

<0.05) were demonstrated. Analysing the number of abnormal mitoses depending on the stage, differences between T1 and T3 ($p < 0.05$) were found, similarly between T1 and T4, as well as T2 and T4. Statistical differences were found for the number of mitoses depending on the state of the lymph nodes ($p < 0.05$).

Conclusion: Identifying CD3 and CD8 instead of together as TIL allows a better understanding of the significance of these factors as elements of good prognosis, and the use of PHH3 allows a reliable assessment of the mitotic index as a factor of poor prognosis. The use of computer image analysis for routine diagnostics would improve the reliability of the assessment and the associated significance of prognostic factors.

PS-04-037

Persistent late reactions in decorative tattoos: a series of eight cases with immunohistochemical study

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Background & objectives: Persistent late reactions (PLR) in decorative tattoos are difficult to treat and their nature is not completely understood. They show different, poorly characterized histopathological patterns.

Methods: Eight cases of PLR in decorative tattoos have been retrieved from the files of the Department of Pathology, University Hospital of Santiago de Compostela (Spain). Clinical and histopathological features have been reviewed and immunohistochemical study performed in all cases.

Results: Seven women and one man, 21 to 39 years, presented PLR in decorative tattoos. Seven cases were related with red colour and one with black. Lesions started from two weeks until 2 years after performing the tattoo and were refractory to topical treatments.

Biopsies showed dermal lymphoid infiltrate, reaching the reticular dermis. Moderate to severe interface lesion was present in all but one case, the only one with well-formed granulomas. Five cases showed interstitial inflammatory infiltrate, mimicking granuloma annulare, but extensive collagen degeneration was present in only two cases.

Immunohistochemistry demonstrated a clear predominance of T lymphocytes, balanced for CD4 and CD8. CD8 lymphocytes were predominant in the interface lesion.

Conclusion: Decorative-tattoos-related PLR are characterized by a combination of inflammatory patterns, interface dermatitis with CD8 lymphocytes being the most common. Granuloma annulare-like lesions are also common, but collagen degeneration is usually limited. Well-formed granulomas are not a usual feature.

- Liver

PS-05 Digestive Diseases Pathology - Liver

PS-05-001

Morphofunctional and histochemical changes in liver tissue with predominant copper (Cu-10%) content in the experiment

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Background & objectives: Liver is a barrier to toxic substance and is primarily affected by pathogenic effect. Xenobiotics are metabolized exactly in this organ.

Evaluation of morphofunctional and histochemical changes in liver tissue at the exposure of polymetallic copper (Cu-10%) content dust.

Methods: The experiment included outbred white male rats weighing 120–170 g for 30 days. The dust was injected once intratracheally (50 mg/1.0 ml of physiological saline). Method of cytophotometry was used

for quantitative characterization of the enzymes activity in liver cells. All manipulations, including elimination, were carried out by «Rules for biomedical experiments conducting» of MH RK (12.11.2009 №697).

Results: A histochemical study determined a sudden decrease of hepatocyte glycogen level. Glycogen was absent in cells containing altered nuclei. The activity of the enzymes was reduced – up to a complete absence. The activity enzymes showed the expressed decrease in comparison with control group: acid phosphatase by 54.5% ($P < 0.001$), succinate dehydrogenase by 46.79% ($P < 0.001$), lactate dehydrogenase by 56.96% ($P < 0.001$), glucose-6-phosphate dehydrogenase by 36.48% ($P < 0.05$), glycogen by 46.31% ($P < 0.001$).

Conclusion: The liver cells are the first target of non-synthesized toxins. Dust exposure intensified the trophic-circulatory disorders and exacerbated the alterative-dystrophic and inflammatory changes in the organ. The free lipids level increased in the cytoplasm of both liver cells and stellate reticuloendotheliocytes, which indicates increased destructive changes in cytoplasmic membranes and membrane complexes. Simultaneously, glycogen utilization in liver hepatocytes is enhanced, that led to inhibition of enzymes synthesis.

PS-05-002

Potential role of neutrophil extracellular traps in non-alcoholic steatohepatitis

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Background & objectives: Recent experimental evidence suggests that there are elevated levels of neutrophil extracellular traps (NETs) in sera of patients with NASH. We investigated the presence of NETs in liver biopsy specimens with NASH and potential correlations with inflammation and fibrosis.

Methods: This retrospective study included 40 liver biopsy specimens from 21 patients with NASH. Fourteen patients underwent sequential liver biopsies according to clinical indications. We assessed the presence of NETs by double immunofluorescence using the markers neutrophil elastase (NE) and citrullinated histone 3 (citH3). Immunofluorescence signals and colocalization of these markers were visualized with a confocal microscope.

Results: NETs were detected in 60% of the biopsy specimens, as extracellular colocalization of NE with citH3. In 54% of the NET-positive biopsies significant production of NETs was apparent, in an aggregated pattern, within areas of portal and lobular inflammation. In contrast, 46% of the biopsies showed small numbers of NETs, despite the presence of inflammation and/or fibrosis. In most cases of mild inflammation or established cirrhosis NETs were absent.

Conclusion: Our findings suggest that neutrophils are involved in the pathogenesis of NASH through NET release. Further research will be needed to clarify whether production of NETs is involved in the progression of NASH to cirrhosis or the development of hepatocellular carcinoma as suggested by recent experimental studies.

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Histopathological features of inflammatory pseudotumours of the liver on resection specimens

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Background & objectives: Inflammatory pseudotumours of the liver are nonneoplastic masses that cause clinical confusion due to their capacity to