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Acute Chest Pain in a 14 year old following Chronic Inhalation of Foreign Body.

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Case presentation

A 14 year old teenager presented with 5 years history of foreign body inhalation, 4 years history of recurrent mild cough and a week history of right sided chest pain. Patient was 9 years old when he accidentally inhaled a button battery. On presentation, physical chest examination revealed reduced air entry on the right lower lung zone. Chest Xray revealed loss of lung volume in the right hemithorax, a fairly rounded opacity of metallic density within the middle zone of the right lung field, projecting between the 4th anterior intercostal space and 8th posterior intercostal space and opacification of the right lower zone. Chest CT scan revealed a hyperdense 1.4x 1.3cm metallic object with streaky artifacts impacted within the terminal part of the right bronchus intermedius with associated multiple segmental lobes collapse.

Discussion

Accidental inhalation/aspiration of foreign body is not uncommon in late childhood and has been described as one of the causes of accidental death. The index case presented 5 years later having inhaled a button battery lodged within his airway. Attempt at bronchoscopic removal of the foreign body failed due to cicatrization, fibrosis and complete occlusion of the bronchus intermedius. This necessitated foreign body removal by thoracotomy with bronchotomy. Intraoperative findings were collapsed right lower lobe with metallic foreign body located in the bronchus intermedius.

Conclusion

Early presentation and radiological detection of a foreign body following inhalation or aspiration is essential in preventing morbidity necessitating open surgery as a result of its presence within the airway.



Figure 1. Frontal and lateral chest radiographs showing a rounded foreign body of metallic density projecting within the right 4th anterior intercostal space and 8th posterior intercostal space with right lower lung zone opacification.

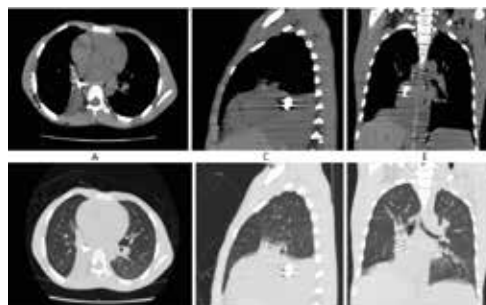


Figure 2. Non-contrast Chest CT; axial (A and B), sagittal (C and D) and coronal (E and F) planes in mediastinal and lung windows respectively showing a hyperdense object of metallic density (HU 2032) with streaky artifacts impacted in the terminal part of the right bronchus intermedius with associated multiple segmental right lobe collapse (medial segment of middle lobe, apical, posterior basal/medial segments of lower lobes).



Figure 3. A. Post-operative frontal chest radiograph; 48 hours postoperative showing opacification of the right lung field with chest tube in situ and surgical emphysema. B. Post-operative frontal chest radiograph 3 weeks later showing aeration of the right lower lung zones.



Encapsulating peritoneal sclerosis: A rare case report of intestinal obstruction

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Case presentation

Encapsulating peritoneal sclerosis (EPS) is a rare but serious and devastating condition results in bowel obstruction due to encapsulation by a thick fibro-cartilaginous membrane. The imaging plays an important role in diagnosis and the Computed Tomography (CT) is the imaging modality of choice and allows identification of the thickened enhanced abnormal peritoneal membrane and the encapsulated clumped bowel loops.

Here in, we present a 54 years old patient who had recurrent visits to the Emergency Department (ED) with acute abdominal pain, vomiting and constipation. The erect abdominal X-ray showed few left upper abdominal air fluid levels. Then he underwent a CT abdomen and pelvis with IV and oral contrast which revealed a group of dilated small bowel loops enclosed within a thin enhanced sac.

This case highlights the importance of doing thorough investigations including multimodality imaging for those who had multiple visits to the ED with the CT scan being the modality of choice for early diagnosis of intestinal obstruction and reliably identifying the underlying cause which will affect the patient's outcome.



The spectrum of fallopian tube infection; Radiology perspective

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Learning objectives

To review the various radiological findings of salpingitis.

To recognize different complications of salpingitis

To familiarize ourselves with the clinical signs and symptoms that, along with the laboratory results, would narrow the differential diagnosis.

Background

The fallopian tubes serve as the pathway for the ovum to pass from the ovary to the uterus. They measure 10–12 cm in length and travel along the upper aspect of the broad ligament. Pelvic inflammatory disease (PID) comprises a spectrum of inflammatory disorders in women that, when it affects the fallopian tubes, it may result in salpingitis, pyosalpinx, tubo-ovarian complex and abscess. The majority of PID's are caused by ascending sexually transmitted infection. However, it can also be associated with enteric or respiratory pathogens that have colonized the lower genital tract in addition to spread of sepsis from elsewhere in the pelvis including diverticulitis or appendicitis, or be transmitted via lymphatics or blood (e.g. Tuberculosis).

Conclusion

Salpingitis is one of the PID components, and it ranges in severity from a simple fluid-filled tube (Hydrosalpinx) to a more complicated form (Tubo-ovarian abscess).

The clinical presentation might be misleading for its great resemblance to the right iliac fossa pain list of differentials.

Radiological investigations would be of great benefit to characterize tubal abnormalities, its extent and complications along with exclusion of other diagnoses.



Right Ventricular Perforation Due To Migration Of a Ventricular Lead

María Eugenia Amarfil - José Manuel Brenes Castro - Alejandro Villalba Cortés - Sara Castells Buchle - Briano Matellini Mosca - Carlos Mauricio Colindres Carias - Laura Maneu Bernado - Jaume Palmer Sancho

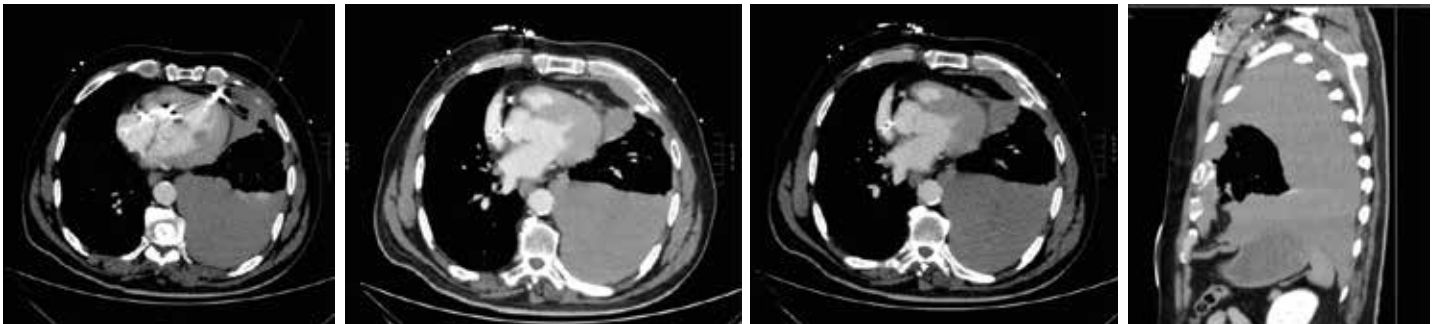
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Case report

A 66-year-old patient with an implantable cardioverter-defibrillator (ICD) consulted in the emergency department of our center for chest pain. Suspecting angina pectoris, a catheterization was performed, which revealed an injury to two vessels, and treatment was carried out. After the procedure, the patient persists with pain that refers more radiating to the back, hemodynamic worsening with hypotension, diaphoresis, vegetative courtship, lactic acid 2.8, Hb: 111.8. Laboratory tests revealed leukocytosis 24,000, not present in previous tests, without elevation of myocardial damage markers. Given the suspicion of lead perforation in the coronary sinus (image of contrast leak in catheterization), an urgent CT angiography was performed where massive left hemothorax was observed, right ventricle (RV) perforation by electrocatheter was also observed, as well as active bleeding in the anterobasal region of the left pleural cavity, near the end of the migrated electrocatheter. A sternotomy is performed where active arterial bleeding from a left intercostal branch is visualized.

The most serious complication of ventricular perforation by electrocatheter is cardiac tamponade. The rigidity, hardness and tension of the electrocatheter, placement without radiosopic control, position in the RV outflow tract in the right atrium or in the coronary sinus and in previously damaged myocardium, as is the case with myocardial infarction, they increase the risk of ventricular perforation.

Although ventricular perforation is not frequent, it should be taken into account. In this case report, the clinical presentation and its most important radiological findings are presented.





Sump Syndrome: A Rare Long-Term Complication of Choledochoduodenostomy

María Eugenia Amarfil - José Manuel Brenes Castro - Alejandro Villalba Cortés - Nikola Joseba Renobales Barandiaran - Miguel Mas Fernandez - Frederic Sampetro Santaló - Sandra Mazzini Florindez

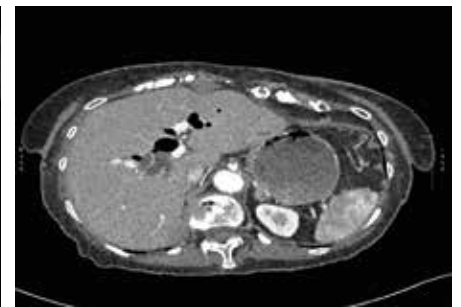
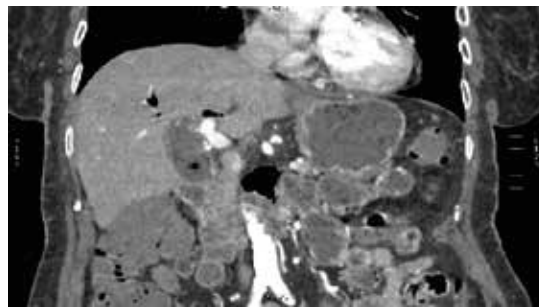
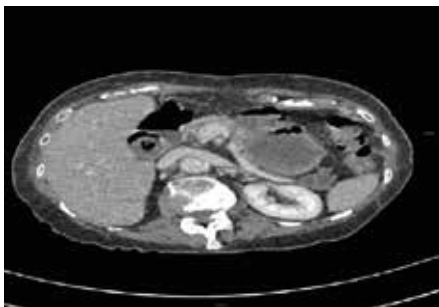
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Case report

An 85-year-old patient who consulted in the emergency department of our center due to a fever of 38°, epigastric abdominal pain and vomiting. Blood tests revealed hyponatremia of 125, PCR 129, 20,000 leukocytes, and altered liver profile. Surgical history includes a partial gastrectomy with Roux-en-Y gastrojejunal anastomosis, cholecystectomy and a biliary-enteric derivation with choledochoduodenostomy. The case is oriented as cholangitis and an abdominal CT is performed to rule out possible complications. Abdominal CT shows dilation of the intra and extrahepatic bile duct with "breadcrumb" material inside. In the clinical context of the patient, the findings are suggestive of cholangitis possibly attributable to biliary sump syndrome.

Sump syndrome is a rare long-term complication of laterolateral choledochoduodenostomy (CDD), a common surgical procedure in patients with biliary tract disease in the era before endoscopic retrograde cholangiopancreatography (ERCP). An accumulation of debris, biliary sludge, and food debris is produced in the distal suprapapillary common bile duct. Imaging findings include dilated bile or pancreatic ducts, filling of the distal common bile duct by stones or debris, thickening and/or enhancement of the duct walls in response to cholangitis, changes due to pancreatitis, or liver abscesses.

In the era of ERCP, little is known about CDD and its long-term complications, so this article offers an opportunity to update knowledge and consider this syndrome.





Jejunioileal Intussusception Induced By Ewing Sarcoma Of The Small Bowel With Liver, Peritoneal And Pulmonary Metastases

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Case description

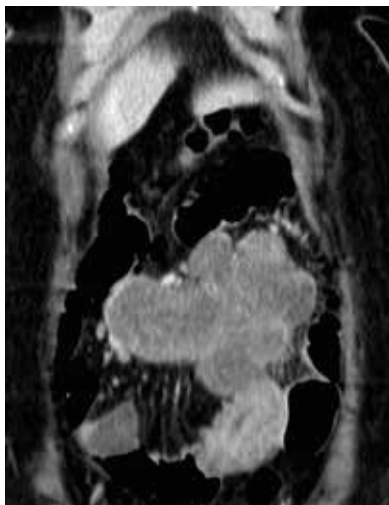
A 37-year-old woman admitted to the emergency room department with abdominal pain and sub-occlusive symptoms. Contrast-enhanced CT (computed tomography) showed jejunioileal intussusception with consequent bowel obstruction caused by a large intraperitoneal mass supposedly arising from a small bowel loop, with hepatic, peritoneal and pulmonary metastases. Imaging features were suggestive of malignant GIST (Gastrointestinal Stromal Tumor), nevertheless, histology revealed an extraskeletal Ewing sarcoma.

Discussion

Intussusception is the invagination of a bowel segment into another. It is infrequent in adults and most cases have an underlying etiology. CT helps in the identification of the intussusception due to its typical aspect ("target-like" or "sausage-like" soft tissue mass with multilayered aspect) providing the location, the presence or absence of a lead point (not always possible), complications (bowel obstruction or ischemia) and detection of metastases. Small bowel intussusceptions frequently lack a lead point, otherwise the lead point is generally a benign condition. Malignant causes include metastases, carcinoid, adenocarcinoma, lymphoma, malignant GIST. Extraskeletal Ewing sarcoma affects children and young adults and rarely involves the small bowel. Imaging findings are non-specific, indeed, among the exophytic masses GIST and sarcomas may exhibit overlapping imaging features, being histopathology the discriminating factor.

Conclusion

Exophytic masses arising from the bowel could serve as a lead point of an intussusception in adults, although being most frequently caused by intraluminal polypoid lesions. Extraskeletal Ewing sarcoma of the small bowel, although being rare, should be considered in the setting of a large intraperitoneal mass arising from the small bowel.





A complete traumatic transection of cord spinalis, a case report

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Introduction

Here we report a rare case of traumatic complete transection of medulla spinalis in Emergency unit at the University Clinical Center of Serbia. It is rare and fatal condition. Clinical outcome is poor. Consequently, relatively few case reports of adult patients surviving this injury appear in the literature.

Case report

We present the case of a 22 year-old female, who sustained a complete medulla spinalis transection in a car accident, as a driver to discuss all the complications and the possibility of a long term survival with this condition. CT examination of entire body showed complete traumatic spondylolisthesis at the C6-C7 level with consequent transection of the medulla spinalis, a fracture of the tip of the spinous process of C6 dislocated anteroinferiorly. Air conclusions in the spinal canal. Fracture of the first rib on the left. Pneumomediastinum, massive subcutaneous emphysema and massive hematoma of the soft tissues of the neck and paravertebral musculature and in the subcutaneous fatty tissue of traumatized region. (Fig1)

A fracture of the body of the sphenoid bone and pneumocephalus. No traumatic lesions on the parenchymal organs of the abdomen and vessels were visible. Planned admission and further treatment by an orthopedist. The patient is admitted to intensive unit for further treatment. At this point no surgery is going to be performed, because her condition got worse.

Conclusion

Urgent treatment in this case is necessary. Long-term survival with complete transection of medulla cord is possible if immediate rescue at the scene is available.



EVALUATION OF CEREBRAL VENOUS SINUS THROMBOSIS BY CT EXAMINATION AT THE EMERGENCY CLINICAL CENTER OF SERBIA

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- University Clinical Center of Serbia, Center for Radiology and Magnetic Resonance, Interventional Radiology, Belgrade, Serbia*

Introduction

Cerebral venous thrombosis (CVT) is rare and urgent neurological disorder that requires rapid anticoagulant treatment. The right diagnosis can be extremely challenging to confirm due to the variety of clinical symptoms and in that CT imaging has significant role. The causes of venous thrombosis could be: dehydration, coagulopathy, oral contraceptives, pregnancy, high blood density, and in the COVID era infections and coagulopathy.

Aim

The aim of this study was to summarize all signs of occlusion of intracranial venous structures and to estimate any damage to the brain parenchyma in the field of thrombosis, looking for a signs of venous cerebral ischemia. In addition, the aim of this study is to discover the origin or pathology connected to cerebral venous thrombosis.

Material and methods

The retrospective study included all patients who were consecutively referred for CT examination of the endocranium by neurologists and neurosurgeons in whom intracranial venous thrombosis has previously been suspected, in the period from January 2016 to June 2021. A total of 356 patients were referred to CT diagnostic unit during this period under suspicion of intracranial venous thrombosis. The diagnosis was confirmed on non-contrast, contrast examination or CT venography in 215 patients using direct and indirect signs of venous thrombosis.

Conclusion

Adequate therapy with rapid onset has a great impact on the clinical outcome, so the early diagnosis is necessary. Fast, affordable and widely available CT and CT venography remain imaging techniques that could be selected in the evaluation of patients with suspected CVT.



Abdominopelvic oncologic emergencies: imaging manifestations

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Background

The boost in life expectancy linked to the advancements in medical knowledge has resulted in increased diagnoses of cancer and, consequently, in a large number of oncological emergencies. Abdominal pain and acute abdomen are common signs of advanced disease, but occasionally they can be epiphenomenon of unknown primary tumours. Moreover, oncological emergencies can result from therapy- or surgery-related complications.

Learning objectives

1. Classify the main oncologic emergencies involving abdomen and pelvis.
2. Describe the imaging features of the main oncologic emergencies in patients having abdominopelvic cancer.
3. Emphasize the role of imaging in the management of abdominal oncologic emergencies.

Key conclusion

1. Systematic illustration of abdominopelvic oncologic emergencies includes those of gastrointestinal, hepatobiliary, genitourinary and vascular systems.
 2. Despite conventional radiography and US are sometimes performed at first, CT might be considered the elective method for the evaluation of the majority of oncologic emergencies.
 3. MRI and CEUS might be useful in specific circumstances as problem solving techniques.
- Imaging should guide the appropriate therapeutic management of patients having abdominopelvic

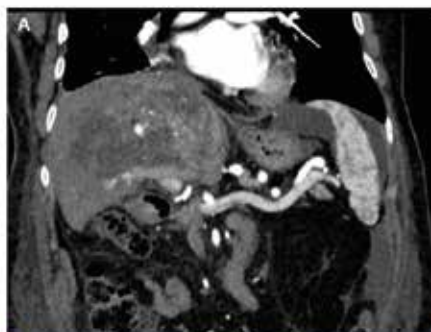


Fig.A
Coronal MIP reconstruction from a contrast-enhanced CT arterial phase.
Bleeding from spontaneous rupture of liver metastases.

Bleeding / Spontaneous haemorrhage / Liver Metastases.



Fig.B
Axial contrast-enhanced CT.
Neutropenic Colitis (Typhilitis) involving the caecum in immunodeficient
patient with haematological cancer.

Gastrointestinal / Infection / Immunodeficiency / Haematological cancer



Porto-mesenteric Venous Gas in a patient with Non-occlusive Mesenteric Ischemia: a case report

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Purpose

To describe a case of Porto-Mesenteric Venous Gas (PMVG) in a patient with Non-Occlusive Mesenteric Ischemia (NOMI).

Introduction

Acute bowel ischemia is an urgent condition with a mortality rate of approximately 70%. NOMI represents one of the causes in 25-30% of cases. Early diagnosis is difficult, because of unspecific symptoms. In the presence of acute abdominal pain, leukocytosis and elevated lactate levels could be suggestive of ischemia, but CT with contrast agent remains necessary. CT have increased the sensitivity for detection of PMVG considered sign of advanced ischemic disease associated with irreversible injury and transmural necrosis.

Case report

A 73-year-old woman was admitted to our Cardiovascular Intensive Care Unit (UTIC) for acute myocardial infarction (IMA). After the coronary angiography she presented acute abdominal symptoms. Immediately, the laboratory tests and CT scan were requested. The results of blood exams were Tbs 4078 ng/L, Myoglobin 26695 ng/mL, CKM 84,2 ng/ml, LDH 978 U/L, WBC ($\times 10^9/l$) 27.9, lipase 829 U/L, amylase 205 UI/L e glucose 313 mg/dL. The CT with contrast agent showed diffuse tubular areas of decreased attenuation from the superior and inferior mesenteric veins to the portal vein and into the liver, predominantly in the left lobe, associated with bowel distention. The patient was treated with oxygen, intravenous fluid and antibiotic therapy, without performing surgery, because of the massive bowel infarction, but she died after few hours.

Conclusion

In patients with acute abdominal pain the presence of PMVG could be an ominous sign of massive bowel ischemia.



GASTRIC OBSTRUCTION DUE TO IRREDUCIBLE HERNIA OF GASTRIC ANTRUM

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Case presentation

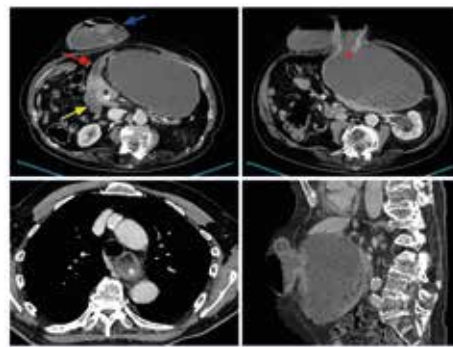
87 year old male came to the emergency room with symptoms of vomiting for days associated to upper abdominal pain and an irreducible abdominal wall hernia.

Contrast-enhanced CT was performed, which shows a large dilation of the stomach with abundant liquid content. A periumbilical abdominal wall hernia with an approximately 4 cm buttonhole (red asterisk) is also observed.

Inside the hernia there is a change in caliber that causes obstruction with retrograde dilatation up to the esophagus (which also has liquid content) (white asterisk).

The first (red arrow) and second (yellow arrow) duodenal portions have normal caliber and are displaced to the right. There are no signs of distress in the involved stomach (no low mural uptake, perforation or free fluid).

The condition was resolved conservatively with the introduction of a nasogastric tube. The patient progressed favourably.



Discussion

In the evaluation of abdominal wall hernias, it is important to describe their content and assess signs of suffering in the loops that lead to a complicated hernia. The absence or clear decrease in enhancement of the intestinal wall is the greatest evidence of transmural ischemia. In general, any complicated abdominal wall hernia requires surgical exploration.

Conclusion

This case shows an abdominal wall hernia, a common finding in elderly and obese patients (such as this patient) with an obstruction as a complication. In our case, the content of the hernia is not a loop of small intestine (which would be the most common) but the gastric antrum.



Pancreatic Duct Injury In A Child With Blunt Abdominal Trauma: A Case Report

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Case presentation

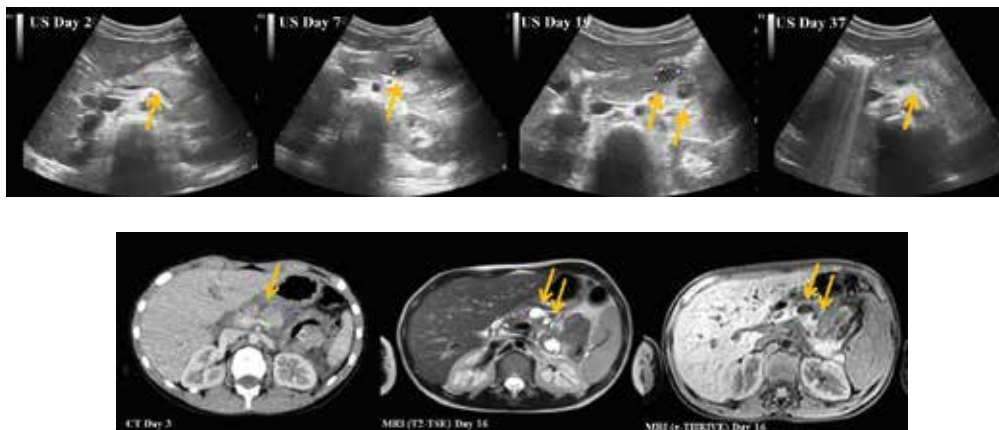
Blunt abdominal trauma (BAT) by bicycle handlebar injury in a 7-years old boy with stable conditions and normal laboratory tests on admission. On day 2 abdominal pain and serum pancreatic enzymes (SPE) levels markedly increased. Computed Tomography (CT) showed hypodensity of pancreatic body highly suggestive for laceration with regular Wirsung duct (WD) (grade II injury); no active bleeding or associated injuries were detected. The patient was managed conservatively and followed-up with abdominal ultrasound (US). On day 16 when SPE levels kept persistently high, Magnetic Resonance Cholangiopancreatography (MRCP) revealed nearly full transection of pancreatic body involving WD (grade III injury) and peripancreatic collections communicating with WD. Since conditions were stable, non-operative management (NOM) was successfully carried on and the patient discharged on day 37 with normal US findings and SPE.

Discussion

Despite CT is the primary imaging investigation in BAT, it has poor sensitivity in pancreatic injury especially to assess WD integrity which is critical for appropriate management. Correct timing is crucial too, since early CT may miss parenchymal laceration and WD disruption, particularly in children with small WD. In this case, timely CT failed to identify grade III pancreatic injury which was clearly visible on MRCP 16 days after trauma. However, NOM was still feasible in a stable, uncomplicated patient.

Conclusion

MRCP is effective for correct assessment and management of pancreatic injury in children and should be performed whenever WD integrity is doubtful. Further experience may clarify how early and how long MRCP is helpful in this setting.





Role Of Imaging And Organization of Radiology Unit In A 2nd Level Emergency Department HUB Center For Major Trauma.

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Background

In the last months, with the end of lockdown restrictions and the resumption of population daily activities, rescue interventions for traumatic accident have been increased. Consequently, the required radiological investigations have also been amplified.

Learning objectives

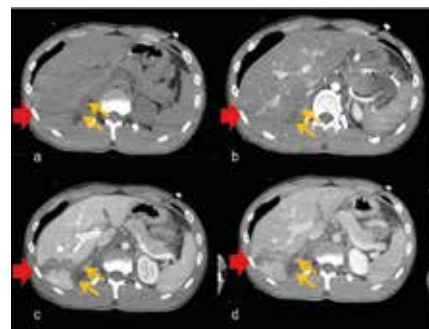
To describe:

- 1) the organization of the Radiology Unit in a 2nd level emergency department and HUB center for major trauma;
- 2) the different imaging modalities, acquisition techniques and post-processing reconstruction.
- 3) to discuss significative cases and emblematic imaging findings.

Between June 2021-July 2022, 1309 polytraumatized patients were admitted to our Emergency Department, the majority due to motor-vehicle accident, with a prevalence of middle age men. All of these patients underwent diagnostic examination. After non-radiologist US (FAST: focused assessment of sonography for trauma), conventional radiology is limited to the evaluation of chest and pelvis; further radiographs are obtained if limb fractures are suspected. CT is performed using a standardized protocol from vertex to coxofemoral joints (extendable to the lower limbs if required), with multiphase acquisitions, optimized to obtain diagnostic images in patients lying on spinal axis. There are also specific low-dose CT protocols aimed to reduce radiation exposure in pregnant and pediatric patients. Images interpretation takes place according to a standardized report by a neuroradiologist and a general radiologist. In case of spinal trauma and/or spinal symptoms, MRI evaluation is performed. On the basis of CT findings and clinical signs, interventional radiological procedures are available, both for vascular head&neck lesions (i.e. symptomatic supra aortic trunks/intracranial artery dissection/thrombosis) and thoraco-abdominal and limbs injuries (i.e. arterial bleeding in hemotorax/haemoperitoneum, muscle hematoma, abdominal organs lacerations, vascular dissections).

Conclusion

In the emergency scenario, radiologist should manage different imaging modalities, focusing on significant findings, playing a crucial role in the diagnosis and treatment of traumatic potentially life-threatening conditions.





Obstetric Emergencies: The Pivotal Role Of Interventional Radiology

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Background

Obstetric emergencies (OE) can occur during the gestational period or postpartum affecting the mother, the fetus or both. One of the most relevant OE is postpartum hemorrhage (PPH) that accounts for 25% of maternal deaths worldwide. OE treated with interventional radiology (IR) are PPH, abnormal placenta implantation, ectopic pregnancy, thromboembolic disease, puerperal sepsis and obstructive uropathy. IR procedures performed to treat OE are obstetric hemorrhage embolization (OHE), uterine artery embolization (UAE), prophylactic balloon occlusion, inferior vena cava filter placement, direct chemical injection into ectopic sac, abscess drainage and percutaneous nephrotomy.

Learning objectives

- Provide a background regarding OE
- Provide an overview of IR indications in the treatment of OE
- Describe the main IR techniques and outcomes in the treatment of OE

Key conclusion

IR plays a fundamental role in treatment of offering a nonsurgical therapeutic option with low morbidity, mortality and with preservation of fertility.



A case of portal biliopathy in a young patient with portal cavernoma secondary to neonatal umbilical vein catheterization

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Case presentation

We present a case of portal biliopathy in a 28-year old patient with CTPV following neonatal umbilical venous catheterization.

The patient presented to our Emergency department complaining of nausea, vomiting and abdominal pain. Blood tests showed signs of cholestasis and imaging confirmed the presence of portal cavernoma and dilatation of the biliary tree without evidence of lithiasis. The diagnosis of portal biliopathy was established and the patient was discharged with pharmacological therapy.

Cavernous transformation of the portal vein (CTPV) is usually secondary to long-standing portal vein thrombosis (PVT) or obstruction that leads to the formation of periportal or intrahepatic venous collaterals.

After umbilical cannulation, cavernous transformation of the portal vein remains insidious for years before giving any clinical presentation.

Portal biliopathy refers to cholangiographic abnormalities which occur in patients with portal cavernoma that occur as a result of pressure on bile ducts from bridging tortuous paracholedochal, epicholedochal and cholecystic collateral veins that expand and compress in an attempt to decompress the venous blockage generated by the portal vein thrombosis. Blood tests, US and MRCP are the modalities of choice for the evaluation of portal biliopathy. Treatment options include ursodeoxycholic acid administration and endoscopic/surgical intervention in case of medical treatment failure.

In conclusion, portal biliopathy is a must-know condition in patients with history of portal hypertension presenting with signs of cholestasis.

As portal biliopathy can lead to serious complications such as cholangitis, being aware of this condition is essential for an early-stage diagnosis and treatment.



Acute thrombosis of the superior mesenteric artery

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Case report

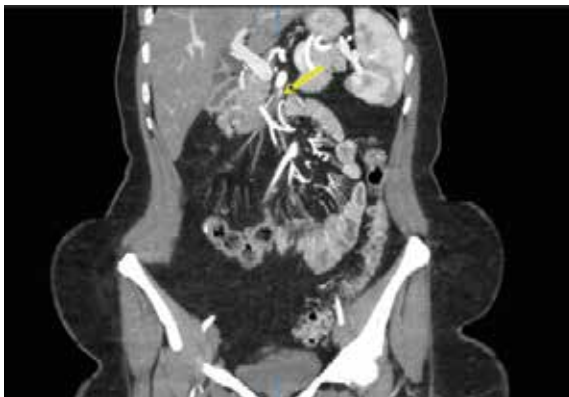
A 46-year-old woman with fatigue, stomach cramps, diarrhea and vomiting was brought to the emergency department. Immediately after admission, a computed tomography (CT) of the abdomen was performed, which described acute thrombosis of the superior mesenteric artery (AMS) with ischemia and pneumomatosis of the ileum and distal part of the jejunum, spleen infarction as well as suspected thrombus mass in the auricle of the left atrium (Figure1). The patient immediately underwent an exploratory laparotomy with extensive small bowel resection (only about 8cm of jejunum was spared) and right hemicolectomy with revascularization. Over the course of several CT angiography exams (CTA), during which it was seen that the thrombus mass in the lumen of the AMS discretely increases with the recanalization of the first branch (a. jejunalis) (Figure2). In the further course of treatment, the general condition of the patient worsens, and she is transferred to the invasive mechanical ventilation.

Discussion

In 25% of cases, arterial thrombosis is the cause of AMS. Patients are elderly and they usually have a history of vascular diseases. CTA has the greatest importance in the diagnosis of this acute condition, while laboratory and clinical parameters are non-specific.

Conclusion

Perihepatitis is a rare condition, especially without association with PID. By presenting this case, we aim to highlight the significance of CT findings and the possibility of association of perihepatitis with peritonitis caused by a perforated peptic ulcer.





Midgut volvulus: a rare case of acute abdominal pain in adults

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Case reports

A 19-year-old woman comes to the emergency department with acute abdominal pain and vomiting. Blood tests were normal. The abdominal X-ray shows a dilated loop of the small intestine in the mid-abdominal region. Urgent CT shows a positional anomaly of the intestinal structures with the jejunum located to the right of the abdomen and the colon to the left. The crossing of the duodenum by the retroperitoneum is not observed, instead, a dilated small bowel is seen in the epigastric region confluent towards a turning point in the mesentery, where the superior mesenteric artery is located to the right of the vein. This patient was diagnosed with midgut volvulus as a complication of intestinal malrotation and underwent emergency surgery.

Intestinal malrotation consists of any deviation from the normal 270° counterclockwise rotation of the midgut during embryologic development, resulting in malposition of the bowel and malfixation of the mesentery. Midgut volvulus is a complication that typically occurs during the first month of life and is extremely rare in adults. Symptoms in older patients are less specific and diagnosis may not be suspected. Fortunately, CT findings are characteristic and allow diagnosis and surgical repair (devolvulation and liberation of Ladd bands) in an early stage. Advanced cases may present with ischemia which portends a poor prognosis.

Recognizing this unsuspected pathology on imaging is key for early diagnosis and life-saving surgery.



Subdural collections in Shaken Baby Syndrome: a medicolegal challenge for radiologists

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Background

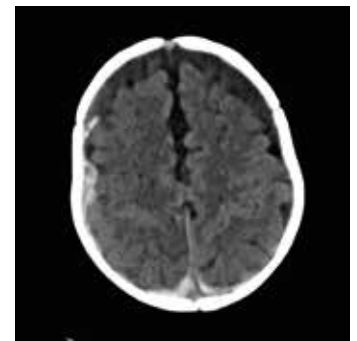
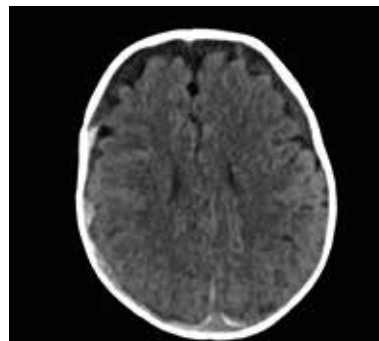
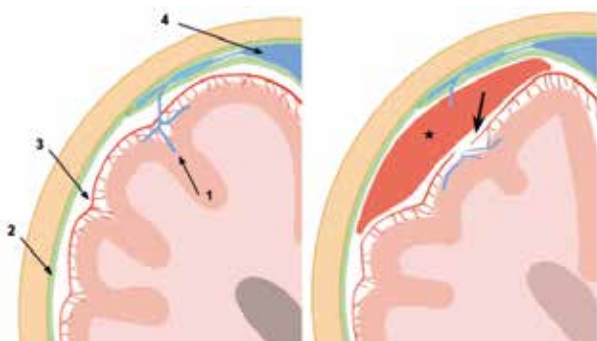
Neurological injuries, especially in children under two years of age, are one of the most frequent causes of death in situations of child abuse. When alarm signs are present in the neurological examination, it is essential to perform an urgent head-CT as part of the initial assessment. The appearance of subdural hematomas is the most common finding, especially in cases of "shaken baby syndrome" (SBS), typically bilateral and asymmetric, in the interhemispheric falx and posterior fossa. Regarding their density, they usually present heterogeneous hypo- and hyperdense areas on CT, giving rise to a diagnostic problem in terms of their chronology. It is necessary to know that there are several different scenarios that can explain this semiology, with different medical-legal meanings, so we must pay special attention to the initial findings on CT and complement them with MRI if possible. It is also essential to look for other signs of shaking such as retinal hemorrhages and hypoxic-ischemic damage.

Learning objectives

- Explain the different possible scenarios of subdural collection in cases of suspected abusive head trauma and its medical-legal importance, as well as associated secondary radiological findings.
- To highlight the importance of the role of the radiologist.

Conclusion

The assessment of subdural collections is a diagnostic challenge for emergency radiologists and can have decisive clinical and legal repercussions. A very detailed evaluation of the initial CT is necessary, as well as correlation with secondary findings and multidisciplinary approach.





Massive retroperitoneal liposarcoma extending into inguinal canal and scrotum

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Kbc 'Dr Dragisa Misovic-Dedinje', Radiology department, Belgrade, Serbia - Kbc 'Dr Dragisa Misovic-Dedinje', Surgery, Belgrade, Serbia - Kbc Zemun, Department of internal medicine, Belgrade, Serbia

Case presentation

A male patient, 53 years old presented with abdominal pain extending to the left inguinal region and scrotum. The patient had an operation on his right sided inguinal hernia 3 years ago, and had no chronic disease. There was a visible left inguinoscrotal herniation upon examination, and his inflammatory markers were elevated.

Abdominal ultrasound revealed a large non-homogenous, dominantly hyperechogenic multilocular mass, with confluent hypoechogenic areas, which located mainly in the left abdomen, extending into the left inguinal canal.

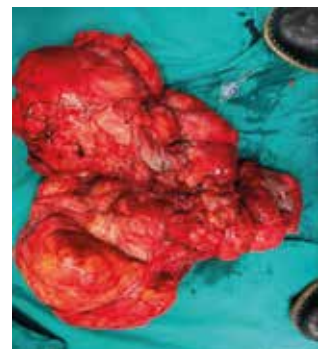
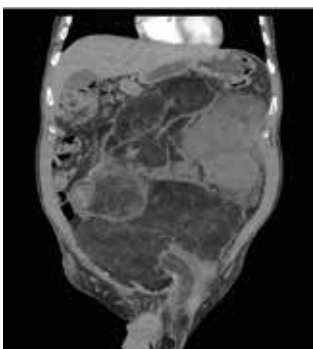
For characterize the mentioned mass more detail, abdominal MSCT was performed, where was noticed a large expansive, non-homogeneous tumor mass, which density makes components of adipose and solid tissue, approximate diameter of 35x27x15 cm (CCxLLxAP).

Upper part of mentioned change is under stomach and pancreas, pushing the left kidney and spleen towards cranially, displace the bowels to the right side and bottom part extending into the pelvis to inguinal canal and scrotum (Figure 1,2,3). Total surgical resection of the tumor was performed, tumor mass was 9.5 kg (Figure 4),

Retroperitoneal liposarcoma (RLPS) is a malignant tumor, mesenchymal origin.

Because of their slow growth, they often reach enormous size before diagnosis. In 3.6% of cases, RLPS descends into the inguinal canal, of which 87.5% are men.

It is important to consider that RLPS of the region can present as an inguinal hernia. MSCT is of key importance for the diagnosis of LPS, allowing for precise localization, characterization and relationship with the surrounding anatomical structures.





Spontaneous intramural hematoma of the ileum

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Case presentation

A 72-year-old man was presented with abdominal pain in the lower right quadrant, nausea and vomiting. He had a past medical history of stroke for which he took anticoagulant therapy. There was no history of trauma.

Laboratory findings revealed normal hemoglobin, elevated WBC $13 \times 10^9/L$, CRP 113mg/l, and INR 7,4.

Abdominal ultrasonography (US) showed an edematous wall of the distal ileum, increased echogenicity of the surrounding fat and free fluid in the intraperitoneal cavity (Figure 1).

Computed tomography (CT) confirmed the US findings, showing circumferential, hyperdense wall thickening and luminal narrowing of the distal ileum consistent with intramural hematoma and hemoperitoneum (Figure 2, 3a, 3b).

Because of worsening of the symptoms and development clinical signs of complete intestinal obstruction in spite of conservative therapy, the patient underwent laparotomy with segmental ileal resection.

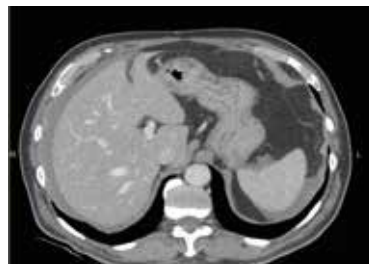
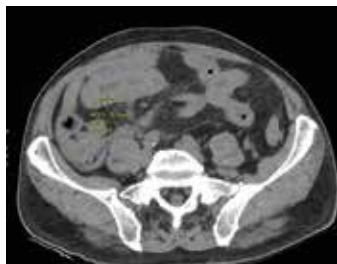
On the seventh postoperative day, the patient's condition suddenly worsened and the patient died.

Discussion

The most significant reason for small bowel intramural hematoma (SBIH) is trauma, while spontaneous causes include anticoagulation therapy, malignancies, and blood disorders. The jejunum is most often affected (69%), followed by the duodenum and the ileum. The presentation can vary from mild abdominal pain to intestinal obstruction and an acute abdomen. US and CT scans play a key role in the early and correct diagnosis. Main radiological signs included: circumferential thickening of the intestinal wall, intramural hyperdensity on CT without intravenous contrast, and hemoperitoneum. Treatment is usually conservative, while surgery is preferred in case of development of intestinal obstruction, ischemia or necrosis.

Conclusion

SBIH is rarely life-threatening and can predominantly be managed conservatively so it is extremely important to recognize this condition.





Isolated trans-hiatal colonic herniation as a rare cause of gastric obstruction

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Case report

A 66-year-old man presented to the emergency room with a complaint of nausea and frequent vomiting which last ten days. He denies comorbidities and previous operations. Paraumbilical abdomen was profoundly tender. Abdomen X-ray showed a distended stomach and hydroaeric levels right paraspinally, and ultrasound of the abdomen showed distended hypotonic stomach and a suspicious tumor formation of the right kidney. Computed tomography (CT) examination showed a isolated paraesophageal herniation of the transverse colon with a vascular pedicle, that causes compression and obstruction of the pylorus and duodenal bulb (Figure 1 and 2). A tumor formation on the right kidney corresponds to renocellular carcinoma. An open laparotomy was performed, repositioning of the transverse colon with omentum, the crural defect was repaired and Toupet's funduplication and a right-sided radical nephrectomy were performed (Figure 3). The patient was discharged after 10 days without complications.

Discussion

There are four types of hiatus hernia, of which paraesophageal type IV is the rarest and occurs in 2-5% of cases. A hiatus hernia that contains only the transverse colon without the stomach and that did not arise as a result of a congenital or traumatic diaphragmatic defect, such as ours, is very rare and only a few similar cases have been described in the literature so far.

Conclusion

Isolated transhiatal herniation of the colon presents with non-specific symptoms and in the case of acute gastric obstruction is an indication for urgent surgery. Correct diagnosis confirmed by CT and adequate treatment can prevent possible complications.





Veno-occlusive mesenteric ischemia.

Gemma Fernández Suárez - José Rodríguez Castro - Marina Da Silva Torres - Luis Miguel Guadalupe González - Juan Calvo Blanco - Helena Cigarrán Sexto - Paula Gómez Gómez - Cristina Fernández Fernández - Sonia Aranda Jarreta - María Blanco Guindel

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Case presentation

A 67-year-old cirrhotic male attended to Emergency Department with severe abdominal pain and hematochezia. Personal history of alcoholic consume and cardiovascular risk factors with previous cardiac stroke was reported. Abdominal exploration showed right lower quadrant pain with peritoneal irritation' signs.

Discussion

Acute mesenteric ischemia refers to the sudden onset of intestinal hypoperfusion and accounts for the 10% of all cases of acute bowel ischemia. Clinical symptoms are vague and include diffuse abdominal ache, distension, colick pain or heme-positive stool. Mostly of cases are secondary to an underlying hypercoagulable disorder or external venous compression, with 20-40% of them being idiopathic. When a vein thrombosis occurs, there is a venous drainage compromise producing bowel wall edema and thickening leading to bowel hypoperfusion. Diagnosis is mainly base on radiologic techniques, being abdominal contrast-enhanced CT being the most sensitive test. CT findings include: luminal venous filling defect at mesenteric veins in the portal phase, intestinal wall thickening due to submucosal edema with or without mucosal hyperattenuation ('target sign' appearance). Fluid filled bowel loops due to transmural exudation to the lumen is a typical finding in venous ischemia rather than those of arterial origin.

Conclusion

Radiologists should be familiar with CT findings in acute bowel ischemia distinguishing between arterial or venous etiology guiding correct diagnosis and both prompt and accurate treatment.

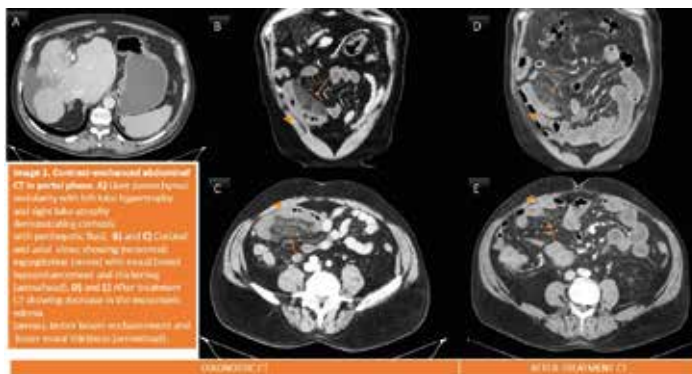
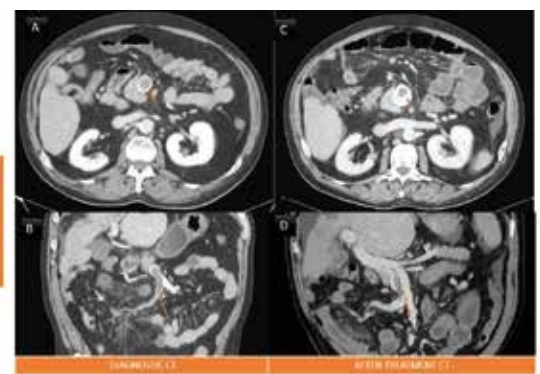


Figure 2. Contrast-enhanced abdominal CT in portal phase. A) and B) coronal views. C) and D) showing the luminal filling defect in splenic vein (arrow), extending to superior mesenteric vein. The thrombotic segment (arrowheads) is seen after oral contrast administration (arrow).





IS IT A STROKE?

Mateo García Ramos - Sara Budiño Torres - José Rodríguez Castro - Hernán Felipe Romero Camacho - Gemma Fernández Suárez - Juan Calvo Blanco - Helena Cigarrán Sexto - Marina Da Silva Torres - Sonia Aranda Jarreta - Luis Miguel Guadalupe - Pablo Corujo Murga - Miguel Martínez-Cachero García - Marina Soto Fernández - Elena González Lafuente - David Fuentes Castañón - Darwin Antonio Bazurto Pinoargote - Nerea González Hompanera - Paula Gómez Gómez - Pablo Noriega - Luis Martínez Cambor - María Blanco Guindel - Elena Uceda Andrés

Hospital Universitario Central de Asturias, Radiology, Oviedo, Spain

Case report

A 74-year-old male was admitted to the Emergency Department with transient low level of consciousness and prolonged aphasia on awakening. His only personal history was a TIA 7 months ago treated with antiplatelet drugs. He was evaluated by the Neurology Department and, given the persistence of aphasia, the Stroke Code was activated with a NIHSS score=9 (does not obey orders = 2, does not answer questions = 2, severe aphasia/mutism = 3+2). Accordingly, a multimodal CT scan was performed:

- Cranial CT scan without intravenous contrast showing no alterations.
- Cerebral perfusion CT scan showing increased drainage and mean transit times and decreased cerebral blood flow in the left temporoparietal region with an unaltered cerebral blood volume map.
- AngioCT of intra and extracranial arteries showed no pathological findings.

The alterations of the perfusion maps are compatible with ischemic penumbra without established lesion. An atypical vascular distribution and the absence of an arterial occlusion in the angioCT with persistence of the clinical picture forces to think of alternative diagnoses such as a post-ictal period, which was confirmed later after a new interview with patient and his relatives, an MRI without ischemic lesions and an improvement with antiepileptic treatment.



STABBED BY MY BROTHER-IN-LAW

Mateo García Ramos - José Rodríguez Castro - Sara Budiño Torres - Hernán Felipe Romero Camacho - Gemma Fernández Suárez - Juan Calvo Blanco - Helena Cigarrán Sexto - Marina Da Silva Torres - Sonia Aranda Jarreta - Luis Miguel Guadalupe - Pablo Corujo Murga - Miguel Martínez-Cachero García - Marina Soto Fernández - Elena Gonzalez Lafuente - Paula Gómez Gómez - David Fuentes Castañón - Darwin Antonio Bazurto Pinoargote - Nerea González Hompanera - Elena Uceda Andrés

Hospital Universitario Central de Asturias (HUCA), Radiology, Oviedo, Spain

Case report

A 61-year-old man was admitted to the Emergency Room with a stab wound after being assaulted by his brother-in-law with (blade of 15 cm of cutting-edge length). Upon physical examination patient was conscious, haemodynamically stable, tachypneic (blood oxygen saturation of 97%) and with just a mild hypoventilation of the left lung as the only abnormal finding after auscultation. An incised wound is objectified in the second left intercostal space with a small perilesional haematoma associated. First, a simple chest X-ray was performed, showing only a left pleural effusion, followed by a CT scan of the chest with intravenous contrast in arterial and venous phases to rule out active bleeding. A lesion compatible with pulmonary laceration was observed in the anterior segment of the LSI with a linear trajectory leading to the visceral pleura and contacting the entry orifice, with thickening of the parietal pleura in the anterior portion of the second intercostal space. In addition, there is a left pneumothorax, a small ipsilateral pleural effusion, probably hemothorax, and hematoma in the left pectoral muscles with air bubbles and contrast extravasation that increases in the venous phase compatible with active bleeding. As an incidental finding, a small patent ductus arteriosus was observed.



Carotid web as an uncommon cause of ischemic stroke in young patient

Virginia Gomez - Gorka Arenaza

Hospital Universitario donostia, Emergency Radiology, San Sebastian, Spain

Case presentation

55 yo male with neurological deficit. He is hypertense in treatment with Enalapril. CT without and a computed tomography angiography (CTA) is made, followed by a therapeutic angiography. At CTA, there is an occlusion at the right distal M1 segment of the MCA. There is also a luminal filling defect at the posterior wall of the proximal portion of the internal carotid artery (ICA) confirmed by angiography. The later produces a 50% stenosis and ectasic dilataion just immediately distal to the stenosis, with a turbulent and stagnant flow which remains throughout the angiographic series.

Discussion

Carotid web is a rare form of focal fibromuscular dysplasia defined as an abnormal shelf-like proliferation of intimal fibrous tissue into the carotid bulb, without evidence of atheromatous deposits.

It generates flow stagnation and, consequently, thrombo-embolic events. It has been recognized as a cause of cryptogenic strokes as many as 9,4% to 37%, commonly affecting young patients.

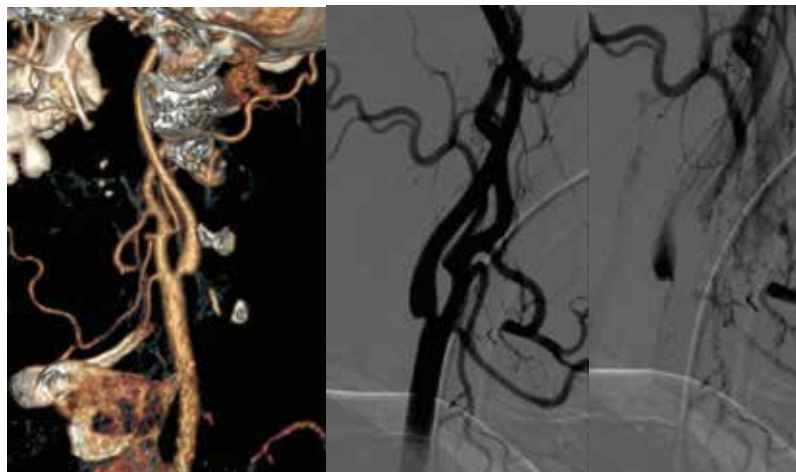
Though first described on catheter angiography, carotid ultrasound and CTA can easily diagnose it, specially on the oblique sagittal views, as shelf-like linear and smooth filling defects located along the posterolateral wall of the ICA bulb.

Treatment can be medical or preferably surgical with carotid stenting or endarterectomy due to high rates of recurrent ischemic stroke.

Conclusion

CW may be a cause of cryptogenic non atheromatous ischemic stroke.

Recognition of its classic location and imaging findings is crucial to guide correct treatment and prevent recurrent strokes.





TRAUMATIC AORTIC TRANSECTION: CASE REPORT

*Luis Miguel Guadalupe González - Marina Da Silva Torres - Juan Calvo Blanco - Helena Cigarrán Sexto -
Sonia Aranda Jarreta - Gemma Fernández Suárez*

HUCA, Radiology, Oviedo, Spain

Case presentation

A 36-year-old male was admitted to hospital following an automobile crash. A contrast-enhanced thoracoabdominal computer tomography (CT) was performed soon after, which showed an aortic transection with periaortic hematoma. The patient was taken to the operating room to perform an endovascular endograft repair.

Discussion

Blunt traumatic aortic injury (BTAI) is a life-threatening condition that usually requires emergent treatment and has a high mortality if lesions remain unnoticed.

Injuries of the aorta occur from shear forces across regions of differential aortic mobility, mostly within 2cm of the origin of the left subclavian artery (aortic isthmus).

Multidetector CT angiography, usually without electrocardiographic gating is the standard for aortic evaluation. Multiplanar reconstructions are useful for depicting lesions that may not be apparent in axial views.

CT findings can be divided into direct and indirect signs. Direct signs present as intimal flap, mural thrombus, intramural hematoma (IMH), aortic pseudoaneurysm or transection and free rupture. Most frequent indirect signs are periaortic or mediastinal hematoma without fat plane between the hemorrhage and the aortic wall.

BTAI is further classified into significant or minimal aortic injury (MAI), the latter of which does not require immediate intervention. MAI represent a mild form of BTAI in which resolution with conservative management is expected. Only focal intimal defects, thrombus or IMH measuring less than 1 centimeter are classified as MAI.

Conclusion

Radiologists should become familiar with the usual BTAI CT findings and its management.



A, B) BTAI with aortic contour deformity and transection.

C) Periaortic hyperdense hematoma.



Emphysematous pancreatitis: The role of CT for early detection

Lejla Hajdarpasic - Gordana Lukic - Violeta Dobrilovic - Miljan Milanovic - Marjana Djordjevic - Miodrag Lalosevic - Sofija Radosavljevic

*University Hospital Center Dr Dagisa Misovic - Dedinje, Radiology, Belgrade, Serbia -
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Case report

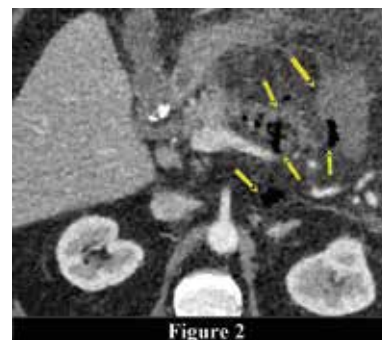
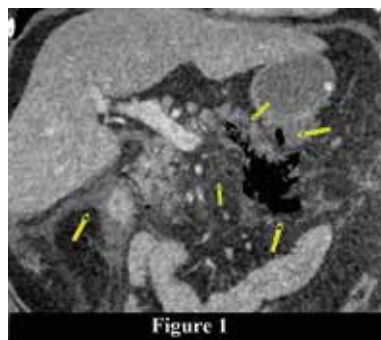
A 60-year old, non-alcoholic man with hypoventilation syndrome of obesity arrived at the emergency department with acute abdominal pain and nausea. Blood analysis showed amylase of 2477 IU/L, lipase of 6770 IU/L and white cell 21.6×10^9 . Ultrasound of the abdomen demonstrated multiple gallstones with normal intra- and extrahepatic bile ducts and voluminous and inhomogeneous pancreas. Computer tomography revealed aerial collection in the body and tail of the pancreas, with necrotic fields in this zone, and extensive inflammatory changes involving the surrounding fat (Figure 1, 2). Acinetobacter spp. was isolated from blood cultures. The clinical and biological evolution of our patient was favourable under antibiotic treatment. The patient was discharged after 52 days of hospitalization.

Discussion

Emphysematous pancreatitis is a rare, severe and life-threatening complication of acute pancreatitis that results in a mortality >50% compared to the overall mortality of acute pancreatitis of 4%. The infection is most commonly attributed to gram-negative organisms such as *Escherichia coli* and *Klebsiella* spp. This pathology occurs mainly in immunocompromised patients, especially in diabetic individuals. There are two possible approaches to emphysematous pancreatitis: conservative treatment which includes antibiotic therapy, percutaneous puncture and endoscopic techniques and surgical debridement.

Conclusion

Emphysematous pancreatitis results from a superinfection of an acute necrotizing pancreatitis. Effective therapy requires rapid treatment of the infection and control of septic shock. Abdominal CT is the examination modality of choice for suspicion of emphysematous pancreatitis and critical in the evaluation of superimposed emphysematous infection of the pancreas.





The Role Of CT In Esophageal Perforation With Consequential Mediastinitis Following Bone Swallow-Report Of Two Cases With Different Clinical Outcomes

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Report of two cases

First patient was young, previously healthy 25-year-old man with esophageal perforation complicated with pneumomediastinum after eating meat.

Second patient was 67-year-old man with neck swelling accompanied by odynophagia and breathing difficulties following accidental bone swallow. He was highly febrile, hypertensive, tachycardic, with markedly elevated inflammatory parameters. Past medical history revealed diabetes mellitus and hypertension. Computed tomography (CT) examination performed in both patients showed foreign body in the cervical esophagus corresponding to swallowed bone, with ill-defined wall which was highly suspicious for perforation. Signs of pneumomediastinitis were obvious with extension to the neck, where confluent gas inclusions were present. While first patient recovered promptly after endoscopic bone removal, the condition of the second patient remained critical due to septicaemia. Despite all the efforts and prescribed supportive therapy, fluid and electrolyte replacement, and broad-spectrum antibiotics, patient became hemodynamically unstable with signs of septic shock, and unfortunately died.

Discussion

It is known from the literature that swallowed bones sometimes may penetrate esophageal wall with possible serious complications. In such cases, urgent diagnostic and therapeutic procedures are required. As our first patient was young and otherwise healthy, he did not develop deep infection. On the other hand, second patient was older with chronic diseases and developed more serious complications with lethal outcome.

Conclusion

Best treatment options for esophageal perforation remain endoscopy, followed by surgery. CT represents powerful additional diagnostic tool in locating the bone, the site of wall perforation, and assessment of complications.



Impact of electric scooter trauma in the department of emergency radiology of an Italian metropolitan city: epidemiology characteristics and pattern of injuries

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Azienda Ospedaliera San Camillo-Forlanini, Department of Emergency Radiology, Rome, Italy

Introduction

Electric scooters have become very popular over the past five years. Popularity is strongly linked to an increasing number of injuries. Our study aims to evaluate the epidemiological characteristics and injury patterns of patients with electric scooter trauma. Data was collected from a HUB trauma center in a large Italian metropolitan city.

Methods

The study population is composed of patients admitted from June 2020 to January 2022 to our emergency department after an electric scooter trauma. Age and sex, the time of trauma, alcohol or drug abuse were registered as epidemiological risk factors. Triage level, the number of radiological examinations and image findings were evaluated.

Results

171 patients met the inclusion criteria. Most of the patients were men, between 18 and 40 years old. 93% received one radiologic examination. 81 patients (47%) had at least one injury identified on imaging. Upper limbs were the most frequently injured (20%), followed by maxillofacial region (16%), head (7%) and lower limbs (6%). 35 patients (15%) were hospitalized due to brain injuries, fractures, or abdominal lesions.

Key conclusion

Electric scooter trauma is a potential cause of brain injury, maxillofacial and upper and lower limb fracture.



Acute gastric volvulus (GV): Case report.

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Consorcio Hospital General Universitario de Valencia, Radiology, Valencia, Spain

Case report

86 years old male that comes to the emergency for abdominal pain and melena, suspecting at the time an upper gastrointestinal bleeding. After an endoscopic study, he is diagnosed with a substantial hiatus hernia (HH) and Cameron ulcers, treated and discharged.

He consults again on several occasions for the same symptoms, with added dysphagia and intolerance to oral feeding with vomiting, suspecting gastric retention, observing hematic remains coming out of the nasogastric probe, and thus deciding to realize a CT scan, in which we observed a gastric volvulus that herniated the stomach into the thorax.

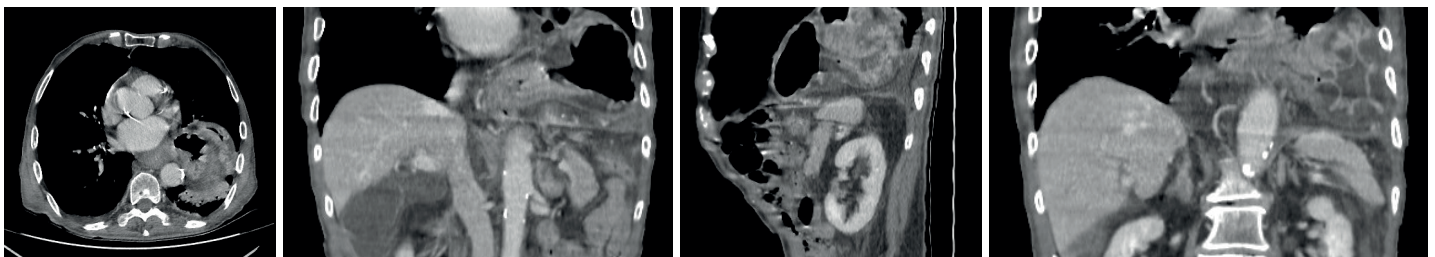
Discussion

GV is a rare condition that refers to at least a 180° stomach twist on its mesentery, and is more frequent in patients with type II/ III HH.

The clinical classic triad of Bochard, epigastric pain, retching and inability to pass a nasogastric tube is present in approximately 70% of patients.

It can be complicated with ischemia and obstruction.

The plain chest radiography is useful to guide the diagnosis, but most published work considers the computer tomography as the diagnostic test of choice, the most common findings being the mirroring image of normal anatomy with reversal of the greater and lesser curves gastric wall edema and perigastric fluid.



Conclusion

Acute GV is a surgical emergency, which symptoms are often nonspecific, depending on the imaging for its correct and prompt diagnosis and treatment.



New quantitative ultrasound technology for the automatic assessment of healthy and pathological lung status: useful in emergency settings

Stefania Ianniello - Fiorella Anna Lombardi - Roberto Franchini - Rocco Morello - Nicoletta Fusco - Ernesto Casciaro - Marco Di Paola - Sergio Casciaro

National Institute for Infectious Diseases "L. Spallanzani" IRCCS, Diagnostic Imaging Unit, Rome, Italy - National Research Council, Institute of Clinical Physiology, Lecce, Italy

Introduction

Lung ultrasound (LUS) is a promising tool for the diagnosis and monitoring of patients with pneumonia and/or COVID-19 infection, although CT is the Gold Standard. LUS may overcome some CT's limitations (costs, portability, radiations), however it is dependent on the operator's experience and it still requires the definition of objective quantitative indicators.

Objectives

To assess the state-of-art in the clinical use of LUS.

Methods

A review of available literature was performed.

Results

LUS is increasingly used in emergency departments with the growing need of a quantitative LUS approach. However, to date, the interpretation of artefacts (A- and B-lines), analysis of the pleura, and the visualization of consolidations and pleural effusions, are dependent on the experience of the operator. Furthermore, it is known that LUS score could overestimate the lung loss of aeration. This issue emphasizes the importance of defining an automatic procedure to assess the lung health status. Recently, a new LUS technology based on the fully automatic calculation of 3 novel LUS quantitative parameters (Pneumonia Score, Lung Staging and COVID Index) has been introduced. A recent study demonstrated its effectiveness on over 500 patients respect to Gold Standard (experienced operator). A high agreement between two methods was observed together with a specificity over 90% both for Pneumonia Score and Lung Staging in the discrimination between healthy and sick patients.

Conclusions

This innovative automatic and operator independent LUS technology is the first LUS solution that could quantitatively represent a significant support in clinical practice, also in emergency medicine.



Perforated Meckel diverticulum: why is radiology important for rapid diagnosis?

Bojana Maricic - Dragan Vasin - Nevena Stanisic - Bojana Miskovic - Marija Dobric - Dragan Masulovic

*Center for radiology and MRI, University Clinical center, Emergency radiology, Belgrade, Serbia -
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Case presentation

Male patient, 28 years old reports to Emergency department with acute abdominal pain and vomiting. The day before symptoms appear patient had a colonoscopy and esophagogastroduodenoscopy that went without complications. During physical examination, the abdomen was with diffuse pain. Laboratory analyses showed increased factor of inflammation. Ultrasound revealed small bowel wall oedema and intraperitoneal free fluid and CT afterwards showed hidropneumoperitoneum with tubular structure localized infraumbilical which communicates with the ileal lumen (Fig 1—4). Small bowel wall was oedematous and circumscribed peritonitis was detected. The patient underwent immediate surgery. Intraoperative, perforation of Meckel's diverticulum with peritonitis and free fluid in peritoneal cavity confirmed and no other pathological findings found.

Discussion

Meckel's diverticulum is the most common congenital malformation which occurs after incomplete obliteration of omphalomesenteric or vitelline duct in 2% of the population and grows from antimesenteric edge of ileum. It can cause complications such as ulceration, haemorrhage, intussusception, intestinal obstruction, perforation and, very rarely, vesicodiverticular fistulae and tumours. Radiological diagnostic of Meckel's diverticulum is very difficult.

Conclusion

Meckel's diverticulum is often completely asymptomatic, but complication like gastrointestinal bleeding, perforation and inflammation can lead to life threatening condition, so quickly diagnosis is crucial. In case of Meckel's diverticulum intraperitoneal perforation there is a small amount of gas, so plain abdominal radiography is often clear. On the CT examination Meckel's diverticulum is difficult to distinguish from ileum but CT diagnostics is the gold standard for diagnosis its complications.





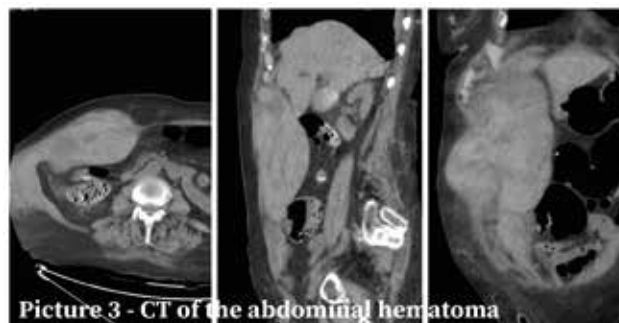
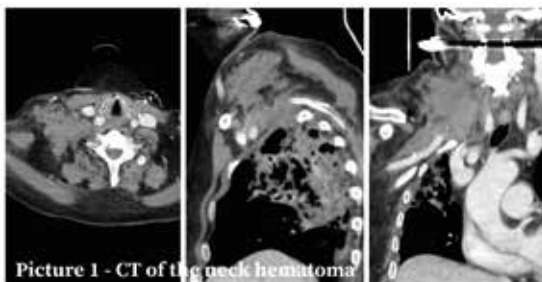
Microscopic polyangiitis presenting with large hematomas - iatrogenic and spontaneous

Danilo Markovic - Jelica Vukmirovic - Dragan Vasin

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Case report

A 65-year old female patient with a 5-year history of microscopic polyangiitis (MPA) and terminal renal insufficiency presents with fatigue and fever (38.8C). High inflammatory parameters combined with right lung consolidations on a chest radiograph led to admission to the Pulmonology department of the University Clinical Center of Serbia. At admission, a central venous catheter via the right internal jugular vein was placed when a neck tumefaction formed. A hemoglobin level drop indicated an urgent CT neck: a right supraclavicular hematoma in the neck soft tissues 7.5cm long (Picture 1). The patient was stabilized with multiple transfusions, hemodialysis, and intensive antibiotic treatment. After 10 days, the patient's condition worsened with abdominal pain, paraumbilical tumefaction, and lowered hemoglobin. An ultrasound is performed: a large heteroechogenic formation in the abdominal wall is noted (Picture 2). A CT scan of the abdomen was needed to further evaluate the mass. A large heterodense hematoma, approximately 20 cm long, was located in the right rectus abdominis muscle with lateral propagation into the right oblique muscle and laminar subcutaneous infiltrations (Picture 3). Multiple transfusions were given, the patient was stabilized. Apart from MPA and immunosuppressive therapy, the patient has no evidence of other diseases, drug use or other factors to facilitate bleeding. Spontaneous muscle hematomas in MPA are rare, with our report being the only one presenting both iatrogenic and spontaneous bleeding in the same patient. Suddenly lowered hemoglobin should indicate an urgent radiological examination. Ultrasound could be used to avoid fragile arteries during medical procedures.





Traumatic diaphragmatic injuries (TDI)

Marco Mastandrea - Daniele Veri - Giovanni Mancò - Martina Serviotti - Manuela Mereu - Rosa Lucia Patea - Massimo Caulo

Unich, Santissima Annunziata, Chieti, Italy

Background

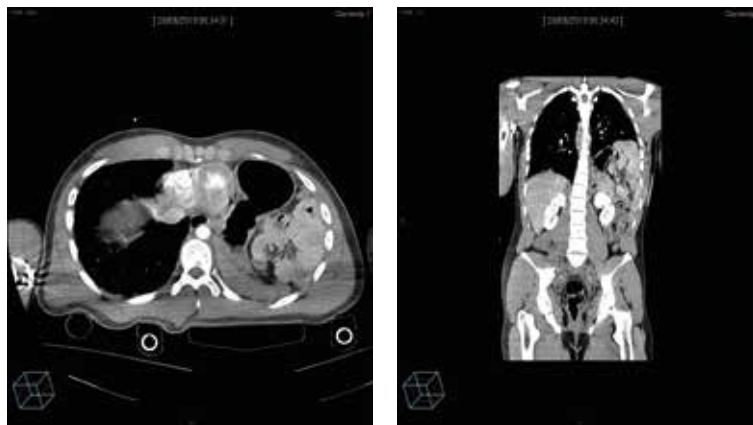
Traumatic diaphragmatic injuries (TDI) resulting from thoraco-abdominal trauma have often subtle or absent clinical and radiological signs, so the diagnosis is often delayed.

Learning objectives

- 1) Types of injuries. Penetrating trauma usually from knife or gunshot wounds or severe blunt trauma from motor vehicles accidents (MVAs) result in abnormal communication between the thoracic and abdominal cavities. TDI are three times more frequently on the left than on the right, possibly due to a buffering effect of the liver on the right hemidiaphragm.
- 2) Imaging methods. CT with multiplanar reformation (MPR) is the first examination in severe trauma whereas chest X-ray (CXR) is useful in the follow-up. MRI plays a role in evaluating delayed manifestations or when CT findings are questionable.
- 3) Characteristic signs.
 - a. CXR: specific signs, such as herniation of abdominal viscera, nasogastric tube displacement, and non-specific signs, such as irregular or blurred appearance of the diaphragm, "lifting" of the diaphragm, contralateral deviation of the mediastinum, pleural effusion.
 - b. CT: interruption of the diaphragm, "collar sign", "Hump and bump sign", dependent viscera sign, herniation of abdominal viscera (Fig. A, B), thickening of the diaphragm, blood extravasation.
 - c. MRI: T1-weighted and gradient-echo sequences display normal diaphragm as a continuous hypointense band. Injuries to the diaphragm are seen as sudden defects in the low signal strength hemidiaphragm.

Key conclusion

The combination of high-quality CT MPR images, knowledge of specific signs and high suspicion help to identify even subtle TDI. When CT findings are questionable, MRI is the best problem-solving tool.





Ultrasound Diagnostic Challenges Of The Stomach In The Emergency Center

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Background

Acute epigastric pain is a frequent cause of a patient's visit to the emergency department. Ultrasound (US) is one of the initial radiological and diagnostic methods in these patients. During the transabdominal ultrasound examination, we often encounter pathological changes in the stomach region, which as such is often neglected during routine diagnostic processing due to the impossibility of adequate visualization of all structures. Although esophagogastroduodenoscopy (EGDS) is the gold standard in the definitive diagnosis of pathological changes in the stomach, and MDCT is used for radiological staging, US can be a useful, affordable and quick method for establishing a primary diagnosis. US can observe changes in the stomach wall, in the form of inflammatory processes, infiltrative lesions, intra and extraluminal propagation, evaluation of perigastric fat tissue, as well as signs of secondary dissemination of the disease.

Learning objectives

- To gain understanding of optimal techniques of diagnostic evaluation.
- To become familiar with the US stomach anatomy.
- To present sonographic characteristics of the stomach lesions encountered in practice.

Conclusion

Ultrasound examination can be an effective diagnostic method in the detection of pathological changes, and with a multidisciplinary approach and correlation of multiple data (history, clinical examination, laboratory values, EGDS) we can arrive at the correct diagnosis necessary for an adequate therapeutic approach of these patients.

Keywords: stomach ultrasound, ultrasound radiology, GIT



Double gallbladder complicated with cholelithiasis and acute cholecystitis

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Case presentation

A 77-year-old patient was referred to our clinic with right upper quadrant pain and nausea. Physical examination showed positive Murphy sign. Blood analyses revealed elevated inflammatory markers.

Abdominal ultrasound (US) revealed two separate gallbladders, one of which had diffuse wall thickening, several intraluminal stones, and laminar pericholecystic fluid. Abdominal computed tomography (CT) also showed the presence of two gallbladders. The patient underwent magnetic resonance cholangiopancreatography (MRCP) which revealed two separate gallbladders with two cystic ducts.

Patient was treated conservatively with intravenous antibiotics. Surgery was indicated after withdrawal of inflammation. At laparoscopy two separate, thickened wall gallbladders with intraluminal gallstones were found and removed without incident. The patient successfully recovered and was discharged on the post-operative day two.

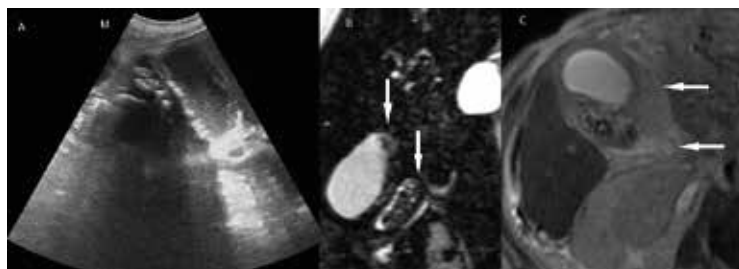
Discussion

Gallbladder duplication is a rare congenital biliary anomaly, typically discovered as an incidental finding during imaging studies. Patients are asymptomatic unless cholelithiasis or cholecystitis develops. Double gallbladder can be classified into two types. The first one is bi-lobed gallbladder, caused by persistent longitudinal septum that divides gallbladder lumen into two chambers, with common cystic duct. The second type represents true gallbladder duplication with two separate gallbladders and two independent cystic ducts.

Ultrasonography is the imaging modality of choice for primary evaluation of gallbladder. MRCP has an important role in determining the type of gallbladder duplication.

Conclusion

Patients with symptomatic gallbladder duplication should undergo surgical treatment with both gallbladders removal. Since anatomical variations of gallbladder are related to increased incidence of iatrogenic bile duct injuries during cholecystectomy, their preoperative diagnosis is very important.





Mechanical Thrombectomy Following Mid-Basilar Artery Thromboembolic Occlusion

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University Clinical Centre of Serbia, Centre for radiology and magnetic resonance imaging, Emergency Center, Belgrade Serbia - University Clinical Centre of Serbia, Centre for radiology and magnetic resonance imaging, Clinic for neurosurgery, Belgrade, Serbia - University Clinical Centre of Serbia, Centre for radiology and magnetic resonance imaging, Belgrade, Serbia

Background

Basilar artery occlusion (BAO) stroke is a rare accounting for approximately 1% of strokes, has a significant risk of morbidity and mortality and needs emergent management. Early recanalization is crucial to achieve a good prognosis.

Case

We report the case of a 76-year-old male who was admitted due to instability, speech difficultness and right-sided weakness. On the initial imaging computed tomographic (CT) revealed no any acute brain pathology and basilar dot sign as a direct sign of thromboembolic event, on the CT-angiography (CTA) acute mid-BAO was confirmed and CT-perfusion (CTP) showed cerebellar perfusion defect with large mismatch volume. The patient underwent mechanical thrombectomy (MT) using the Solubra technique consisted of deployment of stent retriever distal to the clot with an intermediate catheter at the clot face with thrombus evacuation and complete recanalization and made immediate significant recovery.

Discussion

Randomized controlled trials have demonstrated powerful efficacy of endovascular thrombectomy (EVT) for large vessel occlusion in the anterior circulation. The effect of EVT for acute BAO in the posterior circulation has not been well studied and remains unproven.

Conclusion

It is possible to achieve excellent results with MT in acute BAO if timely diagnosis and reperfusion can be done to save the ischemic penumbra, and thus effectively improve the prognosis of patients, and reduce mortality.

We believe that the success in our case was a result of the prompt clinical diagnosis, good collateral circulation, fast access to the cathlab and early mechanical recanalization.



Bedside Lung Ultrasound: Quick Answer For Respiratory Failure

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University Clinical Center of Serbia, Center of Radiology and Magnetic Resonance, Belgrade, Serbia

Background

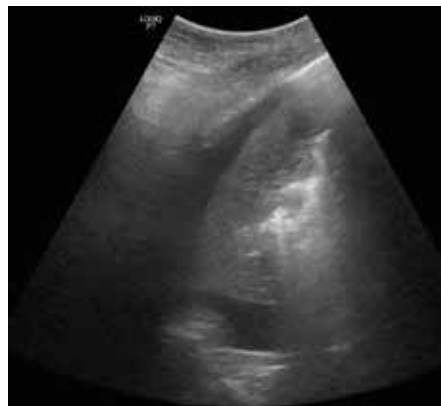
The problem of radiological diagnosis of critically ill patients in intensive care units is always current and is the result of the intensivist's constant justified need for monitoring circulatory state, volemia and lung tissue and the inability of radiology always to respond optimally to these needs. The most commonly used radiological method for evaluating the lung condition in intensive care units is chest X-ray. Ultrasound is also common used because it is simple to carry out, minimally invasive, real-time method which enables immediate decision-making diagnosis. Bedside lung US (bLUS) can reliably identify pneumothorax, consolidation, atelectasis, interstitial syndromes, pleural effusions. Chest X-ray is certainly used for the diagnosis of ARDS but it cannot monitor changes in the interstitium in a short period of time while ultrasound can detect discrete changes in the interstitium, which is important for making the decision to extubate the patient. bLUS detects septations in the pleural fluid that CT cannot detect, detects dynamic "air" bronchogram, which is important in the differential diagnosis of atelectasis and pneumonia, as well as detects diaphragm dysfunction during respiratory insufficiency.

Learning objectives

- To show the lung ultrasound anatomy and the basic ultrasound lung signs.
- To review the most common types of chest pathology in critically ill.
- To review the main causes of respiratory failure and their lung ultrasound patterns.

Key conclusion

Ultrasound is accessible and simple but also relatively reliable method for evaluating the lung parameters that are necessary in intensive care units.





Budd-Chiari syndrome

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Case presentation

A 21-year-old female patient came into the Emergency Room because of epigastric pain, hematemesis, melena, and malaise. It was obtained anamnestic data about taking oral contraceptives and consumption of alcohol two days before. Laboratory analysis showed leukocytosis, thrombocytosis, an increased level of D dimer, anemia, and hyperbilirubinemia.

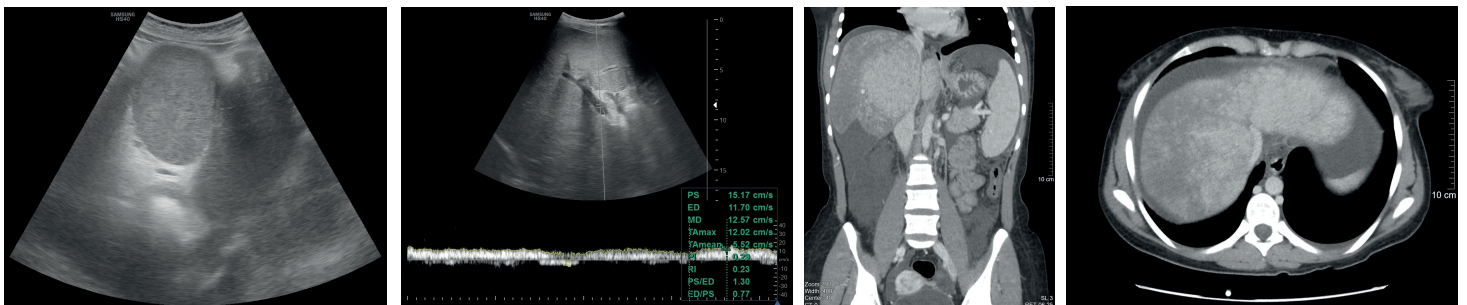
Esophagogastroduodenoscopy revealed the first-grade esophageal varices. Ultrasonography(US) showed an inhomogeneous, enlarged liver with an enlarged caudate lobe, enlarged spleen, ascites, and decreased portal venous flow(Figures 1, 2). Computed tomography(CT) confirmed these findings and presented irregular hypovascular zones of the hepatic parenchyma, and hepatic veins that couldn't be visualized(Figures 3, 4). The diagnosis of Budd-Chiari syndrome was made.

Discussion

Budd-Chiari syndrome is an uncommon disorder characterized by a partial or complete hepatic venous outflow obstruction. Symptoms depend on the form (acute, subacute, or chronic) of the disease and can vary from jaundice and encephalopathy to portal hypertension, ascites, liver failure, and esophageal varices. The US usually shows a lack of visualization of hepatic veins, an enlarged, inhomogeneous liver with an enlarged caudate lobe, ascites, splenomegaly, and possibly hepatofugal portal venous flow. CT shows all these signs and additionally hypodense zones of the hypoperfused hepatic parenchyma, especially peripheral with an enhancement of central parts of parenchyma, compressed inferior vena cava, and intra- and extrahepatic collateral veins.

Conclusion

A quick diagnosis and treatment of these patients are the priority in order to prevent a fatal outcome, although the only definitive treatment is liver transplantation.





Imaging presentation and urgent therapeutic management of pancreatitis vascular complications: A single center experience

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Clinical Center of Serbia, Digestive radiology, Belgrade, Serbia -
Clinical Center of Serbia, Cardiovascular radiology, Belgrade, Serbia*

Background

Acute necrotic pancreatitis or exacerbation of chronic pancreatitis continue to be associated with significant morbidity and mortality and presents one of the leading causes of urgent admission to hospital. Pancreatic enzymes or walled off pancreatic necrosis (WOPN) damage the surrounding arterial blood vessels, which results in the formation of pseudoaneurysms. Due to their thin walls there is a high risk of pseudoaneurysm rupture with consequent bleeding. Interventional radiology provides extraordinary diagnostic and therapeutic possibilities for precise identification and localization of a blood vessel that is engaged in the formation of the pancreatic pseudoaneurysm. Furthermore, the exclusion of that blood vessel from circulation by stenting or embolization methods is possible at the same time.

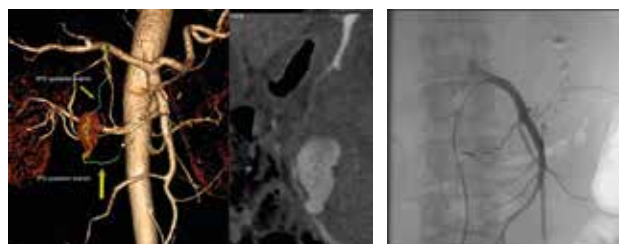
From June 2019 until June 2022 pseudoaneurysms of pancreaticoduodenal arcade due to pancreatitis were detected in eight patients who underwent abdominal ultrasound, CT and/or MRI examination, followed by urgent endovascular embolisation or open surgery. Six patients were successfully treated with endovascular embolization, performing specific "sandwich" technique where both inflow and outflow of the pseudoaneurysm were embolized with coils. One patient, underwent open surgery due to the size and impending rupture, while one patient died during the preparation for intervention because of the rupture and massive bleeding.

Learning objectives

Regular follow-up of these patients in terms of timely detection of vascular complications and their urgent treatment are of great clinical importance.

Key conclusion

Pancreatitis can be complicated with pseudoaneurysm formation which represents an urgent condition that requires immediate, if possible, minimally invasive interventional radiological management.





Urgent endovascular management of multiple bleeding sites in pancreaticoduodenal arterial arch: What is behind?

Borivoje Lukic - Milica Mitrovic - Dragan Vasin - Ljubica Sedlar - Marko Miletic - Dragan Masulovic - Vladimir Cvetic

Clinical Center of Serbia, cardiovascular radiology, Belgrade, Serbia - Clinical Center of Serbia, Digestive radiology, Belgrade, Serbia - Clinical Center of Serbia, emergency radiology, Belgrade, Serbia - Clinical Center of Serbia, Cardiovascular radiology, Belgrade, Serbia - Clinical Center of Serbia, Interventional radiology, Belgrade, Serbia - Clinical Center of Serbia, Cardiovascular Radiology, Belgrade, Serbia

Case presentation

An 84-year-old female patient was examined due to the epigastric pain and increased values of INR 8.95. She reported that she fell in her house a few days ago, but that she did not suffer major injuries. Laboratory results showed hemoglobin level of 139 gr/L. The patient was on long-term anticoagulant therapy after implantation of a pacemaker. Abdominal CT examination showed a formed hematoma in the mesentery, with active hemorrhage due to multiple lesions of the arterial wall. Selective digital subtraction angiography confirmed the multiple lesions of the pancreaticoduodenal arcade with contrast extravasation. Angioembolisation was performed by sandwich technique, first supraselective microcatheter was placed in inferior pancreaticoduodenal artery and two spiral detachable microcoils were implanted at it's origin, followed by superselective catheterization of superior pancreaticoduodenal artery and placement of two microcoils in it's proximal part. A control angiography demonstrated complete occlusion of pancreaticoduodenal arcade. The procedure was completed without complications and the patient was referred further for examination and monitoring of the coagulation profile.

Discussion

Patients on anticoagulant therapy are at high risk of acute bleeding, which is a potentially lethal condition. Major bleeding complications are intracranial hemorrhage or massive gastrointestinal bleeding.

Conclusion

We point out the importance of emergency diagnostics and minimally invasive management in the treatment of acute bleeding, probably provoked by minor trauma in a patient on unregulated anticoagulant therapy. Modern interventional radiology provides extraordinary, diagnostic and therapeutic possibilities for precise identification, localization and embolization of a bleeding source.





