

## The diagnosis and follow-up of breast cancer in advanced pregnancy

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**Background:** Breast cancer is the most common form of cancer worldwide, with a high mortality rate. Romania ranks first in Europe in the incidence and mortality of breast cancer.

**Content:** The presentation highlights the principles of management of breast cancer in advanced pregnancy. The case of a 39-year-old woman, 32 weeks pregnant, taken to the emergency department for painful uterine contractions is also presented. General clinical examination revealed a palpable breast mass in the right breast with perilesional skin erythema and a bloody nipple discharge, raising the suspicion of Paget's disease of the breast. The breast ultrasound (US) described a hypoechoic mass between the inferior breast quadrants. The diagnosis of invasive ductal carcinoma was sustained by elastography and established after ultrasound-guided breast biopsy. The caesarean delivery was performed (33-34 weeks) followed by bilateral ovariectomy. Subsequently, after neoadjuvant chemotherapy, the patient underwent Madden modified radical mastectomy and continued with chemotherapy and radiotherapy. Medical imaging provided valuable information for tumor staging and re-staging, guiding the treatment strategy as well as subsequent follow-up.

**Conclusions:** This case underlines the limited treatment options in pregnant women with oncological pathology and highlights the fine line between maternal health and child safety for ensuring the best outcome.

**Key words:** advanced pregnancy, breast cancer, ultrasound-guided breast biopsy, medical imaging.

## A rare case of extrahepatic cholangiocarcinoma – a multidisciplinary approach

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**Background:** Bile duct carcinoma is an extremely aggressive and rare primary hepatobiliary malignancy affecting nearly 1-2/100,000 people in most countries in Europe. Biliary tract malignancies located in the distal third of the common bile duct (CBD) account for approximately 17-18% of all cholangiocarcinomas. This report aims to provide a step-by-step evaluation of a rare case of cholangiocarcinoma.

**Content:** The current report focuses on a 65-year-old male patient who was presented to the emergency department with signs and symptoms suggestive for a biliary tract obstruction. An intense cooperation between multiple departments was required in order to perform a complete and accurate evaluation of the patient. Initially, the patient underwent an abdominal Ultrasonography (US), followed by an abdominal and pelvic Computed Tomography (CT), which revealed an intraductal tumor affecting the distal CBD. Furthermore, the patient underwent an endoscopic retrograde cholangiopancreatography (ERCP) in order to provide tissue samples and to perform a dilatation of the CBD in the affected area. The histopathology report confirmed the malignant nature of the lesion describing it as an adenocarcinoma. The surgeons performed a pancreaticoduodenectomy (Whipple procedure), managing to achieve negative tumor resection margins. However, the patient developed several complications that required multiple surgical reinterventions.

**Conclusions:** This report presents a fully investigated less common type of cholangiocarcinoma, highlighting the principles of diagnosis and management as well as of a multidisciplinary approach in such patients.

**Key words:** cholangiocarcinoma, adenocarcinoma, pancreaticoduodenectomy.

## Radioimaging aspects in knee degenerative pathology

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**Background:** Gonarthrosis represents one of the most frequent knee conditions, most commonly found in the 5th-6th life decades and not only, mainly in women, being the main cause of motoric disability in Europe, with a high impact on the social and economic status. The aim of the presentation is to aid the interdisciplinary team in interconnecting the imaging and clinical diagnosis of the osteo-articular system pathology.

**Content:** The presentation reviews the radioimaging aspects of knee degenerative pathology. The imaging findings of a 35-year-old patient, known with right femur-coxal congenital subluxation, secondary left gonarthrosis and motoric disability are also presented as an illustration. The imaging technique included the pangonogram (hip-knee-ankle), which is an x-ray of the entire lower limb in orthostatism.

The pangonogram allowed us to measure the hip-knee-ankle (HKA) angle, the internal mechanic alpha-femur angle, the Calton index – kneecap height, the beta – internal mechanic tibial angle and the gamma angle – tibial chute. Based on the imaging technique, there were highlighted changes in the bone structure of the left femoral head, with a suspicious aspect of an aseptic necrosis, an internally curved tibia and peroneum on the left and secondary left gonarthrosis. The patient was admitted to the Orthopedics Department and underwent the necessary measurements for receiving a personalized knee prosthesis.

**Conclusions:** This presentation highlights the challenging presentations of gonarthrosis and the modern techniques of diagnosis and treatment.

