Multiple Accessory Spleens- A Rare Forensic Case of Congenital Anomaly

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Abstract
Accessory spleen, or splenunculus, is a small nodule of splenic tissue found outside of the spleen, which is a benign and asymptomatic condition, and only a few cases of multiple spleens in a single patient have been reported in the literature. We are showing a case of a 46-years-old man with rare congenital malformation - three accessory spleens situated inside the abdominal cavity. These accessory spleens are with oval shapes, covered by thin organ capsules, with diameters of each of the spleens as follows: 2 cm, 2.5 cm and 3 cm. Each of these three in number accessory spleens is connected by a pedicle vessel of different length with the main vessels of the spleen, and they are situated near the splenic hilum of the normal spleen under the left half of the diaphragm. Each of these accessory spleens resembles normal spleen structure. Identification of accessory spleens is an important step in the treatment of a wide number of clinical conditions. On the other hand they can be a source of significant hemorrhage into the peritoneal cavity, leading to life-threatening condition, without adequate therapeutic behavior.

Introduction
Accessory spleen, or splenunculus, is a small nodule of splenic tissue found outside of the spleen, which is a benign and asymptomatic condition [1]. It usually is single and represents around 15 percent of the population. Statistically, more than one accessory spleen is seen in one quarter of all cases [2]. Except of this, a few cases of multiple spleens in a single patient have been reported in the literature [3-5].

Case Presentation
We are showing a case of a 46-years-old man on the cadaver's table, on the second day since the moment of death, with ongoing putrefactive changes over the organs and tissues. The patient died with clinically manifested signs of severe sepsis in the Intensive Care Unit of University Hospital Saint George, Bulgaria. Firstly, the accessory spleens, as finding were documented after an ultrasound examination of the abdomen during the hospitalization of the patient several days before the moment of death (used ultrasound device- Toshiba, linear transducer, rate: 3500 MHz). Previous health problems related to this anomaly were not described into the medical history of the patient. After the death, the patient underwent forensic autopsy for determining the cause, the manner and the mechanism of the death. In internal examination of the body, except all typical for the cause of the death changes inside the organs...
and tissues, combined with ongoing putrefactive changes, we found three accessory spleens with oval shapes, covered by thin organ capsules, with diameters of each of the spleens as follows: 2 cm, 2.5 cm and 3 cm [Figure 1]. Each of these three in number accessory spleens is connected by a pedicle vessel of different length with the main vessels of the spleen, and they are situated near the splenic hilum of the normal spleen under the left half of the diaphragm [Figure 2].

Microscopic examination with microscope Primo Star 3 was performed with hematoxylin-eosin staining of the samples. Each of these accessory spleens resembles normal spleen structure of the parenchyma seen macroscopically [Figure 3] and after performing microscopic examination these three accessory spleens showed structure typical to any normal spleen with ongoing autolysis of the splenic tissue due to the putrefactive changes covering the organs of the corpse.

Discussion
Accessory spleens arise due to the incomplete fusion of mesenchymal buds during development of the systems and organs inside the human body. Accessory splenic tissue can develop along its path from the midline that the spleen takes during organism development, or to follow the path of the gonad descent. Accessory spleens can form if mesenchymal buds moving away from the midline path do not fuse together, or they can also be formed by the descent of the gonads during development. The spleen initially forms near the urogenital ridge, which is the site of gonad development [6,7].

After their embryological development accessory spleens in most of cases are situated near the hilum of the spleen but they also could be found in different anatomic regions of the body—near or inside the pancreas, near the adrenal glands, within the wall of the stomach, even within the scrotum, [8-12]. In the present case they were situated under the left diaphragm, in the normal anatomic position of the spleen. Usually, these congenital formations are mistaken for lymph nodes or for benign tumors and they are removed unnecessarily [12]. During the autopsy many serial cuts were performed, and these small nodules of splenic tissue showed typical macroscopic structure. This state was also proved by the microscopic examination of the taken samples. In the present case this rare congenital anomaly was manifested as benign and asymptomatic condition. However, accessory spleens as congenital malformation can cause refractory or recurrent disease in patients with immune disorders. Splenic tissue of the accessory spleens, because of its highly vascularization, also could provoke spontaneous or traumatic rupture of the organ and could cause significant intraabdominal hemorrhage [13]. Torsion of accessory splenic tissue is another rare following complication that can cause acute abdomen and life-threatening condition expecting emergency care and emergency surgical treatment.

Conclusion
Identification of accessory spleens is an important step in the treatment of wide number of clinical conditions and disorders, including abdominal traumas, several hematological, immunological and lymphoproliferative disorders. Accessory spleens often are misdiagnosed as neoplastic tumors and are removed without any necessity. On the other hand, they can be a source of significant hemorrhage into the peritoneal cavity, leading to life-threatening condition, without adequate therapeutic behaviour. There is a huge need of performing further additional studies in order to have more information about the incidence, clinical appearance and morphologic variations of this type of anomaly.

References