Not a simple gastritis

Maricela Moreira Cabrera - Carmen Martínez Porras - Lucía Zambrana Aguilar - Mariano Lozano Gómez - Laila Zitan - Laura Pérez Oller - Victoria Ibañez

Torrecárdenas University Hospital, Radiology, Almeria, Spain

Case presentation

A 49-year-old male with a history of migraine and grade 2 internal hemorrhoids presented with 6 days of constant abdominal pain, vomiting, constipation, and anuria.

At the physical examination, he was afebrile, and tachycardic, with abdominal distension and decreased bowel sounds. No signs of peritonism were found.

Laboratory tests showed alteration of acute phase reactants and renal function parameters.

Unenhanced abdominopelvic computed tomography (CT) was performed, showing gastric dilatation, gas in the gastric wall and the gastric veins, and portal venous pneumatosis, making the diagnosis of emphysematous gastritis.

Discussion

Emphysematous gastritis is a rare form of gastritis, with a mortality rate of up to 60%, increasing when portal venous gas is found in CT scans.

It is characterized by the presence of air in the gastric wall secondary to bacterial infection because of an insult to the gastric mucosa.

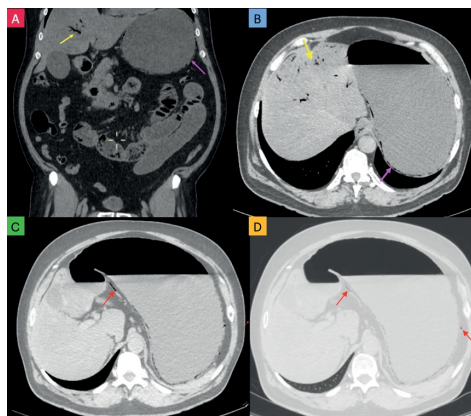
The clinical presentation of gastritis is variable and nonspecific, including in most cases acute abdominal pain, nausea, vomiting, fever, shock with or without hematemesis, and melena.

Abdominal examination usually shows signs of an acute abdomen including abdominal distention, decreased bowel sounds, and epigastric tenderness.

The diagnosis is made by radiological demonstration of intramural gas, with CT being the imaging study of choice. However, plain abdominal radiographs may show intramural gas within a dilated stomach and gas within the portal venous system.

Conclusion

Emphysematous gastritis is a rare entity with high mortality that usually presents with nonspecific symptoms and laboratory parameters alterations, so imaging tests are essential for its diagnosis.





Surprise! It is not aortic dissection

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Torrecárdenas University Hospital, Radiology, Almeria, Spain

Case presentation

A 46-year-old woman with a 1-week history of constitutional symptoms and right paresthesia, presented with acute thoracic pain, blurred vision, diaphoresis, and presyncope.

Physical examination revealed a purpuric rash on the right hand, distal cyanosis, and coldness. Computed tomography was performed due to suspicion of aortic dissection, showing a filling defect in the left atrium, related to an intracavitary mass with contrast enhancement, probably atrial myxoma.

Emergency resection was made, and the histopathology study confirmed the diagnosis.

Discussion

Atrial myxoma is the most common benign primary cardiac tumor. 70% of all cardiac myxomas originate in the left atrium.

They're common between 30-60 years of age, with female predominance.

It's characterized by cardiovascular manifestations, constitutional syndrome, and embolic complications.

Embolization of tumor particles occurs in 30-40% of patients, affecting cerebral arteries in most cases. Peripheral embolization is the second most frequent presentation.

Myxomas present as lobulated, well-defined round masses with a narrow pedicle. They are frequently heterogeneous with foci of calcification. They can be differentiated from an intracavitary thrombus in that the latter are generally smaller of lower attenuation, and do not present contrast uptake.

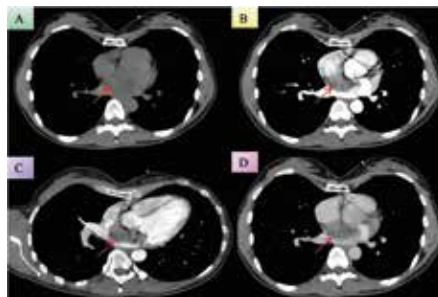
Treatment is surgical and the prognosis is excellent; however, follow-up with periodic echocardiographic controls is indicated.

Conclusion

The most common causes of left atrial mass are thrombi, tumors, and vegetation.

Myxoma is the most prevalent primary heart tumor. Clinical manifestations of myxomas consist of constitutional symptoms, embolization, and intracardiac obstruction.

The diagnosis represents a challenge due to the low incidence and its non-specific symptomatology.





Organo-axial gastric volvulus resulted in cardiac compression, gastric and renal ischemia

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Case presentation

A 64-year-old man was presented with abdominal pain, nausea and vomiting. There was no data in the medical history of chronic diseases or surgery. Abdominal ultrasonography detected an extremely distended stomach, while the small intestines had normal peristalsis. The dorsal decubitus radiograph showed a large air-fluid level in the abdomen, but also a smaller one in the chest.

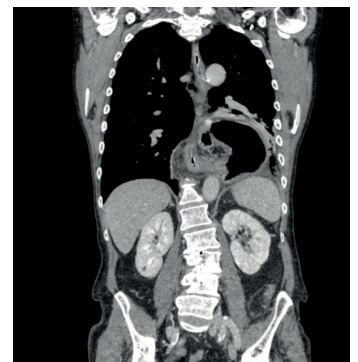
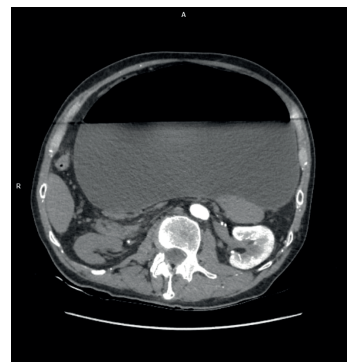
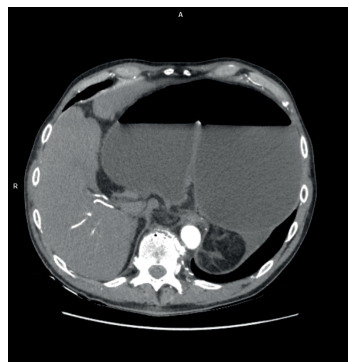
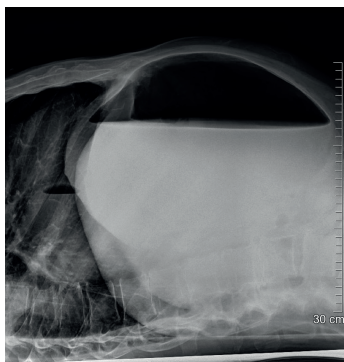
MDCT scan revealed a hiatus hernia complicated by organo-axial volvulus. The stomach was distended, 140x220 mm in diameter, with poor wall contrast enhancement, as well as with a compressive effect on the heart and abdominal structures. There were CT signs of right heart strain. Portal vein, superior mesenteric artery and vein, as well as the right kidney showed no contrast enhancement. Volvulus was confirmed by endoscopy, and the patient underwent surgery, when the organo-axial type and necrotic posterior wall were detected. However, follow-up CT showed good renal contrast enhancement.

Discussion

Organo-axial is the more common type of gastric volvulus in adults that occurs due to rotation of the stomach along its long axis, the cardiopyloric line, resulting in the displacement of the greater curvature above the lesser curvature. It is more often associated with hiatus hernia or trauma. This type is more likely to lead to strangulation.

Conclusion

Gastric volvulus is a surgical emergency and prompt diagnosis is important to avoid life-threatening complications such as gastric and bowel ischemia, but also other other compressive effects including impaired cardiac function and renal blood supply.





Evolving paradigm in the treatment of complex tandem occlusion: clinical case report and literature review

Dusan Petrovic - Dragoslav Nestorovic

Clinical centre of Serbia, Clinical centre of Serbia/Belgrade University/ Radiology, Belgrade, Serbia

Case presentation

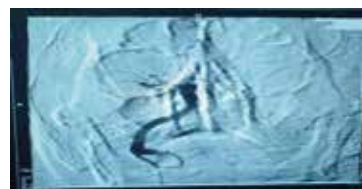
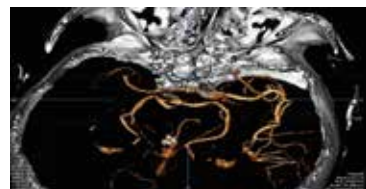
A 86-year-old male patient who presented clinically with left-sided weakness (hemiparesis), dizziness and several syncopal episodes was transported and admitted to our clinic (initially neurology department). Patients medical history revealed long standing arterial hypertension and multifocal atherosclerosis without previous history of ischemic nor hemorrhagic cerebral artery strokes within the previous years, without known or documented residual deficits. The imaging studies revealed significant stenosis of the right internal carotid artery (ICA) C2 segment and concomitant high-grade stenosis of the distal part of the M1 segment of the right middle cerebral artery (MCA; tandem occlusion).

Discussion

As these complex lesions may present a challenge for treatment decision- making and mechanical thrombectomy in distal M1 segment of MCA ischaemic stroke has a debatable benefit/risk ratio, alternative treatment variants have to be taken very seriously into consideration. We therefore present the clinical case of an older patient with complex tandem occlusion who was relatively successfully treated with mechanical thrombectomy (distal M1 segment of right MCA; distal revascularization technique). The neurological symptoms of the patient disappeared on control examination and on postoperative CTA there was no residual right MCA stenosis, thus providing insights into another very important therapeutic alternative of distal M1 segment MCA stroke.

Conclusion

Our case is another example that endovascular treatment can be relative effective in patients with anterior vascular circulation system stroke, even with distal M1 occlusion and initial non favorable survival parameters (absence of good CO predictors; paradoxically), and could potentially provide as a superior approach in the future.





Spontaneous Rupture of a Previously Undiagnosed Hepatocellular Carcinoma

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University Clinical Center of Serbia, Belgrade Emergency Clinical Center, University Clinical Center of Serbia, Radiology, Belgrade, Serbia - University Clinical Centre of Serbia, Belgrade Emergency Clinical Center, University Clinical Center of Serbia, Radiology, Belgrade, Serbia

Case presentation

A 59 year old female presented with acute abdominal pain, tachycardia, low diastolic blood pressure and palpable epigastric mass on examination. No medical history of note.

Abdominal ultrasound displayed a liver mass, occupying segments II and III, with sonographic features of adenoma/focal nodular hyperplasia (FNH), and a subhepatic fluid collection.

On MDCT exam, a large hypervascular heterogeneous lesion was seen (71x56x76mm in diameter), in II and III liver segment, with central scarring. According to its CT characteristics, this lesion primarily corresponded to FNH.

A defect was seen on the inferior contour of the described lesion, and a subhepatic dense fluid collection (65x35mm in diameter). Dense free fluid, primarily hemorrhagic, was also noticed in the pouch of Douglas.

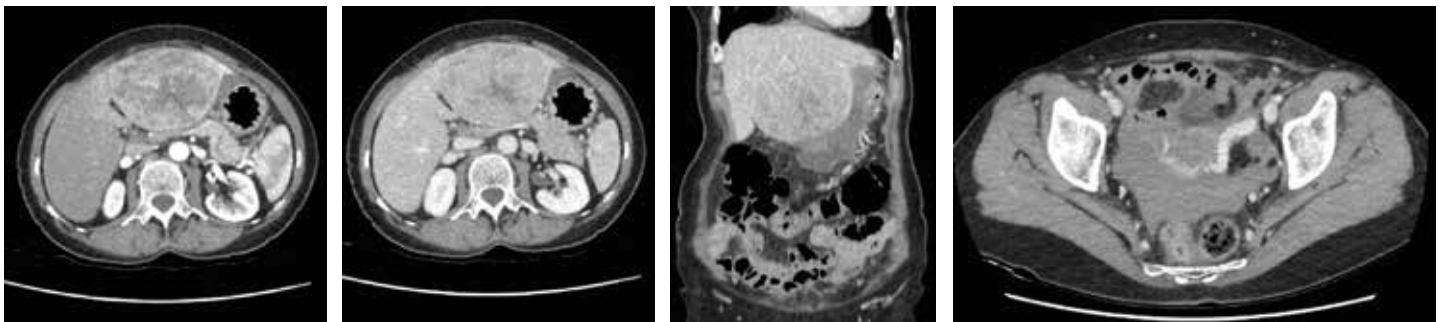
Liver segmentectomy was performed. Histopathology revealed a well differentiated hepatocellular carcinoma (HCC).

Discussion

Ruptured HCC is a potentially life threatening situation, and its diagnosis in patients without history of cirrhosis or HCC may be difficult. Tumors in the left lobe of liver are at higher risk of rupture due to relatively small room for a space occupying lesion, compared to that in the right lobe. The diagnosis of rupture of HCC can be confirmed by computed tomography scan or ultrasonography or both in 75% cases.

Conclusion

Spontaneous rupture and hemorrhage of HCC is believed to be one of the fatal emergencies in clinical practice. There is no consensus on the best treatment approach for this entity and treatment should be individualized.





A rare case of otomastoiditis complicated by pneumocephalus, meningitis and cerebritis

Matea Prenc - Marija Meštrović - Dijana Zadravec - Mia Smoljan Basuga

UHC Sisters of Mercy, Department for Diagnostic and Interventional Radiology, ZAGREB, Croatia

Case presentation

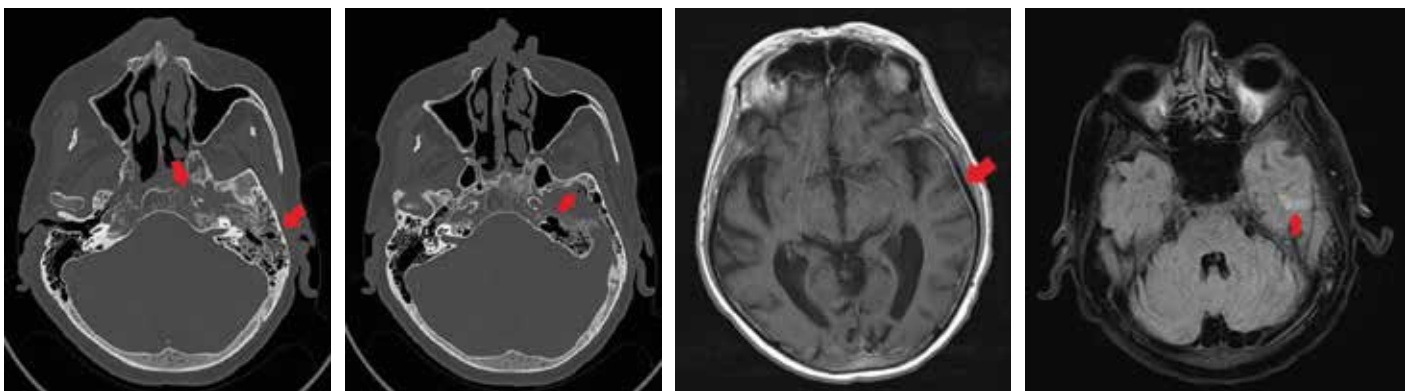
A 71-year-old male patient presented in the Emergency Department with decreased consciousness, speech disturbance, febrility and 2 months history of treated otitis media. Physical examination was besides hyperemic tympanic membrane normal. Laboratory tests showed elevated inflammatory markers. Non-enhanced CT revealed fluid content in mastoid cells and middle ear on the left side with cortical erosion of petrous apex and clivus (Fig.1). Intracranial air inclusions were seen in left temporal lobe (Fig.2). On brain MRI there was restriction of diffusion in left mastoid suggesting suppurative process. Spread of the inflammation was noticed on post-contrast T1-weighted images (T1WI) with strong enhancement of temporal lobe dura (Fig.3) as well as left carotid space and epipharynx. On fluid-attenuated-inversion-recovery (FLAIR) sequence high signal intensity was present in the temporal lobe (Fig4).

Discussion

Infectious otitis media has many complications. Inflammatory effusion often spreads into mastoid cells causing otomastoiditis. Involvement of petrous apex results in petrous apicitis with bony erosions seen on CT. Spontaneous otogenic pneumocephalus is rare condition as air enters from middle ear into cranial cavity through cortical defect caused by temporal bone osteomyelitis. Meningitis is the most common intracranial complication and best visualized with MRI that shows dural thickening and enhancement. Inflammation can affect brain parenchyma causing cerebritis and abscess.

Conclusion

Despite wide use of antibiotics, middle ear infections still remain life-threatening condition in which urgent neuroradiological analysis proves the diagnosis and determines spread of the primary inflammatory process and its complications.





Role of multi-phase CT angiography in non-traumatic sub-arachnoid hemorrhage

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University of Sassari, Department of Medicine, Surgery and Pharmacy, Sassari, Italy*

Case report

A 55-year-old female patient was admitted to the Emergency department due to severe headache and hyposthenia. She underwent a non-contrast CT scan that showed SAH (subarachnoid hemorrhage) in the basal cisterns and in the frontal lobes along with intraventricular hemorrhage in the third and fourth ventricles (Hunt and Hess scale grade IV). (Picture 1)

Thus a multi-phase CT angiography was performed, including an arterial and a venous phase, after administration of 50 ml of high-concentration iodinated contrast medium; the venous phase revealed a saccular aneurysm in the right SCA (superior cerebellar artery) (Picture 2).

Digital subtraction angiography demonstrated a wide-necked saccular aneurysm of the middle segment of the SCA, measuring 5x5x4 mm; a bleb on the aneurysm wall was considered as the site of rupture.

