

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology Quiz – Case 60

A 17-year-old male was referred to the Emergency of Covid-19 Unit by the triage doctor complaining for fever up to 38.5 °C along with myalgias and arthralgias during the last 5 days. He also reported dry cough and sore throat without dyspnea, loss of sense of taste and smell. Paracetamol due to fever had been administered by his mother 4 hours before. His medical history was insignificant, while no known contact with Covid-19 positive case was reported. At his admission, his vital signs were the followings: SAP/DAP: 154/69, HR: 103/min, temperature: 36.3 °C, SpO₂: 99%. Clinical examination did not reveal any remarkable sign. Chest X-ray was also without any evidence of active disease, while arterial blood gases analysis was normal. Antigen test for Covid-19 was negative. The emergency department (ED) physician for respiratory tract infections ordered a complete blood count (CBC) that demonstrated absolute lymphocytosis without anemia or thrombocytopenia; hematocrit 42.6% [40–54%], hemoglobin 14.8 g/dL [13.5–18 g/dL], WBC 20,510/μL [4,500–11,000/μL], neutrophils 4,500/μL [1,500–6,600/μL], lymphocytes 13,000/μL [1,200–3,400/μL], monocytes 2,870/μL [100–900/μL], platelets 192,000/μL [140,000–400,000/μL]. Biochemical evaluation was significant for hyperbilirubinemia (total bilirubin 2.35 mg/dL [0.3–1.2 mg/dL], conjugated bilirubin 1.6 mg/dL [0–0.3 mg/dL], transaminasemia (aspartate transaminase 223 IU/L [15–40 IU/L], alanine transaminase 352 [<41] with elevated cholestatic enzymes (alkaline phosphatase 169 IU/L [56–167 IU/L], gamma-glutamyl-transferase 236 IU/L [8–61 IU/L] and lactate dehydrogenase 763 IU/L [135–225 IU/L]). Inflammatory markers C-reactive protein and procalcitonin were 9.53 mg/L [0–5 mg/L] and 0.46 ng/mL [<0.5 ng/mL], while serum ferritin was significantly increased (990 ng/mL [30–400 ng/mL]). The morphology of blood smear is depicted in figure 1 to 6. An abdominal ultrasound revealed hepatomegaly 19.5 cm and splenomegaly 16.5 cm.

What do you find most appropriate as the next step regarding the approach of this case, while waiting for the result of the PCR Covid-19 examination during the next day?

- (a) As the patient had no evidence of active lung infiltration or hypoxogonemia, it is acceptable to be discharged at home with written instructions concerning the Covid-19 pandemic according to the National Public Health Organization.
- (b) The possibility of Covid-19 infection is minimal and the patient should had better evaluated by other specialty in the context of Emergency.

- (c) The likelihood of Covid-19 positive PCR test is minimal, though the Covid-19 physician should ask for further hematological investigation with bone-marrow aspiration to exclude the diagnosis of acute leukemia.
- (d) Despite the absence of radiological findings or hypoxogonemia, the patient should be prescribed azithromycin and be discharged at home, as the likelihood of Covid-19 infection remains high.

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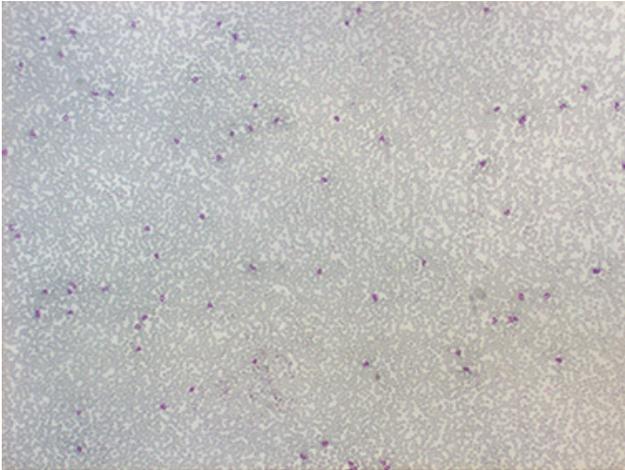


