

Pneumatosis intestinalis in acute mesenteric ischemia

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Background: One of the radiological signs of acute arterial mesenteric ischemia (AMI) according to data of Multi-spiral Computed Tomography with angiography (MCTA) is pneumatosis intestinalis (PI). Taking into consideration absence of reliable information on the pathophysiology of PI, we performed a comparison of radiological data and morphological studies of the resected bowel wall segments.

Material and methods: We analyzed MCTA images of 15 patients with arterial AMI (men-9, women-6; average age – 71.1±3.5 years (95% CI: 63.64–78.49).

Results: PI was determined in all cases of AMI: type I (bubbly-like) was diagnosed more frequently ($p<0.01$) than type II (semilunar) and constituted 11(73.3%) vs. 4(26.7%) cases, respectively. During histological evaluation of bowel wall tissues, a number of particularities of these phenomena were revealed: (1) PI in all cases of AMI was associated with necrosis and desquamation of bowel mucosa; (2) morphologically they have a “honeycomb” appearance and are localized predominantly in perivascular areas; (3) the pattern of spreading – from mucosa to serosa layer, distinguish it from “benign” forms of PI. Also, it was determined that type I PI was associated with transmural necrosis of the bowel wall in 63.6% cases, whereas in type II PI – in 100% cases ($p<0.05$). Diagnostic value of this sign (PI) in arterial AMI constituted: Se, Sp, PPV, NPV=100%.

Conclusions: MCTA should be considered a method of choice for diagnosis of AMI. PI should be considered as a specific radiological sign of AMI. PI type II is associated in all the cases with transmural bowel wall necrosis.

Key words: computed tomography, acute mesenteric ischemia, pneumatosis intestinalis.

Associated complications of congenital aortopathies in children

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Background: Congenital aortopathies include a variety of disorders such as aortic stenosis, aortic coarctation, bicuspid aortic valve. The overall mortality rate following complications is 2.49-2.78 per 100,000 population. The study aimed to assess the factors with potential for development of complications in congenital aortopathies in children.

Material and methods: The study included 71 children aged from 1 month to 18 years (mean age of 9.26 ± 0.82 years). The ratio of girls to boys was 1:2. A total of 55 children were from rural areas and 16 were from urban areas.

Results: Echocardiographic data and the Z score revealed distinct aortic dilatation in 30 children, the most common site of dilation being the Valsalva sinus (26.03 ± 1.24, $p<0.005$). The most common pathologies associated with aortic dilatation were aortic coarctation and bicuspid aortic valve (accounting for 63.33% cases), followed by aortic stenosis (30% cases) and genetic diseases affecting the aortic wall structure (6.67% cases).

Conclusions: Aortic dilatation is commonly encountered in congenital aortopathies and can lead to life-threatening complications such as aortic aneurysms, aortic dissection and rupture. Early diagnosis and close follow-up are essential in this situation.

Key words: Congenital aortopathies, aortic dilatation, children.

Ovarian mucinous cysts in children and adolescents

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Background: Mucinous ovarian cysts (MOC) in children and adolescents are extremely rare. The study aimed to determine the particularities of imaging diagnosis, surgical treatment and morphological characteristics of MOC in pediatric patients.

Material and methods: We performed a retrospective analysis of pediatric patients (≤ 19 years) with ovarian tumors ($n = 117$) treated at the Institute for Mother and Child Health Care from 2000 to 2017. The diagnosis was confirmed by immunohistochemical analysis with monoclonal antibodies for cytokeratin 7 (CK-7), cytokeratin 20 (CK-20) and CEA.

