A 58-year-old man presented with anemia and splenomegaly. Peripheral blood smear indicated rouleaux formation along with 28% mononuclear cells with reddish-purple peripheral cytoplasm suspicious to plasma cells (PCs). Flow cytometric immunophenotyping of the peripheral blood revealed a large mononuclear population positive for CD38, CD138 and CD20 and negative for CD45, CD19 and CD56. Intracytoplasmic staining of kappa and lambda light chain demonstrated lambda restriction. Serum protein electrophoresis pattern illustrated normal density at γ-globulin region but around a threefold increase in β-globulin fraction. Regarding these findings patient was more likely to be diagnosed with IgA monoclonal gammopathy (1). However, definitive diagnosis was made by immunonephlometric evaluation of serum immunoglobulins. This assay revealed 810 mg/dl IgG, 1595 mg/dl IgA and 22 mg/dl IgM with a free kappa/lambda ratio of 0.14.

PCs have particular morphological features including oval-shaped structure and eccentric nucleus. IgA secreting PCs have cytoplasm with pinkish tinge associated with presence of abundant glycoprotein and ribosomes and are totally known as flame cells (Figure 1). Plasma cell leukemia and in particular IgA variant, is a rare and aggressive type of plasma cell dyscrasia (2). A well-prepared peripheral blood smear can be very helpful in diagnosing and determining the next diagnostic approach.
References: