Eritrocyte		15–20/+3	-	-	0–1/Neg	
Leukocyte		10–15/Neg	-	-	0–1/Neg	
Epitel		>50	-	-	10–15	
Bakteria		Negative	-	-	+3	
Nitrite		Negative	-	-	Negative	
Protein		Negative	-	-	Negative	
Glucose		Negative	-	-	Negative	
Keton		Negative	-	-	Negative	
Urobilinogen		+1	-	-	Negative	
Crystal		Amorf	-	-	Negative	
Amoeba		Negative	-	-	Negative	
Blood Smear	May 06th, 2022	Severe normochromic anemia anisocytosis, thrombocytopenia ec suspected hemolytic anemia				
Coomb's Test	May 07th, 2022	Crossmatch incompatible major and minor. Serum found irregular antibodies that are reactive at 20 C and at 37 C with suspected nonspecific specifications. The patient is suspected of suffering from autoimmune disease leading to warm and cold type **auto immune hemolytic anemia**				
Doppler Ultrasound	May 08th, 2022	Deep vein thrombosis in the right lower extremity with acute thrombosis and visible soft-material intraluminal thrombus				
Chest X-Ray	May 08th, 2022	Pneumonia				
Coomb's Test	May 10th, 2022	Positive Coomb test (direct Coomb test +4)				
ANA test	May 10th, 2022	ANA test 0.8 (negative <1.0)				
Anti-DS DNA	May 10th, 2022	anti-DS DNA 33 IU/mL (neg<138)				
CT Angiography	May 10th, 2022	Proximal total occlusion of the right dorsalis pedis artery without collaterals, DVT along the external iliac vein, femoral vein, popliteal vein to the proximal 1/3 of the right posterior tibial vein, right knee joint effusion, left pneumonia and bilateral pleural effusion				

Keterangan: SGOT: Serum glutamic oxaloacetic transaminase; SGPT: Serum glutamic pyruvic transaminase; PT: Prothrombin time; APTT: Activated partial thromboplastin time; INR: International normalized ratio; ESR: Erythrocyte sedimentation rate; ANA: Antinuclear antibody; Anti-DS DNA: Anti-double stranded deoxyribonucleic acid; CT: Computed tomography; MCH: Mean corpuscular hemoglobin; MCV: Mean corpuscular volume; MCHC: Mean corpuscular hemoglobin concentration; AST: Aspartat aminotransferase; ALT: Alanine transaminase.

A follow-up appointment was scheduled with a pediatric and thoracic, cardiac, and vascular surgeon, but the patient was lost to follow-up.

DISCUSSION

Systemic lupus erythematosus (SLE) is a chronic multisystem autoimmune disease with a wide range of clinical manifestations and severity. SLE also affects children, adolescents, and young women; about twenty percent of all cases of lupus are diagnosed during the first two decades of life. SLE in children often has an aggressive course of disease that affects major organs in the body, such as the kidneys, brain, and blood systems. SLE in children has higher disease activity with long-term morbidity and mortality when compared to adults.[5]

The onset of SLE in children is reported to peak around the pubertal age between 11–12 years, more common in girls between the ages of 9 and 15 years, and the disease is rare under the age of 5 years. Several studies in Southeast Asia showed that the incidence of childhood SLE is more


dominant in women than men, with a ratio of about 5:1.[5,7]

ANA (anti-nuclear antibody) test has 95% sensitivity and 50% specificity for diagnosing SLE and is the best screening test.[7] The anti-double stranded DNA (anti-ds-DNA) test has a diagnostic value of more than 75% and shows the degree of disease activity.[7] If ANA is positive, continue with other specific antibody tests such as anti-dsDNA, anti-Smith, anti-phospholipid antibodies, anti-Ro/SSA, and anti-La/SSB. If the initial ANA is negative, but there is a clinical suspicion of SLE, additional antibody tests may be appropriate. This is related to the different methods used to detect ANA.[8]

