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Prikaz slučaja
Case report

ATRAUMATIC SUBCAPSULAR SPLENIC HEMATOMA SECONDARY TO INFECTIOUS MONONUCLEOSIS: A CASE REPORT AND REVIEW OF THE LITERATURE

IVANA JUKIĆ[1,2], MARIJA BRAČANOV[2,3]

Introduction: A subcapsular splenic hematoma caused by infectious mononucleosis due to Epstein-Barr virus infection is a rare complication, according to the literature. However, it should be recognized as a potential complication.

Case report: In this article, we describe a case report of a 25-year-old woman who had a typical clinical picture of infectious mononucleosis with the development of a rare complication of subcapsular atraumatic splenic hematoma.

Conclusion: The development of this complication corresponds to previous literature data on the occurrence of hematoma within the first 3 weeks of the onset of infectious mononucleosis. Thanks to the interest of a nurse who was a friend of the patient, a diagnosis of a large subcapsular splenic hematoma was made in time and conservative therapy was recommended. Early diagnostics, on time, prevented more serious complications and avoided splenectomy, which is clinically relevant for the patient's future.

Keywords: SPLENIC HEMATOMA, EPSTEIN-BARR VIRUS, INFECTIOUS MONONUCLEOSIS, ATRAUMATIC HEMATOMA, SPLEEN

INTRODUCTION

Epstein-Barr virus (EBV), also known as human herpesvirus 4, is one of the most common pathogenic viruses in humans. EBV mononucleosis always affects the spleen and as such predisposes to splenic rupture, often without trauma, and splenic infarction. Treatment aims to preserve the spleen, thus eliminating the risk of infections after splenectomy (1).

This case report shows a typical acute presentation of infection with EBV and indicates one of the more severe complications of infectious mononucleosis, atraumatic subcapsular splenic hematoma. Since splenic rupture associated with mononucleosis is rare, the available knowledge about these complications is mainly based on case reports (2-15).

[1]Department of Gastroenterology and Hepatology, University Hospital of Split, Croatia
[2]University Department of Health Studies, University of Split, Croatia
[3]Division of Surgery, General Hospital Šibenik, Croatia

Corresponding author:
Ivana Jukić, MD, PhD, Assist. Prof.
Internist, gastroenterologist, hepatologist
Department of Gastroenterology and Hepatology, University Hospital of Split,
University Department of Health Studies, University of Split, Croatia, EU
21000 Split, Spinčićeva 1
E-mail: ivjukic@gmail.com;
ivana.jukic@ozs.unist.hr

CASE REPORT

A 25-year-old female patient was admitted to the day hospital of the Clinic for Ear, Nose and Throat Diseases with Head and Neck Surgery of the Clinical Hospital Centre Split on October 1, 2023, due to a sore throat that started in the early morning hours of that day, fever up to 39˚C, weakness, poor general condition, and vomiting. While waiting in the waiting room of the day hospital, the patient collapsed. Otherwise, from the medical history, the patient is so far healthy, without chronic diseases or surgical procedures. From the family history, it is known that her mother died at the age of 56 because of pancreatic cancer.

The otorinolaryngologist diagnosed acute lacunar tonsillitis and cervical angular lymphadenopathy on physical examination of the patient. The specialist has excluded the existence of vitally threatening signs such as stridor, shortness of breath, dysphonia, trismus, and neck stiffness, and concluded that there are no signs of sepsis. The otorinolaryngologist prescribed her symptomatic therapy: paracetamol 1 gr. Intravenous (iv), hydrocortisone 100 mg with 250 mL 0.9% NaCl iv, methylprednisolone 125 mg in 250 mL 0.9% NaCl iv and metamizol sodium hydrate. A partial improvement of the clinical picture occuredand the patient was discharged to home care, with the recommendation for doing a serological diagnostic for Epstein-Barr virus and Cytomegalovirus on an outpatient basis. Also he recommended to patient rest, save from physical work, general measures of good nutrition and hydration, and prednisone tbl. and 20 mg 3x1 for 10 days. The results of serology done at the Teaching Public Health Institute of Split and Dalmatia County showed acute infectious mononucleosis caused by the Epstein-Barr virus.

After 2 weeks of discharge from the day hospital, the patient noticed pain under the left rib arch. In the following days, she was at home, resting according to recommendations, and occasionally performed her professional job as a computer engineer programmer from home. Due to pain under the left rib cage, she complained to her friend, who is a nurse by profession and works at the Department of Gastroenterology, Clinical Hospital Centre Split. The nurse hurriedly referred the patient to a gastroenterologist from her Department, who then performed an emergency abdominal ultrasound. The patient denies trauma and more severe physical activity.