Figure 1

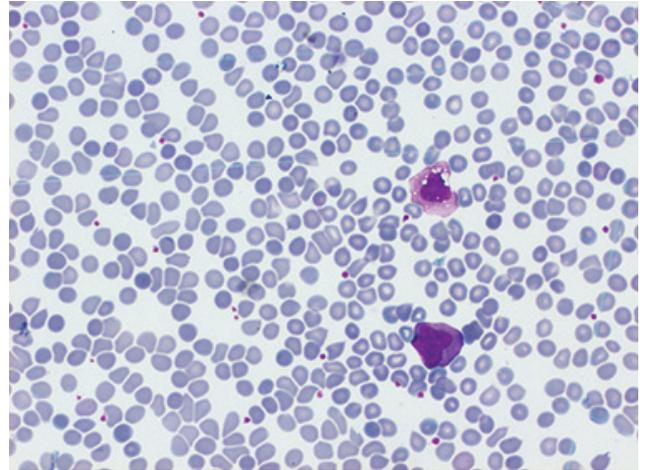


Figure 4

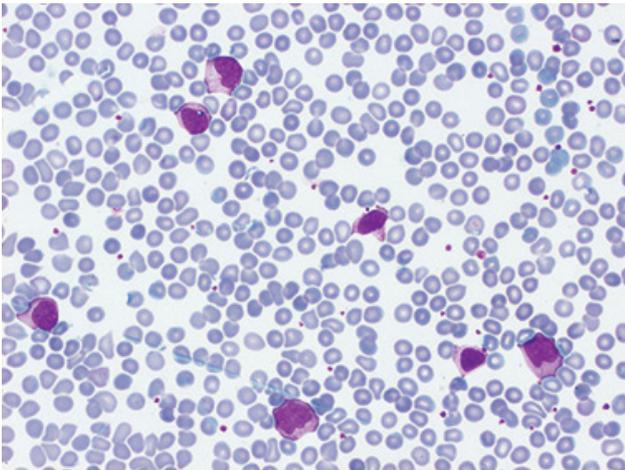


Figure 2

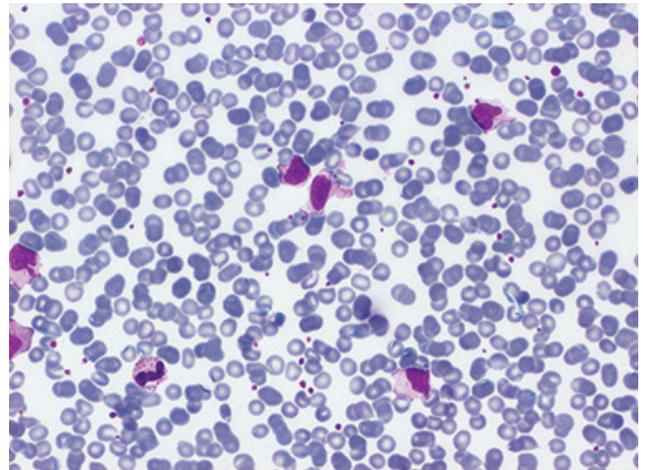


Figure 5

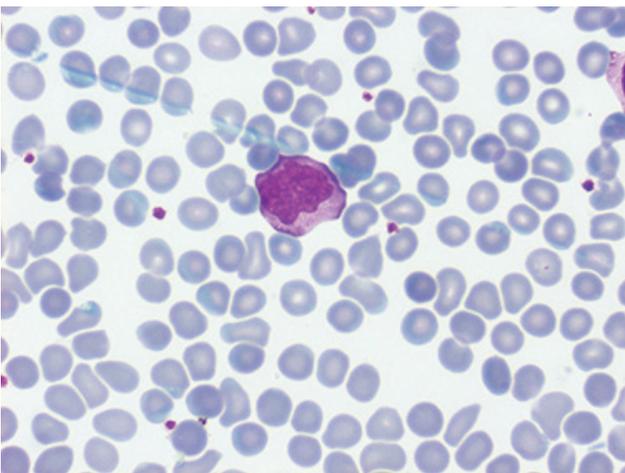


Figure 3

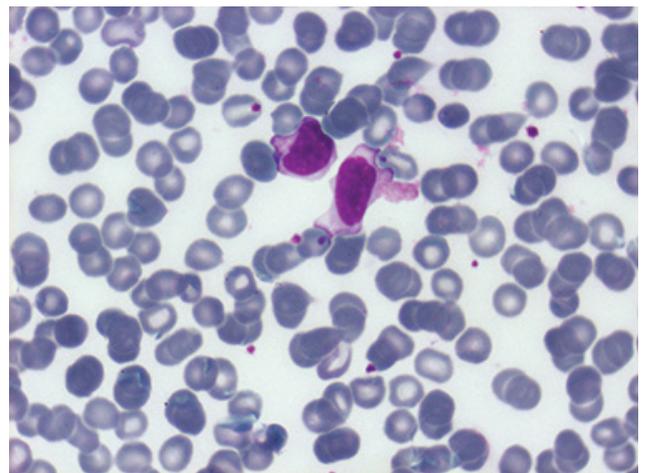


Figure 6

Table 1. Causes of atypical lymphocytes.

Viral infections
Bacterial infections
Protozoan infections
Immunisations
Serum sickness (rarely)
Hypersensitivity to drugs
Angioimmunoblastic lymphadenopathy/angioimmunoblastic T-cell lymphoma
Systemic lupus erythematosus
Sarcoidosis
Graft-versus-host disease
Graft rejection
Hodgkin lymphoma
Kawasaki syndrome
Familial hemophagocytic syndrome
Transient idiopathic proliferation of monoclonal atypical lymphocytes

Comments

In the Covid-19 era, physicians should keep in mind that the bias of diagnostic approach may lead in false diagnosis assumption. Patient had already undergone blood tests evident for lymphocytosis five days before, which was not asked by the triage doctor. As a result, he entered the Covid-19 emergency room unit unnecessarily. Infectious mononucleosis (IM) is an acute clinicopathological syndrome resulting from primary infection by Epstein-Barr virus (EBV). Common clinical features include fever, pharyngitis, lymphadenopathy, splenomegaly and hepatitis. There is often lymphocytosis and leukocytosis as a result of the