Approximately 5% patients with SLE are estimated to be ANA-negative because the serum is tested using mouse tissue instead of human tissue as an IIF test substrate for ANA.[8,9] Our patient had negative ANA serology and negative anti-dsDNA antibody. Reichlin, *et al*., found that nearly all patients with ANA-negative SLE were actually positive for anti-Ro/SSA autoantibody, but our patient did not have the test because of laboratory limitations.[8,9] The use of human type 2 (Hep-2) epithelial cells as a substitute for mouse tissue in IIF ANA assays has resulted in fewer SLE patients with negative ANA. Patients with a strong clinical suspicion of SLE and a negative ANA result should be tested with the IIF method with Hep-2 cells.[8]

Vasculopathy is etiologically involved in SLE and can manifest acutely/subacutely, such as lupus vasculitis or anti-phospholipid syndrome. Anti-phospholipid syndrome (APS) is defined as a predisposition to arterial and/or venous thrombosis and/or recurrent miscarriage or other obstetric emergencies in association with hematologic abnormalities and anti-phospholipid antibodies (APL). Vasculitis manifests in about 56% of the lifetime of SLE patients, while the anti-phospholipid syndrome accounts for about 15%. Antibodies to endothelial cells were identified as the main endothelial cell cytotoxic effectors and were involved in the pathogenesis of vasculitis.[10]

SLE is known as an independent risk factor for arterial and venous thrombotic events. SLE-associated risk factors include extensive immune regulation, systemic inflammation, and endothelial dysfunction (mediated by autoantibodies). The risk of developing deep vein thrombosis (DVT) and pulmonary embolism (PE) in the SLE group was found to be 12.8 and 19.7 compared to the control healthy group.[11] The incidence of thrombosis in SLE from the two cohort studies[12,13] was 26.8–51.9 per 1000 patients every year. The higher incidence is potentially due to high levels of disease activity and circulating immune complexes, cytotoxic antibodies, or high inflammatory conditions. Several risk factors that increase the risk of thrombosis in SLE patients are APL, inflammation and disease activity, and drugs.[14]

APL binds to plasma proteins on the surface of phospholipids. Prothrombin and 2-glycoprotein are antigens involved in the coagulation process. Autoantibodies are thought to attach to the surface of phospholipids that can induce platelet activation, interfere with coagulation inhibitors such as protein C, inhibit antithrombin and fibrinolysis, and initiate thrombus formation. Inflammation may affect the coagulation steps by increasing the production of plasminogen inhibitors that reduce fibrinolytic activity. The anticoagulant effect of the protein C pathway is also disrupted. This is believed to be the reason for early thrombosis in SLE patients.[14] In this case, the patient was diagnosed with DVT based on complaints of pain and swelling of the right lower knee. Doppler ultrasound revealed an intraluminal thrombus of the great saphenous vein, and MSCT angiography revealed a thrombus along the external iliac vein, femoral vein, popliteal vein, to 1/3 proximal posterior tibial vein.

Anemia is found in about half of SLE cases, with anemia of chronic disease, iron deficiency anemia, autoimmune hemolytic anemia (AHA), chronic renal insufficiency anemia, and cyclophosphamide-induced myelotoxicity being the most common causes. AHA is found in 5–10% of SLE cases. Anemia in SLE is thought to be due to antibody-induced erythrocyte destruction, impaired erythropoietin (EPO) response, and antibodies to erythropoietin; However, the causes of anemia in SLE are varied, and the pathogenesis can be either immune or non-immune.[15,16] Autoimmune haemolytic anaemia (AHA) may appear at diagnosis of SLE or within the first year of the disease. In laboratory examination, AHA has been associated with IgG anticardiolipin, anti-dsDNA antibodies, and thrombotic episodes during the follow-up of these patients. The mechanism of AHA in SLE is believed to involve antibody-induced damage of erythrocytes, usually mediated by warm-type IgG antibodies. The specific antigen target for anti-erythrocyte antibodies remains unclear. The IgG autoantibodies have been found to react with the band 3 anion transporter protein of membrane erythrocytes or an epitope of membrane erythrocytes. It is believed that antigenic epitopes will trigger autoantibody responses and then an autohaemolytic process when exposed to senescent red cells.[15,16]