Abdominal B-mode ultrasound revealed normal liver size, 12 cm in the medioclavicular line, homogeneous and normal echogenicity. Gallbladder was normal without gallstones. Ductus choledochus and intrahepatic bile ducts were of normal caliber. The pancreas was homogeneous, and normal size, as well as the kidneys. Spleen was 9.5 cm in the length, homogeneous, with approximately 10 cm along the entire length of the spleen, perisplenic collection, liquid content (suspected hemorrhage), and fibrin deposits. A thin layer of liquid 2-3 mm between the left kidney and the spleen was noticed. Aorta was normocalibrated. There is no free liquid in the small pelvis. The final ultrasound diagnoses were: perisplenic fluid collection, suspected subcapsular splenic hematoma and infective mononucleosis.

The patient was urgently admitted to the Department of Emergency Medicine Clinical Hospital Centre Split for the laboratory and further imaging diagnostics (urgent abdominal MSCT in a multiphase protocol), with the consultation of an abdominal surgeon and possible interventional radiologist. She was examined by the doctor on duty at the internal medicine part of the Emergency Unit on October 25, 2023. It is known from her epidemiological history that she overcame COVID-19, but she was not vaccinated for SARS-CoV-2. Appetite was normal, without body mass oscillations, stool was regular, without pathological stool signs and urination was normal. She doesn't smoke and she doesn't consume alcohol. She does not consume drugs, and denies drug allergies.

The physical examination revealed this physical status: normal osteomuscular structure, the patient was conscious, contactable, mobile, oriented in time and

Table 1.
Presentation of laboratory values on the 1st and 25th day of the infective mononucleosis.

Laboratory value (unit)	1st day of hospitalisation (1.10.2023.)	25th day of hospitalisation (25.10.2023.)	Reference value
L(10^9/L)	11.8	5.5	3.4-9.7
Neutrophilic granulocytes (%)	39.0	60.8	44-72
Reactive lymphocyte (%)	12.9	0	0
E (10^{12}/L)	4.12	4.16	3.86-5.08
Hb (g/L)	117	116	119-157
Plt (10^9/L)	190	191	158-424
PV	ND	1.11	>0.70
APTV (s)	ND	24.7	23.2-30.4
Blood glucose level (mmol/L)	6.1	3.8	4.2-6.0
Urea (mmol/L)	4.4	3.8	2.8-8.3
Creatinine (µmol/L)	56	51	49-90
TBIL (µmol/L)	8	5	3-20
AST (U/L)	274	21	8-30
ALT (U/L)	252	25	10-36
GGT (U/L)	66	46	9-35
LDH (U/L)	427	283	103-241
Na (mmol/L)	135	136	137-146
K (mmol/L)	4.1	4.3	3.9-5.1
Cl (µmol/l)	98	103	97-108
Ca (g/L)	2.3	2.31	2.14-2.53

L - leukocytes, E - erythrocytes, Hb - hemoglobin, Plt - platelets, PV - prothrombin time, APTV - activated partial thromboplastin time, TBIL - total bilirubin, AST - aspartate transaminase, ALT - alanine transaminase, GGT - gamma-glutamyl transferase, LDH - lactate dehydrogenase, Na - sodium, K - potassium, Cl - chlorine, Ca - calcium, ND - not determined.

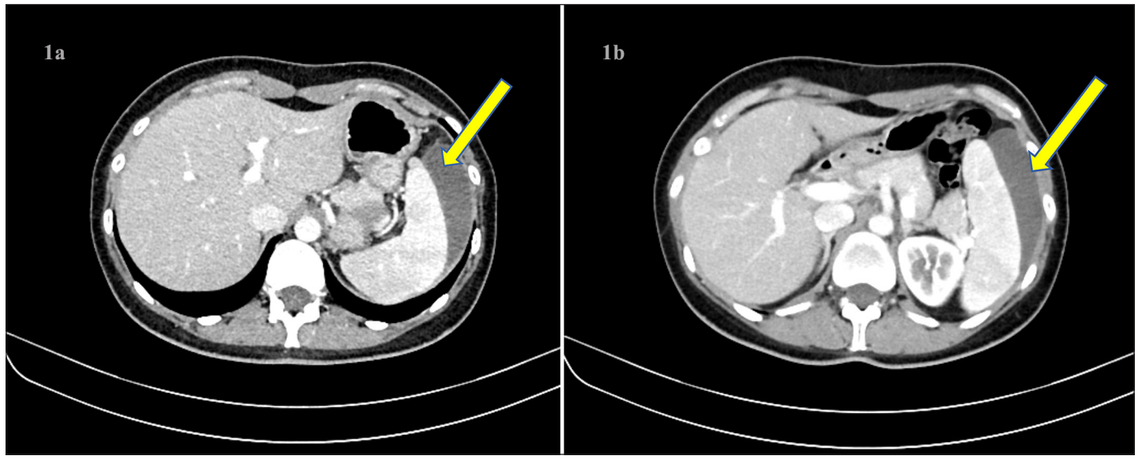

Figure 1a. and 1b.
Subcapsular splenic hematoma (yellow arrow) (on the 25th day of the disease) with a width of 2.1 cm, anteroposterior (AP) diameter of 9.4 cm without signs of postcontrast imbibition, which according to MSCT morphology will correspond to chronic subcapsular hematoma, without signs of active bleeding.