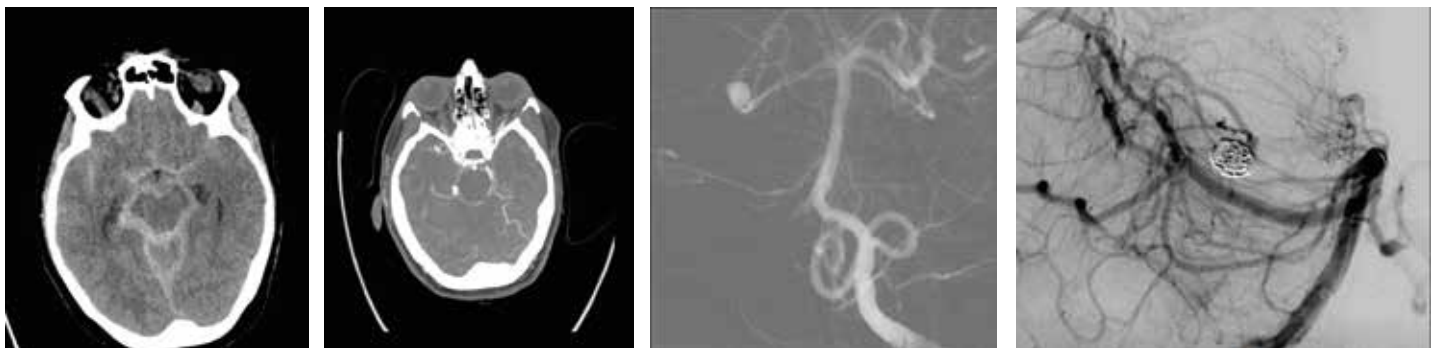
At this point an endovascular coiling procedure was performed and no complications were seen. (Pictures 3, 4)

Distal cerebellar artery aneurysms are very rare: of all intracranial aneurysms, 0.3 to 0.7 % arise from the SCA.

The evaluation of their radiological features by means of CT angiography is crucial to estimate their risk of rupture (Muhammad et al, 2021)

Multiphase CT angiography is widely available and time-saving as a first measure in identifying intracranial aneurysms

Our case underlines the fundamental role of multi-phase CT angiography including a venous phase in assessing the etiology of non-traumatic SAH, as it is able to detect even uncommon findings like peripheral SCA aneurysms and thus leading to a successful non-invasive treatment.





Approach to the diagnosis of brain death in Emergency Radiology.

*José Rodríguez Castro - Mateo García Ramos - Gemma Fernández Suárez - Juan Calvo Blanco -
Helena Cigarrán Sexto - Ángela Meilán Martínez - Luis Martínez Cambor - Sara Budiño Torres*

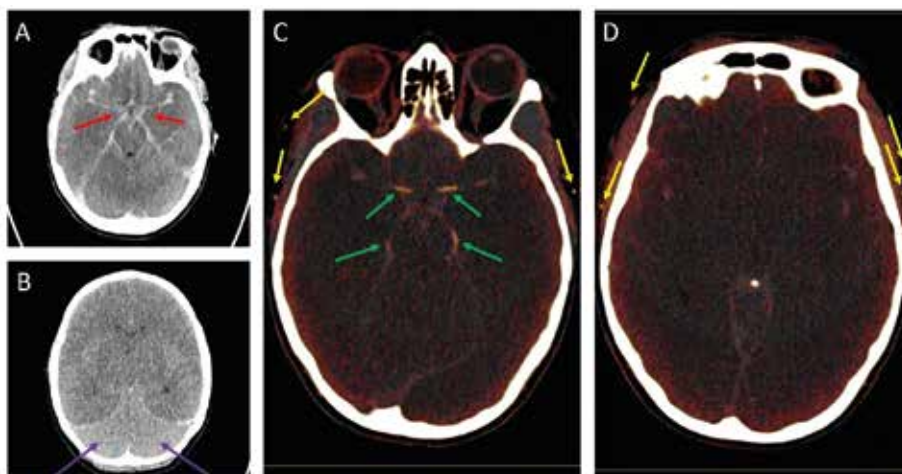
Hospital Universitario Central de Asturias, Radiology, Oviedo, Spain

Case report

We present the case of a 45-year-old woman who suffered a sudden loss of consciousness while exerting herself. A head CT scan was performed showing significant subarachnoid bleeding, as well as generalized effacement of sulci suggestive of diffuse cerebral edema. Dual-energy CT angiography of the circle of Willis was then performed to differentiate subarachnoid hemorrhage from arterial phase contrast. There was little staining of the intracranial vessels, with adequate enhancement of the temporal and extracranial carotid arteries. No staining of the cortical portion of the middle cerebral arteries or internal cerebral veins was seen.

Brain death is defined as the irreversible disappearance of all brain activity, generally observed by clinical examination. From the radiological point of view, there are many imaging techniques to objectify an absence of cerebral blood and suggest the diagnosis of brain death. On CT, the characteristic findings would be diffuse cerebral edema with effacement of the convexity sulci, false increase in cerebellar density, image of pseudosubarachnoid hemorrhage due to venous congestion in the sulci, and compression of the ventricles and basal cisterns. CT angiography fails to visualize enhancement of the cortical portion of the middle cerebral arteries and internal cerebral veins.

Diagnosis of brain death is highly controversial due to its legal implications. Currently, the radiologist plays a fundamental role in the diagnosis of this entity since we can identify early objective signs of brain death. Digital subtraction angiography is the gold standard for diagnosis, although other tests such as CT angiography are gaining prominence.





Contributions of Dual Energy CT in the diagnosis of gangrenous cholecystitis.

José Rodríguez Castro - Sara Budiño Torres - Gemma Fernández Suárez - Juan Calvo Blanco - Helena Cigarrán Sexto - Karen Del Castillo Arango - Miguel Martínez - Cachero García - Elena Uceda Andrés

Hospital Universitario Central de Asturias, Radiology, Oviedo, Spain

Case presentation

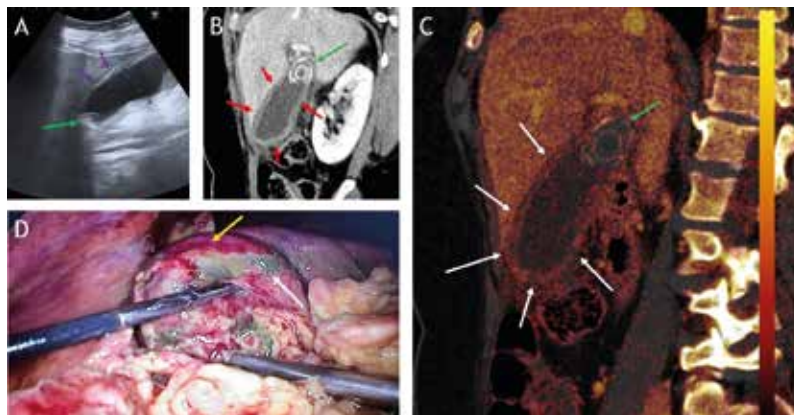
We present the case of a 61-year-old woman who came to the Emergency Department due to abdominal pain of several days' duration. The anamnesis revealed a fever of 38°C and a doubtfully positive Murphy's sign. Abdominal ultrasound was performed, observing the distended gallbladder with an infundibular lithiasis and asymmetric thickening of the gallbladder walls. Abdominal CT with intravenous contrast and dual energy was performed to better characterize the gallbladder, visualizing focal areas of absence of enhancement in the gallbladder wall.

Discussion

Gangrenous cholecystitis is the most common complication of acute cholecystitis, affecting 15% (2-30%) of patients. Differentiating gangrenous cholecystitis from uncomplicated cholecystitis is both a clinical and radiological challenge. Ultrasound is the most sensitive test (83%) and the specificity of contrast-enhanced CT (96%) is superior to that of ultrasonography. However, the diagnostic accuracy of this imaging modality is estimated at 64.1% according to certain series. Dual-energy CT shows, more clearly, the areas of necrosis in the gallbladder wall visible as focal uptake defects in the iodine map, which will facilitate the diagnosis of gangrenous cholecystitis.

Conclusion

1. Gangrenous cholecystitis is a life-threatening complication that requires an accurate diagnosis.
2. Ultrasound is the most sensitive and contrast-enhanced CT is the most specific techniques for the diagnosis of gangrenous cholecystitis.
3. Dual-energy CT facilitates the diagnosis of this entity by more clearly delineating the focal areas of mural necrosis in the gallbladder.





Focal rupture of unstable ascending aortic aneurysm with cardiac tamponade

Chiara Rosa

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Case presentation

We describe an uncommon variant of acute aortic syndrome that is defined as eccentric medial one-sided ectasia of the aortic wall.

Discussion

From the point of view of the clinical and imaging perspective, limited intimal tear is described either as an eccentric one-sided bulge or as a minor contour abnormality of the aortic wall that may be the only imaging finding of this lesion; it is sometimes associated with high-attenuation of the aortic wall (crescent sign) and haemorrhagic content on unenhanced MDCT. Due to aortic wall rupture, intrapericardial hemorrhage and the consequent acute cardiac tamponade, the clinical classic finding of this syndrome is frequently characterized by decreasing arterial blood pressure. Other findings are the abnormal cardiac shape and the presence of contrast medium refluxing into the azygos vein; this implies significant haemodynamic disturbance and it is a predictable sign, although not specific.

Conclusion

In conclusion, non-traumatic acute aortic syndrome is a life-threatening condition with significant implication in diagnosis, therapy and management. The incidence of limited intimal tear is not known and is underestimated because of general unfamiliarity with this dissection variant, therefore imaging techniques such as CT, MRI may fail to detect this type of aortic aneurysm.

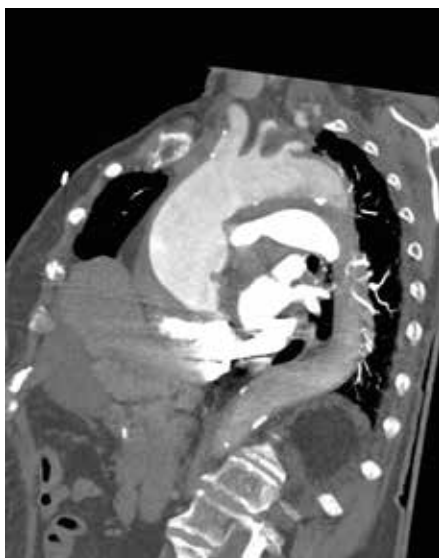


Figure 1: sagittal-oblique angio-CT of the thorax that shows the one-sided dilatation of the aortic aneurysmatic wall



Tolosa-Hunt Syndrome (THS): From misdiagnosis to successful recognition through radiologic imaging.

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Consorcio Hospital General Universitario de Valencia, Radiology, Valencia, Spain

Case report

36 years old male that consults on various occasions for headache, being diagnosed of migraine that partially responds to analgesia, consulting later in the hospital for symptoms worsening and fever, and is admitted by Neurology. After a week of admission he presents clinical improvement with analgesia and is discharged.

The patient comes back with ophtalmoparesis of the right 3rd cranial nerve and fever and is admitted to ICU.

An MRI shows thickening of the cavernous sinus and narrowing of the right internal carotid artery (RICA), pachymeningitis, obstructive hydrocephalia and ventriculitis.

A second MRI shows thrombosis of the RICA with an extensive area of infarction in the territory of the right middle cerebral artery and basal ganglia.

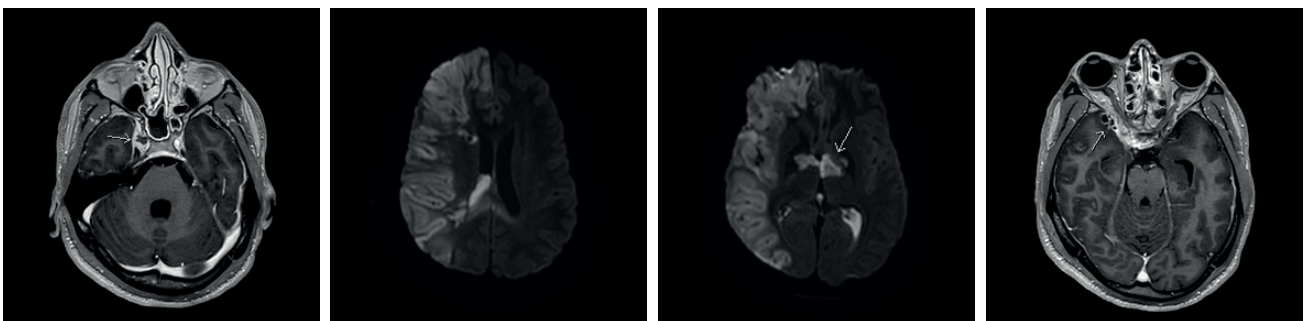
Discussion

TSH is an idiopathic inflammatory condition that involves the cavernous sinus and orbital apex and is essentially a clinical diagnosis of exclusion.

The most important MRI findings are nonspecific granulomatous inflammation of the cavernous sinus wall sinus, and possible orbital apex affectation.

It can be complicated with thrombosis of the cavernous sinus and almost 50% of patients have relapses.

Routine laboratory tests are normal, meaning the symptoms and imaging are fundamental for the diagnosis.



Conclusion

TSH is a diagnosis of exclusion requiring careful patient evaluation to rule out tumour, vascular causes, or other forms of inflammation in the region of the cavernous sinus and can be frequently misdiagnosed, being fundamental an early diagnosis and treatment onset.



Imaging of Intimate Partner Violence – Essentials for Emergency Radiologists

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*University Hospital Bern, Radiology, Bern, Switzerland -
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University Hospital Bern, Emergency Department, Bern, Switzerland -
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Learning objectives

To raise awareness for intimate partner violence (IPV) among radiologists
To comprehend imaging findings suggestive of IPV
To understand the role of radiologists in cases suspicious for IPV.

Background

During the Covid-19 pandemic reports of IPV have surged. Periods of lockdown have intensified IPV due to isolation with an abuser, cramped living conditions, and movement restriction. There is evidence that victims of IPV who seek medical care often do not report their history of abuse.

Overall, imaging studies of non-accidental injury represent a very small part of the routine work of radiologists. Awareness of imaging findings suggestive of non-accidental injuries is high among paediatric radiologist, while radiologists in other subspecialties are often less cognisant of imaging patterns related to inflicted injuries.

Imaging findings of IPV

Radiologic findings from IPV fall into two main categories: injuries to target areas and injuries to defensive locations. Additional findings may include coexistent old injuries to different body parts and a history that is inconsistent with an injury pattern.

The key role of radiologists is to provide a complete and objective report of all imaging findings. Concerns of non-accidental injuries should be discussed with the referring clinician.

Conclusion

Emergency radiologists may be the first to encounter injuries of abuse no imaging. By recognising imaging patterns suggestive for IPV they can contribute to the detection of unreported cases of intimate partner violence and help victims to receive appropriate support and care.



Perforated jejunal diverticulitis as cause of acute abdominal pain

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General Hospital of Novi Pazar, Radiology Department, Novi Pazar, Serbia*

Case presentation

We report a case of a 54-year old man with abdominal pain and elevated temperature (37 C).

Laboratory analysis present border value of leukocytes (10000).

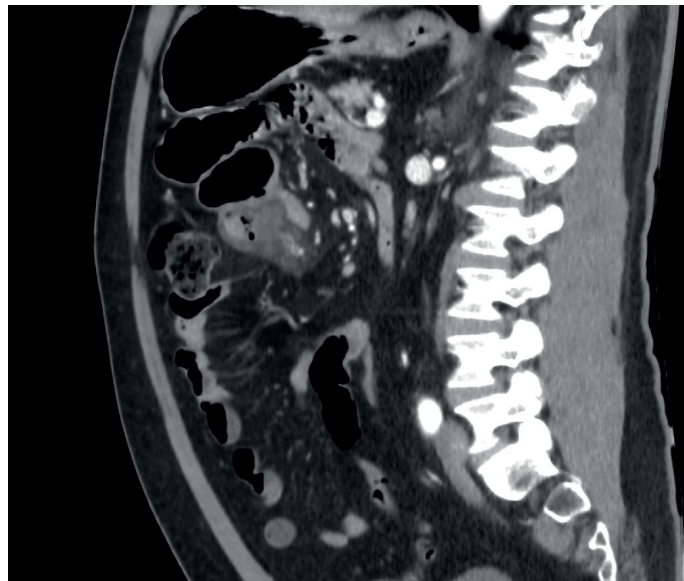
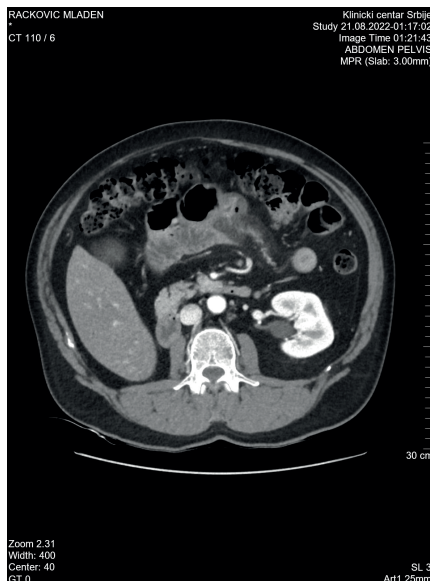
On contrast enhanced computed tomography of abdomen and pelvis, our finding was jejunal inflammation and regional fat -stranding, out pocketing on jejunal wall 28 mm in size (LL diameter)- diverticulum with CT sign of inflammation (thick and hyperdense wall) with gas inclusions into the wall - sign of suspected perforation. The adjacent jejunal loop was dilated, 43 mm in lumen size (AP diameter). Because of suspected perforation of the wall selection method was surgical, where operator found perforation of jejunal diverticulitis.