**Key words:** gonarthrosis, osteo-articular system, motoric disability, imaging investigations.

## SPECT myocardial perfusion imaging for the assessment of the quantity of viable myocardium

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**Background:** Assessment of viable myocardium (VM) is one of the most important indications in examination of patients with ischemic heart disease and systolic dysfunction of the left ventricle (LV) before planned surgical revascularization. There is a clear dependence of survival of patients with ischemic cardiomyopathy (ICMP) on the quantity of VM. One of the main methods for the assessment of VM is SPECT/SPECT-CT myocardial perfusion imaging. The study aimed to evaluate the role of diagnostic capabilities of SPECT/SPECT-CT myocardial perfusion imaging in the assessment of VM in patients with ICMP and LV ejection fraction (LVEF) <35%.

**Material and methods:** 48 patients with ICMP and LVEF <35% were examined. The age of the patients varied between 39 – 72 years, with an average of  $52.5 \pm 7.2$  years. SPECT/SPECT CT myocardial perfusion imaging was performed on GE's gamma camera "Infinia Hawkeye" at rest with ECG synchronization. A radiopharmaceutical (RFP) of  $^{99m}\text{Tc}$ -MIBI with an activity of 7.5 MBq / kg was used. The results of the SPECT/SPECT-CT myocardial perfusion imaging were assessed using a quantitative approach, polar maps, and a 17-segment myocardium model. VM was considered at levels of accumulation of RFP more than 50%. The software ECToolBox and Myovation were used for assessment.

**Results:** In right coronary artery – stenosis between 90-100%, the RFP absorption was  $45.4 \pm 12.7\%$  ( $p < 0.001$ ), while the VM was  $66.2 \pm 6.9\%$ . In 90-100% stenosis in the basin of the right interventricular branch of the left coronary artery, the RFP absorption was  $57.2 \pm 13.6\%$  ( $p < 0.05$ ), VM –  $54.8 \pm 7.5\%$ . In 90-100% stenosis in the basin of the envelope of the branch of the left coronary artery, the RFP absorption was  $65.1 \pm 9.7\%$  ( $p < 0.05$ ), VM –  $58.9 \pm 5.6\%$ . In patients with lesions of two or three coronary arteries, the RFP absorption was  $42.6 \pm 9.4\%$  ( $p < 0.001$ ), while the VM was  $35.3 \pm 8.2\%$ .

**Conclusions:** SPECT/SPECT-CT myocardial perfusion imaging is a highly informative, noninvasive technique for the assessment of the quantity of viable myocardium in patients with ICMP and low LVEF.

**Key words:** SPECT myocardial perfusion imaging, viable myocardium, ischemic cardiomyopathy.

## Ultrasound assessment of normal adnexa torsion

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**Background:** Adnexal torsion is a common gynecologic emergency. The evolution of torsion is unpredictable from complete spontaneous detorsion (rarely) to rapid progression and necrosis. Persistence at the stage of edema for several days is also possible. Prompt diagnosis and surgery are important, particularly in young fertile patients to preserve ovarian viability. The purpose of this study was to evaluate the ultrasound features of normal adnexa torsion.

**Material and methods:** The study included 7 women of reproductive age (including 2 pregnant), referred for ultrasound assessment of clinically suspected adnexal torsion. Out of 7 patients, 6 underwent subsequent laparoscopy. Absence of any additional ovarian pathology was confirmed by both ultrasound and intraoperative inspection. The ultrasound description included ovarian volume, vascularization, ovarian stroma and parenchyma aspect, "whirlpool sign" and tubal edema.

**Results:** Out of 7 cases, 6 were operated on and the diagnosis was confirmed, including 2 detorsions. In one case spontaneous detorsion has occurred with complete regression of edema within 1 month. Two sonographic patterns of twisted ovaries were noted: (1) unilaterally enlarged ovary with peripherally displaced follicles – noted in 4 cases, including in 2 patients with over 48 hrs after onset of symptoms, and (2) solid-appearing heterogeneous mass with echogenic and/or hypoechoic areas – noted in 3 cases. The "whirlpool sign" was present in 3 patients and tubal edema was present in 1 patient with normal adnexa torsion. Blood flow in the affected ovary was completely absent in only 3 patients.

**Conclusions:** Ultrasound appearance of normal adnexa torsion may vary according to the duration of the condition. Recognition of different sonographic features of twisted normal adnexa may improve the diagnosis.

**Key words:** Adnexal torsion, ultrasound, spontaneous detorsion