Schistocytes on the Peripheral Blood Smear

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The presence of schistocytes (fragmented red blood cells) on the peripheral blood smear suggests red blood cell injury from damaged endothelium and is a characteristic feature of microangiopathic hemolytic anemia. Microangiopathic hemolytic anemia is an infrequent cause of Coombs-negative intravascular hemolytic anemia, and its causes include thrombotic thrombocytopenic purpura/hemolytic uremic syndrome, disseminated intravascular coagulation, and defective valvular prosthesis. The platelet count is normal in microangiopathic hemolytic anemia that is associated with valvular prosthesis but is often decreased in both disseminated intravascular coagulation and thrombotic thrombocytopenic purpura. The last two-mentioned conditions may be differentiated by the presence of abnormal coagulation factor assays (prolonged prothrombin or partial thromboplastin time, decreased fibrinogen, increased D-dimer, and positive soluble fibrin monomer assay) in disseminated intravascular coagulation but not in thrombotic thrombocytopenic purpura, at least not in the initial stages. The possibility of thrombotic thrombocytopenic purpura/hemolytic uremic syndrome should always be considered in acute-onset thrombocytopenia, which is often profound (platelet count, <20 × 10⁹/L), especially in the presence of either renal insufficiency or fluctuating neurologic changes because of the need for immediate institution of specific therapy (plasma exchange).¹ ³ In the current blood smear, the presence of schistocytes is accompanied by the absence of platelets that suggests the diagnosis of either thrombotic thrombocytopenic purpura or disseminated intravascular coagulation.