Discussion

Jejunal diverticulosis is rare heterogeneous disorder caused by a variety of abnormalities of smooth muscle or myenteric plexus. Jejunal diverticulitis can give complications like acute intestinal obstruction, bleeding of diverticulum and mainly perforation with mesenteric abscess.

Conclusion

Surgical treatment is selection method of complicated jejunal diverticulitis, in other cases adequate treatment is conservative therapy with antibiotics.





One-year experience with vascular disorders of the small intestine in patients of the Emergency Room of University Clinical Center of Serbia

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Introduction

Vascular disorders of the small intestine often represent diagnostic dilemma, therefore our goal was to determine their frequency, cause and outcome of treatment at Clinical Centre of Serbia.

Methods

In a retrospective study, we analyzed patients of the ER in period from June 2020 to June 2021, who underwent CT examination with clinical presentation of nausea and abdominal pain after initial clinical-biochemical-radiological diagnostics. In this period, 30 patients were diagnosed with some of the vascular disorders of small intestine on CT.

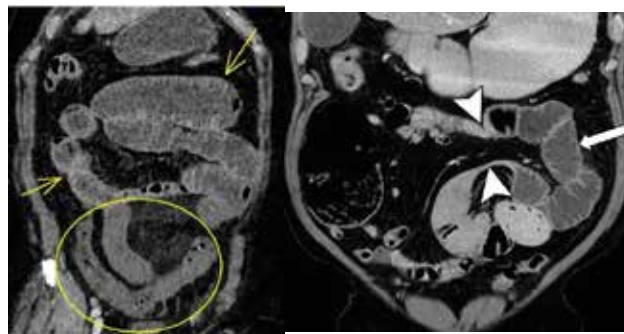
Results

We analyzed 30 patients (mean age 62 years; 24 women, 6 men) of whom 26 (86.7%) had ischemic changes of the small intestine on CT, and 4 (13.3%) intramural hematoma. In 16 patients (53.3%) cause of ischemia was "closed loop" obstruction, while in the remaining 10 (33.3%) cause was arterial thrombosis.

Urgent surgical treatment was performed in 24 of 26 patients who had ischemia, while 4 patients who had intramural hematoma were followed up. Of the 24 operated patients, 6 (25%) underwent adhesiolysis, 8 (33.3%) small bowel resection with ileostomy, while 10 patients (41.7%) underwent bowel resection with entero-entero anastomosis. Eight of 30 patients (26.7%) had lethal outcome, two (6.7%) as a result of "closed loop" obstruction and perforation of the intestinal wall, while 6 patients (20%) died as a result of thrombosis and consequent ischemia.

Key conclusion

Vascular disorders of the small intestinal wall are common cause of emergency surgical treatment, which suggests a significant role of CT examination in detection of such pathological conditions.





A rare case of perihepatitis associated with a perforated gastric peptic ulcer with hiatal hernia type 3- The role of CT

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Case presentation

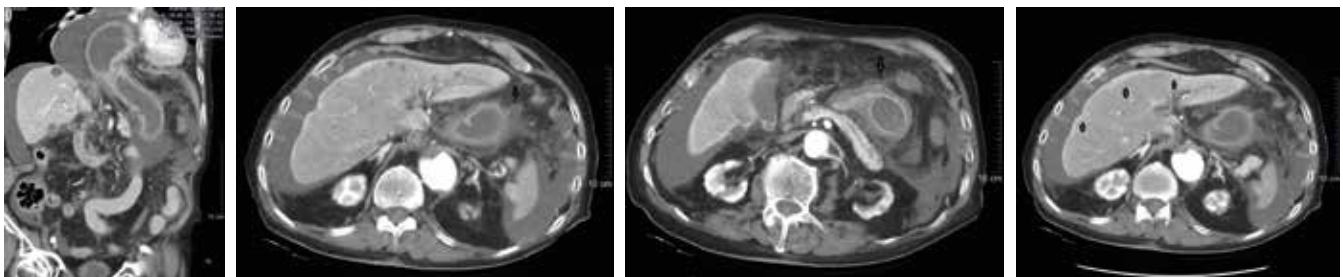
An elder-age male presented to emergency department with exhaustion and abdominal pain. Patient appeared hypotensive, tachycardic, with a high level of CRP. Abdominal plain radiography was normal, and ultrasound revealed peritoneal fluid and perihepatic adhesions. A CT examination followed, and the findings indicated ascites, hiatal hernia type 3 (figure 1.), gastric wall thickening, perigastric fat stranding with punctate gas inclusions (figure 2. and 3.). Arterial phase showed increased rim enhancement along the hepatic surface - perihepatitis (figure 4.). The patient underwent immediate surgery which confirmed a perforated prepyloric ulcer and perihepatic adhesions.

Discussion

Perforation is a relatively uncommon, life-threatening complication of peptic ulceration, often present with acute abdomen. Clinically suspicious findings associated with pneumoperitoneum on plain abdominal radiography are sufficient for laparotomy, otherwise, CT is indicated. Perihepatitis is an inflammation of the liver capsule and tissue around the liver, associated with the perihepatic adhesions. Perihepatitis is usually associated with pelvic inflammatory disease (PID) caused by *C. trachomatis* or *N. gonorrhoeae*, which is described as Fitz- Hugh-Curtis syndrome. Infrequently, perihepatitis can be caused by other pelvic as well as any peritoneal infections. In the case of ulcer perforation, gastric and duodenal contents penetrate the peritoneal cavity, which leads to chemical and suppurative peritonitis.

Conclusion

Perihepatitis is a rare condition, especially without association with PID. By presenting this case, we aim to highlight the significance of CT findings and the possibility of association of perihepatitis with peritonitis caused by a perforated peptic ulcer.





POST TRAUMATIC SPLENIC PSEUDOANEURYSMS: AN EXAMPLE OF WRONG MANAGEMENT

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Case report

56 years old man was admitted to emergency department with diffuse abdominal pain and abdominal wall ecchymoses after fall from 3-meter height. Blood cell count showed mild anaemia. No hemodynamic instability signs were detected.

Day 0: inpatient underwent US without doppler; no traumatic lesions were identified.

Day 1: follow-up abdominal doppler US showed a subtle splenic nodular hypoechoic lesion with color-doppler signal consistent with pseudoaneurysm. Triphasic contrast-enhanced CT revealed splenic lacerations close to two round hypervascular focal lesions (2cm maximum diameter), fully enhancing same as the aorta in all dynamic phases, without time-dependent size growth and hyperattenuation. A diagnosis of segmental splenic artery pseudoaneurysms (SSAP) was made. SSAP are uncommon vascular lesions caused by damage of intima and/or elastic lamina of vessel wall, resulting in artery dilation contained by adventitia; spontaneous rupture is a major complication, accounting for 2/3 of all cases, especially when size >2cm.

Day 2: Interventional radiologist did not recommend transcatheter splenic artery embolization (TSAE) (pseudoaneurysm size). Conservative strategy was adopted.

Day 8: follow-up CT showed substantial SSAP size increase (maximum diameter 3 cm)

Day 10: patient underwent splenectomy

Management errors:

- 1) CT is the gold standard imaging technique in major trauma without hemodynamic instability
- 2) TSAE is the first-line treatment choice due to low operative risk and high effectiveness
- 3) Conservative strategy should not be employed in larger pseudoaneurysms
- 4) Splenectomy should be reserved to high grade splenic lesions when hemodynamic instability is reported due to high operative risk and spleen loss sequelae





Intestinal Nonrotation: A Rare Cause of Intestinal Obstruction in Adults Complicated by Peritonitis due to a Ventriculoperitoneal Shunt Infection

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Case presentation

A 44 year old male presented with a one-day history of abdominal pain, vomiting and fever. The patient developed these symptoms at the Neurosurgery clinic, where he was hospitalized due to a VP shunt malfunction. There, a second VP shunt was implanted, while the old one could not be removed. The CT scan demonstrated intestinal nonrotation, small bowel ileus, signs of peritonitis and a fluid collection surrounding the abdominal end of the VP shunt - interloop abscess. During surgery nonrotation was confirmed, and mobilization of the caecum was performed. A second operation was performed due to the patients deteriorating condition – it confirmed an abscess located around the abdominal ending of the old VP shunt.

Discussion

Intestinal nonrotation is a Stringer type I congenital anomaly, characterized by the small bowel in the right peritoneal cavity, and the colon displaced to the left. Adult presentation is very rare. There was no evidence of bowel perforation and the patient likely developed peritonitis due to a VP shunt infection which was highly suggested by the CT and intraoperative findings. Peritonitis and abscess forming are very rare shunt related complications with a high mortality rate.

Conclusion

Nonrotation is rarely encountered in adults, but presents a surgical challenge and needs to be properly diagnosed. Abdominal VP shunt related complications are rare but need to be considered when the patient presents with abdominal symptoms.



The role and efficiency of endovascular treatment in acute ischemic stroke

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Introduction

Mechanical thrombectomy is an effective treatment method for the last 10 years, which is actively performed using endovascular mechanical primary catheter aspiration or stent retriever devices in the treatment of acute stroke caused by intracranial large vessel occlusions. In this study, the technical and radiological patency rates of the mechanical thrombectomy method are presented.

Methods

The study was performed by a single team in a single center, and the patency and procedure times provided by the TICl score of the main vascular structures feeding the brain in the intra-extracranial area, and the application times to the center were noted.

Results

Fifty-four patients with acute ischemic diagnosis were included in the study for mechanical thrombectomy. The mean time to reach our center from the onset of the symptom was 252 minutes. The mean inguinal puncture time was recorded as 47 minutes. The most frequently affected vessel was the left MCA M1 segment (n:14, 25.9%), followed by the most common left ICA (n:12, 22.2%).

With the primary aspiration technique alone, 2b or 3 revascularization in Cerebral Infarction (TICl) was successful in 33.3% of cases. Additional use of stent retriever increased the TICl 2b/3 revascularization rate to 72.3%. The mean time from inguinal puncture to at least TICl 2b recanalization was 37 minutes.

Discussions - key conclusion

Mechanical thrombectomy, acute ischemic stroke thrombectomy with the use of aspiration catheters and, if necessary, stent retriever, is a fast, safe, simple and effective method to achieve angiographic results in achieving complete or near-complete vascular patency.



A dramatic case of necrotizing fasciitis.

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Case presentation

53-years-old male patient presented in the Emergency Department with fever, dyspnea and increased left lower limb (LLL) volume. Due to the initial clinical diagnosis of acute pulmonary thromboembolism, an angio-CT of pulmonary arteries and venous of lower limbs was performed showing thickening of deep and intermuscular fascias and myositis.

Discussion

The CT findings were suggestive of fasciitis and acute myositis not being possible to dismiss necrotizing fasciitis (NF), for which reason he went urgently under surgeon revealing necrosis of the anterior muscle-aponeurotic compartment. Fasciotomy and necrosectomy of the LLL were performed. Despite medical and surgical treatment, the patient died four days after admission.

NF is a rapidly progressive infection leading to deep tissue necrosis. The most frequent pathogens are group A streptococci and may be accompanied by gas-forming anaerobic bacteria. The mortality rate reaches 80%, being the therapeutic delay the most important prognostic determinant.

CT is the gold standard in suspected NF due to its high sensitivity. The most characteristic findings are the thickening of the fasciae, fluid collections in deep compartments, and muscle thickening and edema. The presence of gas would confirm the diagnosis of NF, but its absence would not rule it out. After contrast administration, the absence of fascial enhancement confirms the existence of necrosis.

Conclusion

CT is the gold standard when NF is suspected. Recognizing the characteristic findings of this pathology is essential in order to be able to establish an appropriate treatment early.



CT Angiography: First-Line Option For The Diagnosis Of Acute Gastrointestinal Bleeding

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Background

Acute gastrointestinal bleeding is manifest bleeding that requires transfusion of at least 4 units of blood within 24 hours. It is a common, potentially life-threatening condition responsible for 1%–2% of all hospital admissions. Initial treatment requires the establishment of euvoemia, stabilization of the coagulation status and localization of the bleeding site where the CT examination occupies important place in the diagnostic algorithm. The treatment of these patients is multidisciplinary and includes emergency physicians, gastroenterologist, abdominal surgeons and radiologists for optimal localization and detection of the bleeding cause. Urgent diagnosis of the localization of gastrointestinal bleeding is essential for the prognosis of these patients, and initially, an upper or lower endoscopy is performed. Upper endoscopy is successful in the detection and therapy of bleeding, while lower endoscopy is limited by the necessary colon preparation for the endoscopy. CT angiography has gained acceptance as a first-line option for the diagnosis and management of lower gastrointestinal tract bleeding.

Learning objectives

To evaluate CT angiography protocol for acute GIT bleeding in Emergency radiology Department of the Clinical Center of Serbia.

To present typically CT findings of acute gastrointestinal bleeding.

Conclusion

CT angiography is a non-invasive, accessible and highly sensitive and specific radiological technique in detecting the cause and localization of acute gastrointestinal bleeding. It is used after inconclusive endoscopies, but in the diagnostic algorithm they can also be used before endoscopic examinations to evaluate the anatomy and the cause of bleeding.

Keywords: CT angiography, gastrointestinal bleeding, endoscopy.



Rapid Diagnosis Of Pneumoperitoneum: Why is Ultrasound Good?

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Background

Ultrasound (US) is initial visualization diagnostic procedure in most of algorithms for acute abdominal conditions. US is a fast, accessible, reiterative and non-invasive diagnostic method that does not involve ionizing radiation. The most sensitive radiological method for the diagnosis of small amounts of free gas is computed tomography but US can also distinguish gas in the bowel lumen from gas in the peritoneal space and can detect small amount of extraluminally gas, especially in cases of "contained-leak" perforation where plain abdominal radiography cannot be helpful. US can also help in detecting the cause and location of the perforation. Diagnosis of gastric or duodenal ulcers relies on indirect US signs, while the detection of the ulcer niche itself is relatively rare and is characterized by defects in the hypoechoic mucosal layer. In a certain percentage of cases, free gas inclusions can be detected in the surrounding adipose tissue, which suggest contained leak perforation without signs on plain abdominal radiography.

Learning objectives

1. To review the sonographic findings of free abdominal air in the emergency department.
2. To discuss US signs of "contained-leak" gastrointestinal perforation.
3. To illustrate, in a simplified way, possible causes of perforation.

Conclusion

Pneumoperitoneum is a common condition in the emergency department, and prompt diagnosis can improve the patient prognosis. US is a diagnostic procedure that is performed quickly and in a certain number of cases shows satisfactory sensitivity and specificity in the detection of free gas.



Middle lobe ischemia secondary to surgical amputation of the middle lobar artery.

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Case report

A 53-year-old man admitted for elective surgery for right upper lobe pulmonary neoplasia undergoing right upper lobe lobectomy partially extended to the middle lobe. Two days after the operation, the patient presented regular general condition, hypoxemia and low-grade fever. A chest CT is performed to rule out post-surgical complications and an amputation of the middle lobar artery is observed, identifying only preservation of the venous vascularization in the middle lobe. A consolidation area is observed in the middle lobe, with the absence of intravenous contrast uptake, and areas of ground-glass attenuation and interlobular septal thickening in the rest of the lobe, findings suggestive of middle lobe ischemia, most likely secondary to the absence of arterial vascularization. It was decided to carry out an urgent surgical intervention, in which the CT findings were confirmed and a lobectomy of the middle lobe was performed due to its necrosis.

Lung ischemia a rare condition can occur in the setting of lobectomy as a complication of vascular occlusion. It can also be caused by lung torsion, which is the rotation of a lung or lung lobe about its bronchovascular pedicle. It is considered a medical emergency and usually requires a lobectomy. CT findings are non-specific and include arterial occlusion / obliteration, poorly-enhancing consolidation, ground-glass attenuation and interlobular septal thickening.

This case shows middle lobe ischemia secondary to amputation of the middle lobar artery. This pathology must be known due to the non-specific CT findings and differentiate it from other pathologies and post-surgical complications.





Portal venous gas: a case on emphysematous infection associated with acute pancreatitis with pylephlebitis and hepatic necrosis

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Case report

An 82-year-old woman with a history of high blood pressure, came to the Emergency Department due to diffuse abdominal pain of 24 hours duration, predominantly in the epigastrium and radiating to the belt, associated with vomiting, and dysthermic sensation. A blood test was performed in which alterations in the liver profile, elevation of amylase and lipase and leukocytosis were observed. It was oriented as acute pancreatitis and an abdominal ultrasound was performed to rule out cholelithiasis, in which hyperechoic images were observed in the liver parenchyma suggestive of intrahepatic portal gas. Given the suspicion of portal gas, an abdominal CT was performed especially to rule out intestinal ischemia and signs of acute pancreatitis were observed associated with abundant intravascular gas in the intrahepatic portal venous system and multiple areas of necrosis in the hepatic right lobe, without signs of intestinal ischemia. It was oriented as an emphysematous infection associated with acute pancreatitis with pylephlebitis and foci of hepatic necrosis. The patient presented a clinical and analytical worsening, in a situation of refractory shock and failed 24 hours after performing the CT.

Portal venous gas is the accumulation of gas in the portal vein and its branches. Although traditionally considered a harbinger of death (for example due to ischemic bowel), it is increasingly recognized in a variety of conditions, many of which do not carry as high mortality or morbidity risks. In this case we show the presence of intraportal gas secondary to intra-abdominal sepsis (severe acute pancreatitis), with its atypical presentation.

