



local inflammatory changes. Under these conditions, sonography of the hip joints significantly improves the diagnosis at the early stages of the disease since it is quite sensitive in determining the effusion of the joint (fluid accumulation). Transient synovitis, as the most common manifestation of coxitis, occurs quite often, but the pathogenesis of this nosology has not been studied sufficiently.

The aim of this work was to optimize the diagnosis of coxitis in children due to the use of sonography of the hip joints in order to determine the main differences in the diagnostic criteria that are typical of transient synovitis (based on the analysis of 68 cases). From 2018 to 2020, 215 children diagnosed with coxitis were treated in the Department of Pediatric Traumatology at Chernivtsi Emergency Hospital, including 120 boys and 95 girls. An average age of the patients was  $5.0 \pm 2.3$  years old. Three clinical groups have been differentiated in the course of the research. The first one included 112 children with transient synovitis. The second clinical group contained 22 children with septic coxitis. The third group was composed of 91 children with other pathologies of the musculoskeletal system.

According to our observations, transient synovitis has an acute onset and rapid development. The children find it difficult to perform movements in the joint. Moreover, they often try to fix the leg in a gentle position. These children almost always limp and feel ache in their joints on palpation. After a preliminary radiography investigation of the hip joints (to exclude bone pathology), we performed sonography of both hip joints. The examination of 68 patients in 56 cases found a significant accumulation of anechogenic or hypoechogenic fluid in the joint that separates the layers of the joint capsule. In 52 cases, the diagnosis of "transient synovitis" was confirmed. Preference was given to anterior parasagittal scanning, with the use of a linear sensor transmitter that is located parallel to the femoral neck and slightly averted hip joint to the side.

The pathogenesis of the phenomenon of relative elongation of the affected limb – the correlation between the amount of joint fluid and the length of thigh elongation – remains unclear. Thus, the use of sonography of the hip joints and the differential approach to the diagnosis and treatment of children diagnosed with "coxitis" allowed identifying clinical groups with clarified diagnoses, which affected the further treatment tactics.

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## **HERNIA TISSUES MORPHOLOGY IN PATIENTS WITH CHRONIC INGUINAL HERNIAS**

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During last years the incidence of inguinal hernias grew significantly. The complications development in these patient after inguinal hernioplasty reached,6-18%. It can be explained by the fact that during surgery and postoperative period surgeons don't take all the aspect of complications pathogenesis in elderly patients into consideration.

Objectiv of the study was to evaluate the morphological changes of hernia sac and hernia-sarrounding tissues with inguinal hernias.For the research purpose we used bioptates of hernia tissues of 24 patients (aged 60-83,mean  $67.47 \pm 2.54$  yrs.),obtained during the inguinal hernioplasty. Special attention was paid to evaluation of the muscular tissue atrophy and development of cicatrize and inflammatory changes. The following tissues were evaluated:hernia sac, subcutaneous cellular tissue, muscular tissue and, in some cases, preperitoneal cellular fat. Fragments of tissues were preserved and processed in accordance to histological standards.

Principal sings of chronic inflammation of the hernia sac in all 24 patients were studied. In 8 (33.3%) patients isolated inflammation of hernia sac tissues were found, and in 16 (66.7%) patients it was associated with chronic inflammatory changes of hernia-surrrounding tissues. In 6 (25.0%)patients with the recurrent inguinal hernias the inflammatory changes of hernia sac and hernia-sarrounding tissues were very pronounced and associated with their cicatrize changes. In all patients pronounced atrophic changes of the muscular tissues were determinated. Use of 'suture-free' techniques in elderly patients may greatly reduce inflammatory changes impact on healing, though not providing complete protection.



Inflammatory and cicatrize changes after the suture methods of hernioplasty cause ischemia, atrophic and cicatrize changes in muscles during postoperative period, making these methods of surgery not sufficiently effective.

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### **ACUTE NECROTIZING PANCREATITIS CLINICAL OUTCOME S AND PROGNOSTIC SIGNIFICANCE OF EXTENT AND LOCATION OF NECROSIS**

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Three subtypes of acute necrotizing pancreatitis (ANP) are defined based on the anatomic area of necrotic involvement: isolated pancreatic necrosis (IPN), peripancreatic necrosis (PPN) and combined pancreatic and peripancreatic necrosis (CPN).

The purpose of our study was to compare clinical outcomes of patients with ANP depending on the extent and location of necrosis. A retrospective analysis of database consisting of 91 patients treated for ANP in the period from 2017 to 2019 was performed. Morphologic features of ANP were assessed according to the Revised Atlanta Classification. Patients were allotted to IPN, PPN and CPN groups depending on the extent and location of necrosis on the computerized tomography according to RAC. Organ failure (OF) was determined using Marshall scoring system. Endpoints of the study were defined as OF, need for open surgical intervention, intensive care unit length of stay (LOS) and mortality.

A total of 22 patients (24.2%) were allotted to IPN group, 16 patients to PPN group (17.6%) and 53 patients (58.2%) to CPN group. OF was diagnosed in 49.1% of patients with CPN, with persistent OF occurring in 26.4% and multiorgan failure developing in 30.2% of patients in the group. In IPN and PPN groups, OF occurred in 13.6% and 31.3% of patients. Open surgical intervention was necessary in 4 patients (18.2%) with IPN, 4 patients (25%) with PPN and 27 patients (50.9%) in CPN group. Relaparotomy was required in 13 patients (24.5%) with CPN, no repeated surgery was required in patients with IPN and PPN. ICU LOS was 1.3 (95% CI, 0.49-3) days for IPN, 3 (95% CI, 1-5) days for PPN and 7.2 (95% CI, 4.1-10.3) days for CPN group ( $p=0.022$ ). Mortality rate was 18.9% in CPN group, no mortality was recorded in IPN and PPN groups.

IPN and PPN yield better clinical outcomes when compared to CPN with significantly lower frequency of OF (13.6% and 31.3% vs 49.1%,  $p=0.012$ ), lower number of operated patients (18.2% and 25% vs 50.9%,  $p=0.04$ ) and mortality rate (0% vs 18.9%,  $p=0.015$ ). Early identification of IPN and PPN may guide therapy choices or serve as a prognostic tool.

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### **METHODS AND MEANS OF VECTOR-PARAMETRIC POLARIZATION MICROSCOPY OF POLICRYSTALLINE FILMS OF RAT BLOOD IN DIFFERENTIAL DIAGNOSIS SEPSIS SEVERITY**

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Development and experimental testing of a new digital technique for objective differential diagnosis of septic process severity by statistical analysis of vector-parametric polarization images of laboratory rat blood films. To achieve this goal, we used a set of methods of Stokes polarimetric microscopic examination, parametric, statistical and information analysis of septic changes in the polycrystalline structure of blood films of laboratory rats. An experimental measurement of the coordinate distributions of the fourth parameter of the Stokes vector (crystallization parameter - CP) of digital microscopic images of blood films of laboratory rats was carried out at the location of a laser micropolarimeter, the optical scheme of which is given in scientific papers is presented in our work.

For the purpose of a more detailed study of the polycrystalline structure of rat blood films, we used the following information selection method. From the entire calculated coordinate set of