Results: MOC was identified in 17(14.5%) cases. The average age was 16.7 ± 0.6 years (95% CI: 15.44-17.98). MOC was on the left ovary – 9(52.9%), right – 6(35.3%) and in 2(11.8%) – bilateral. After radiological exam data: unilateral MOC – cystic, multicameral formations with max. 12.7 ± 1.4 cm (from 8 to 27.7) and the “morphological” index (MI) after Jeoung HY. – 6.5 ± 0.1 ; bilateral (or secondary, appendectomy anamnesis) – are preponderant solid formations with max. – 6.9 ± 0.4 cm and MI = 4. Surgical interventions were performed by laparotomy – 15(88.2%) and laparoscopic – 2(11.8%). According to the volume of operations, ovarian tissue preserving – 11(64.7%), adnexectomy – 4(23.5%) and ovariectomy – 2(11.8%) were performed. On the immunohistochemical exam: Primary MOC (benign cystic adenoma) – CK-7 + / CK-20- / CEA-, and secondary MOC – CK20 + / CEA + / CK-7-.

Conclusions: MOC are quite rare epithelial tumors in pediatric patients with specific radiological and immunohistochemical characteristics. Secondary MOCs must be examined as metastatic formations in the mucinous tumors of the appendix having the potential for developing pseudomixomas of the abdominal cavity.

Key words: mucinous ovarian cysts, adolescents, children, cystadenoma.

Diagnostic value of MRI optimized protocols in evaluation of BI-RADS category 0 lesions detected by conventional imaging

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Background: Due to its higher sensitivity, breast magnetic resonance imaging (MRI) is increasingly being used to evaluate a variety of breast lesions when the results of conventional methods are inconclusive. The aim of this study was to assess the diagnostic value of breast MRI optimized acquisition protocols in the assessment of suspicious lesions rated as BI-RADS category 0 on previous mammography and/or breast ultrasound exam.

Material and methods: The study included a total of 214 suspicious lesions referred for breast MRI evaluation in the period 10.2015 – 02.2018. All lesions had been rated as BI-RADS category 0 on previous mammography and/or breast ultrasound exam. The MRI results were correlated with the final diagnosis and histopathology findings when available.

Results: A total of 214 lesions were restaged by MRI optimized protocols from BI-RADS 0 to the following categories: I – 35 lesions (16.4%), II – 24 lesions (11.2%), III – 75 lesions (35.0%), IV – 64 lesions (29.9%), V – 13 lesions (7.5%). BI-RADS category III lesions were recommended a short-term follow-up MRI at intervals of 6, 12, and 24 months. All BI-RADS IV and V lesions underwent biopsy, which revealed that 28.1% (18/64) BI RADS IV lesions were malignant and 71.9% (46/64) were benign, while 84.6% (11/13) BI RADS V lesions were malignant and 15.4% (2/13) were benign.

Conclusions: Breast MRI optimized protocols provide relevant additional details for evaluation of BI-RADS 0 lesions, significantly improving cancer detection rate.

Key words: breast MRI, optimized protocols, BI-RADS category 0 lesions.

Chest X-ray utility in chronic dialysis patients

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Background: Respiratory system pathologies are one of the most frequent causes of hospital admission for patients to chronic dialysis. Chest X-ray is an accessible and cost-effective way to diagnose such comorbidities and guide their management. The study aim was to assess the efficiency of follow-up chest X-rays performed twice per year for evaluation of chronic dialysis in outpatients.

Material and methods: The study included 350 outpatients who underwent dialysis in Chisinau Dialysis unit of “BB-Dializa” S.R.L. during 2016. Basing on the National Clinical Protocol each patient except those on holiday dialysis underwent a chest X-ray in 3 projections twice per year. Additional chest X-rays could be performed if clinically indicated.

Results: Simple chest X-ray in 3 projections has demonstrated to be an efficient instrument in diagnosis of both acute and chronic pulmonary, mediastinal and cardiac pathology. During the study period, 2 cases of BAAR+ tuberculosis were diagnosed and successfully treated. A total of 12 cases of pneumonia, 26 cases of chronic bronchitis, 1 case of primary lung cancer and 1 case of pulmonary metastases were also diagnosed at the routine follow-up chest X-rays. A total of 9 patients required hospital admission, while the rest underwent ambulatory treatment. Further investigations of the patient with lung metastases revealed a pancreatic malignancy.

Conclusions: Proposed imaging management approach to the chronic dialysis outpatients has demonstrated its viability and efficiency in this cohort of 350 outpatients.

Key words: chest X-ray, dialysis, respiratory system.