Gokce M, *et al*., found that 5 of 43 SLE patients had deep vein thrombosis (DVT) and one cerebral sinus thrombosis; 12 (32.4%) patients positive for APL antibodies and 15 (40.5%) positive for anticardiolipin (ACL) antibodies. The risk of developing thrombosis is about 46.6% in the presence of these antibodies. A positive Coombs AHA with reticulocytosis is also a common finding, as was found in our patient, and the treatment is steroid-based with other immunomodulatory agents as required. In positive-Coombs AHA or pancytopenia due to an autoimmune mechanism, intravenous immunoglobulin is generally used.[17] Diagnosis of AHA is generally made by laboratory findings of normocytic or macrocytic anemia, increased reticulocyte count, low haptoglobin level, elevated indirect bilirubin concentration, and a positive Coombs test. The presence of hemolytic anemia may be associated with severe disease manifestations such as kidney disease, seizures, and serositis.[18] In this case, the patient was diagnosed with autoimmune hemolytic anemia based


on the laboratory finding of Hb 4.7 g/dL, normocytic normochromic anemia, and positive Coombs test. We assumed that AHA in this patient was associated with SLE based on the malar rash, painless thrush, fever, pleural effusion, hair loss, and vasculitis or thrombosis.

Non-renal SLE therapy consists of initial and maintenance therapy.[2] Initial therapy aims to reduce systemic inflammation and achieve remission. Maintenance therapy aims to maintain remission and reduce the risk of recurrence. Corticosteroids are the first line of therapy for SLE.[2] The initial therapy for this patient was methylprednisolone injection 30 mg three times per day for eight days, and tapered-off into 3 x 16 mg (days 1–3), 2 x 16 mg (days 4–5), 1 x 16 mg (days 6–7), 1 x 8 mg (days 6–7), 1 x 8 mg (days 8–9). Current therapies for acute thrombotic events include heparin and warfarin. Prevention of further thrombosis in patients who develop a thrombotic event is very important because of the high risk of recurrence in the first six months after treatment discontinuation. Several studies have suggested the use of aspirin for patients with thrombotic events or who are asymptomatic with positive anti-phospholipid antibodies and suffer from either SLE or other associated autoimmune diseases.[17] Our patient received anticoagulants.

Glucocorticoids are the first-line therapy for warm-reactive AHA.[19] Glucocorticoids are preferred because the response is generally more rapid, short-term side effects are usually manageable, and greater experience with glucocorticoids in children with AHA. Children with mild or moderate anemia (e.g., hemoglobin ≥7 to 8 g/dL) and appropriate reticulocytosis can be initially treated with corticosteroid.[20] First-line therapy with corticosteroids is expected to provide a response in 70%–85% patients.[21] Patients unresponsive to first-line therapy should undergo a diagnostic re-evaluation for a possible underlying disease.[19]

The most common treatment options for venous thromboembolism (VTE) include unfractionated heparin (UFH), low molecular weight heparin (LMWH), and warfarin;[22] other options include fondaparinux and the direct thrombin inhibitors (DTIs).[22] Fondaparinux is a synthetic pentasaccharide that causes an anti-thrombin mediated selective inhibition of factor Xa. Fondaparinux is monitored using anti-Xa levels in a similar fashion to LMWHs and is initiated at 0.1 mg/kg/dose subcutaneous once daily. Direct oral anticoagulants such as the factor Xa inhibitors (rivaroxaban). Study by Young, *et al.*,[22] found that rivaroxaban had similar efficacy and safety compared to standard anticoagulants, and the researchers concluded that a weight-adjusted pediatric rivaroxaban regimen is validated and provides an alternative treatment option for VTE in children. Therapy with rivaroxaban should be continued for at least 3 months in children with thrombosis.[22,23]

SUMMARY

A 16-year-old Asian girl was diagnosed with autoimmune hemolytic anemia, deep vein thrombosis, and suspected systemic lupus erythematosus. She received multiple PRC and thrombocyte concentrate transfusion, correction of hypokalemia, fondaparinux 2.5 mg subcutaneous injection per day for seven days, zinc ointment and elastic bandage on the affected limb, and methylprednisolone injection 30 mg three times daily. Her condition improved after corticosteroids and anticoagulant treatment. She was subsequently discharged with oral methylprednisolone slowly tapered off for nine days, rivaroxaban 20 mg daily for three months, zinc ointment, and an elastic bandage on the affected limb.

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