space, eupnoeic, without jaundice. Skin and visible mucous membranes were normally perfused. There was no signs of peripheral lymphadenopathies. Head: normal configuration, outside without pathological changes. Bulbomotorics and reaction to light and accommodationeat were normal, pupils equal. Tooth repaired, tongue moist, uncoated. Neck: symmetrical, mobile, and veins were normal. Thorax: symmetrical, respirationally uniformly movable. Lungs: auscultation normal. Heart rate was regular, frequency 74 bits/minutes, tones clear, without murmur. RR 100/70 mmHg on both upper limbs. The abdominal wall was at the level of the chest, soft, elastic, and painless on palpation, except for pain on deeper palpation under the left costal arch. The liver and spleen are not palpated with certainty. Percussion of the kidneys was painless. Limbs: symmetrical, edema absent, palpable pulsations of peripheral arteries. ECG: sinus rhythm, 74/min, physiological electrical axis, no ST junction changes; arterial blood oxygen saturation 99%, Glasgow Coma score:15. Please see Table 1.

Emergency multislice computed tomography (MSCT) of the abdomen and pelvis performed with IV contrast according to a multiphase protocol indicated the following: in the spleen, subcapsularly, next to the lateral contour, you can see a hypodense (27 HU) collection 2.1 cm wide, AP 9.4 cm in diameter without signs of postcontrast imbibition, which according to MSCT morphology will correspond to chronic subcapsular hematoma, without signs of active bleeding. The remaining spleen parenchyma is of orderly densities, without focal lesions. Other intraabdominal parenchymal organs are of appropriate morphology, and homogeneous structure. The gallbladder is normal, and free of stones. Bile ducts are without dilatation. Pelvic organs have normal morphology. There are no significantly enlarged lymph nodes or free fluids in the scanned area. The pulmonary parenchyma is basal parts with no focal changes. Conclusion: Subcapsular splenic hematoma.

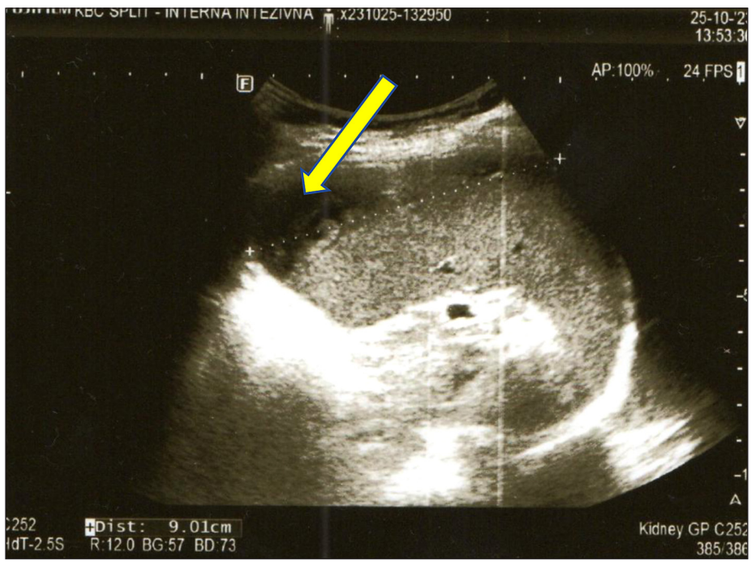

Figure 2.
Abdominal ultrasound B-mode image of the subcapsular splenic hematoma (yellow arrow) on the 25th day of the disease.

The abdominal MSCT findings confirmed the ultrasound findings and clinical suspicion of subcapsular splenic hematoma was confirmed. The abdominal surgery recommended conservative treatment and further sparing from physical work.

Control abdominal ultrasound on November 14, 2023. pointed a still present subcapsular splenic hematoma, but in resorption, measuring 1.5 cm x 7.5 cm, the findings were improving. On December 15, 2023, an ultrasound showed a normal spleen size of 94 mm, and a fully resorbed hematoma. Laboratory findings were within the reference values. It was recommended limitation from physical activity, a total of 6 months from the beginning of the disease. The patient was cured without chronic consequences. There was no need for surgical treatment, especially splenectomy.

This study protocol was approved by the Ethics Committee of the Clinical Hospital Centre in Split; class: 520-03/24-01/200, registry number: 2181-147/01-06/LJ.Z.-24-02. Written informed consent was obtained from the patient for publication of the details of their medical care and any accompanying images.

