Introduction

Galen considered the spleen a mysterious organ and nowadays it seems to be ‘the puzzling organ’, particularly in emergency surgery (1). Delayed splenic rupture (DSR) is an uncommon but well-recognized clinical entity after blunt trauma (2). Occult splenic rupture (OSR) is an atraumatic rupture. It has been reported in association with underlying splenic diseases, such as benign, malignant tumours, and congenital defect (3). We report a case of misleading DSR mimicking a OSR with trauma occurring more than one year before.

Case report

A 63-year-old man, presented to emergency department (ED) with acute atraumatic left upper quadrant pain. He did not recall any trauma. Vital signs were normal. His physical examination was unremarkable except for abdominal tenderness in left hypochondrium. Laboratory analysis demonstrated haemoglobin 10 g/dL, white cells 8,600 µL and C-reactive protein 5.0 mg/dL. Chest X-Ray showed a chronic bronchiolitis-empysema complex. An abdominal ultrasound revealed the presence of an abnormal subcapsular soft tissue density in left hypochondrium. A computed tomography (CT) scan of the abdomen was subsequently performed.
The enhanced abdominal CT scan confirmed the presence of well-margined homogeneous iso- and hypo-dense mass with homogeneous contrast enhancement in the spleen (Fig. 1). The organ injury’s scaling identified a score IV according to Moore’s classification and American Association for Surgery of Trauma (AAST) classification. A more accurate anamnesis revealed a forgotten domestic accident more than one year before. The patient was admitted for surgical treatment after intravenous antibiotics, pneumococcal vaccination, and antithromboembolic prophylaxis in the form of low molecular weight heparin. Laparotomy has been performed. Surgical intervention revealed two different problems. First a subcapsular hematoma originating from upper pole of the spleen, latter an enormous hematoma in splenic loggia originating from lower pole of the spleen and infiltrating omentum. The lower pole parenchymal surface has been completely replaced with a dropping clot (Fig. 2). Moreover, a retroperitoneal hematoma extended beyond omentum, was observed. Therefore, the clinical evidence required a splenectomy and partial omentectomy. The patient was discharged uneventfully after four days. No infections nor complications occurred up until two months after the surgical procedure.

Discussion

The spleen is the most involved organ along with the small bowel in abdominal traumas (30-40%), followed by the hepatic (18-24%), gastro-duodenal (10-12%) and pancreatic (4-7%) injuries (4-7). It’s correct to assume that splenic blunt represents one of the most important surgical emergency. In the past, with a rudimentary understanding of the physiologic features and treatment of hemorrhagic shock, the mortality rate for nonoperative treatment of patients with ruptured spleens was 90% to 100%. Nowadays, the missed splenic rupture after blunt abdominal trauma is among the most frequent cause of death and undiagnosed injuries often turns out into a tragedy. Thus, the mortality rate increases to 50% if the treatment is delayed compared to a much lower mortality rate if diagnosis is in time. However, operative versus non operative management of splenic injury constitutes a fundamental component of decision-making surgical emergency (8).

DSR corresponds for 60% of all splenic injury. The classic clinical syndrome presents a retroperitoneal hematoma and hemorrhagic shock; otherwise as time passes it’s possible to show the presence of a pseudo-cyst. This is the result of intraparenchymal or subcapsular hematomas organization. Evans has documented, in 1866, delayed splenic rupture from blunt abdominal injury; however Baudet described for the first time this phenomenon, known as the “latent period of Baudet” (9). A spleen rupture could manifest with plentiful hemorrhages even after a long time after the trauma. On the other hand, the injury of splenic pulp cannot be contained indefinitely by its capsule since it is continuously “triggered” by blood pressure or, in case of portal hypertension, by venous pressure. The “latency time” between the traumatic event and the spleen rupture, according to data from literature, is within two weeks, though even longer periods are reported in other case-series. Otherwise, in view of all the splenic traumas, in 1% of cases a different picture of symptom-free rupture could occur, namely the hidden rupture. In this instance the splenic capsule which has been damaged is unable to contain the subcapsular hematoma which is collected in the closed space consisting of the adhesions and ligaments between spleen and stomach, small bowel, large omentum and colonic splenic flexure. It could also happen that, during the performance of surgery for incarcerated inguinal hernia, a hemoperitoneum from unrecognized splenic rupture is evidenced (10). Although it is not frequently found
The diagnostic-therapeutic pathway. As an example, de-
hystory should be always the most important time in
are considered to be obsolete. On the contrary, detailed
or, which have become longer nowadays and, therefore,
nowledged that the patent's history is the critical fac-
evolutional process had a negative impact on the tra-
mely and accurate diagnosis (13). Unfortunately, this
disposal of the physician exceptional tools for the ti-
technological evolution has contributed which placed at
imize the time of intervention. To this result the te-
(12).

Guidelines and protocols were developed just to op-
timize the time of intervention. To this result the te-
chnological evolution has contributed which placed at
disposal of the physician exceptional tools for the ti-
myly and accurate diagnosis (13). Unfortunately, this
volutional process had a negative impact on the tra-
ditional diagnostic-therapeutic pathways which ack-
nowledged that the patent's history is the critical fac-
or, which have become longer nowadays and, therefore,
are considered to be obsolete. On the contrary, detailed
hystory should be always the most important time in
the diagnostic-therapeutic pathway. As an example, de-
tailed hystory is the single factor capable of “guiding”
the interpretation of the images obtained from the pre-
operative instrumental examinations. These latter
(CT scan and ultrasound examination of the abdomen
first of all) (14), sometime could be not conclusive sin-
ce they can include in the differential diagnosis also
a splenic localization of a lympho-proliferative disea-
se with resulting therapeutic and prognostic outcomes
of different entity. In our opinion, a post-traumatic splenic
injury should be managed with a splenectomy due to
the well-known difficulties in reaching an adequa-
tae haemostasis in cases of polar resections. This ap-
proach includes the present discussion about the
“non-operative management” after abdominal traumas,
a concept which was accepted in the past decade but
which is not revised in the light of its complications
(retention of necrotic tissue, secondary infection of ini-
tially sterile collections, under-estimate of the severity
of trauma, etc.). Some authors focused on the role of
the different imaging techniques in the identification
of post-traumatic unrecognized complications, stres-
sing the indications of a treatment with minimally in-
vasive techniques, including laparoscopy, interventional
angiography and echo-guided drainage (15). Already
in the past some authors reported a positive experience
in the conservative treatment by laparoscopy of post-
traumatic cystic lesions of the spleen (16). In our ex-
perience we think that, outside the specialized centres,
the performance of a splenectomy by laparotomy is sa-
fier.

Conclusion

We report the case of a patient with a missed spleen
lesion to discuss the special problem of the detailed hy-
story stages. Detailed hystory and diagnostic procedures
are critical stages because of limited diagnostic and the-
rapeutic possibilities. There is a risk of inadequate ther-
apy in case of a sudden debasement of patient's con-
dition.

The work has been conducted without grants, equipment,
and drugs.

Funding - Authors disclose no commercial or other as-
sociations that might pose a conflict of interest in connec-
tion with submitted material.

Acknowledgments - The authors thank Dr Patrizia Gas-
parini who helped write and revise the paper and Mrs.Ro-
bera Aceto for her assistance with data collection.
References