presence of atypical lymphocytes, representing mainly activated cytotoxic T cells. Atypical lymphocytes are highly pleomorphic, many are large with diameters up to 15–30 μ m, and have abundant strongly basophilic cytoplasm. Nuclei can be oval, round, reniform, lobulated or occasionally clover-leafed. Some have central nucleoli and resemble immunoblasts; others resemble the blasts of acute lymphoblastic leukemia, which makes diagnosis trivial. Changes in other cell lines are quite common, although they tend to be overshadowed by the abnormalities in the lymphocytes. Very severe neutropenia as well as neutrophilia even with toxic granulation, left shift and Döhle bodies can also occur. Contrariwise to our case, thrombocytopenia and anemia, either immune or non-immune mediated due to hemophagocytosis or myelosuppression, are not so uncommon. Differential diagnosis is depicted in table 1. In most cases treatment is supportive; rest, increased hydration and high-calorie diet. The patient has been discharged at his home without any medication, while awaiting the results for antibodies IgM against EBV. One day later, tests results confirmed the diagnosis; EBV IgM antibodies titer were >160 AU/mL (<20) while PCR for Covid-19 was negative.

References

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2. BAIN BJ. *Blood cells: A practical guide*. 5th ed. Wiley-Blackwell Publ Inc, Oxford, 2015:418–422

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