DISCUSSION

According to the results of a systematic review of the literature published in 2023, splenic rupture occurs predominantly in men, usually between 15 and 30 years of age. Rupture occurs one to three weeks after the onset of mononucleosis symptoms (which are mild in about 20% of cases), presenting with acute abdominal pain, which is mostly diffuse (but often prevalent in the left upper quadrant) and left shoulder pain. Hemodynamic instability if it occurs is secondary to circulatory shock and occurs in approximately one-third of cases of splenic rupture, which is still potentially fatal (1).

Despite the rarity of splenic rupture associated with mononucleosis, there is no clear consensus on the treatment strategy. Non-operative (conservative) treatment of hemodynamically stable cases, with small or moderate rupture, is currently the standard of care. In addition to conservative treatment, non-operative treatment currently includes splenic artery embolization (16). Partial splenectomy and spleen repair are no longer recommended (17).

Finally, and especially clinically relevant, spleen preservation treatment is today a viable alternative to splenectomy in mononucleosis-associated splenic rupture.

The recommended treatment must be approached with caution given the risk of continuous bleeding and the possibility of late rupture. These patients should be cared for by an experienced multidisciplinary team, with limitation of physical activity after discharge. More specifically, no activity more potent than walking is recommended until splenomegaly resolves with clinical and ultrasound examination, followed by a period without contact sports for six months, or until spleen architecture normalizes on imaging evaluation (1).

In this paper, we describe a case report of a 25-year-old woman who had a typical clinical picture of infectious mononucleosis with the development of a rare complication of subcapsular atraumatic splenic hematoma. The occurrence of this complication corresponds to previous literature data on the occurrence of hematoma within the first 3 weeks of the onset of infectious mononucleosis. Thanks to the interest of a nurse who was a friend of the patient, a diagnosis of a large subcapsular splenic hematoma was made in time and conservative therapy was recommended. Early diagnostics, on time, prevented more serious complications and avoided splenectomy, which is clinically relevant for the patient's future.

CONCLUSION

Subcapsular splenic hematoma as a result of infectious mononucleosis caused by the Epstein-Barr virus infection, is a rare complication according to literature data. However, it should be thought of as a possible complication. Timely diagnostics prevent more life-threatening complications. For a reliable diagnosis and treatment, a multidisciplinary approach is often necessary, involving an infectious disease specialist, microbiologist, otorhinolaryngologist, gastroenterologist hepatologist, family doctor, radiologist, and abdominal surgeon with the continuous support from nurses/medical technicians. Timely early diagnosis of subcapsular splenic hematoma, facilitated by the intervention of the patient's nurse friend, contributed to a favorable outcome for the patient without splenectomy. This is particularly significant because the patient is young and has resumed her life and work activities fully, without any lasting health consequences.

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Sažetak

ATRAUMATSKI SUBKAPSULARNI HEMATOM SLEZENE KAO POSLJEDICA INFEKTIVNE MONONUKLEOZE: PRIKAZ SLUČAJA I PREGLED LITERATURE

Ivana Jukić, Marija Bračanov

Uvod: Subkapsularni hematom slezene kao posljedica infektivne mononukleoze tj. infekcije Epstein-Barr virusom je rijetka komplikacija prema literaturnim podacima, premda na nju treba pomišljati kao moguću komplikaciju.

Prikaz slučaja: U ovom radu opisujemo prikaz slučaja mlade 25-godišnje žene koja je imala tipičnu kliničku sliku infektivne mononukleoze uzrokovane Epstein-Barr virusnom infekcijom s razvijanjem rijetke komplikacije subkapsularnog atraumatskog hematoma slezene.

Zaključak: Pojavnost ove komplikacije odgovara dosadašnjim literaturnim podacima o pojavnosti hematoma unutar prva tri tjedna početka infektivne mononukleoze. Zahvaljujući intervenciji medicinske sestre koja je bila prijateljica bolesnice, na vrijeme je postavljena dijagnoza velikog subkapslularnog hematoma slezene te je preporučena konzervativna terapija. Pravovremenom intervencijom i dijagnostikom spriječene su ozbiljnije komplikacije te je izbjegnuta splenektomija, što je klinički relevantno za budućnost bolesnice. U dijagnostici i liječenju često je potreban multidisciplinaran pristup infektologa, mikrobiologa, otorinolaringologa, gastroenterologa hepatologa, obiteljskog liječnika, radiologa i abdominalnog kirurga, uz kontinuiranu pomoć medicinskih sestara/tehničara.

Ključne riječi: HEMATOM SLEZENE, EPSTEIN-BARR VIRUS, INFEKTIVNA MONONUKLEOZA, ATRAUMATSKI HEMATOM, SLEZENA

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