in the chest on the side of the operation, the anteroposterior size decreased by 19.8±2.6 mm and transverse by 10.8±2.6 mm. The degree of decrease in anteroposterior direction is more pronounced, that leads retraction of the thoracic wall by 19.8±3.7 mm.

The deformation of the chest occurs due to a decrease in the angles of the inclination of the ribs: the III rib by 5.6±1.7, the VII rib by 3.9±1.1. Deformity of the spine consists in significant scoliotic changes, after pneumonectomy on the right on 3.1±2.5, after pneumonectomy on the left on 5.8±4.2. Kifotic changes of the spine are minimal (1.7±1.8).

Conclusions. Performing of pneumonectomy leads to significant changes in the thorax: deformity of the chest on the operated side and scoliosis of the spine.

BREAST CANCER BRAIN METASTASIZATION: COMPARISON OF HIPPOCAMPAL AND CEREBELLAR PATTERNS

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Key words: *brain regions, epithelial-mesenchymal transition, myosin light chain kinase, platelet-derived growth factor-B, signaling, transendothelial migration*

Aim. To decipher key aspects of breast cancer (BC) brain metastasization related with blood-brain barrier (BBB) transposition by malignant cells, their phenotype, and migratory and proliferative features, as well as to establish the regional pattern of the brain metastatic process.

Material and Methods. Hippocampal and cerebellar sections of mice inoculated with BC cells (BCCs) were studied along metastasization (5 hours, 3, 7, and 10 days) by histologic/immunohistochemical/immunofluorescence analysis.

Results and Discussion. Brain metastases were detected from 7 days onwards, with greater tumour area observed in the hippocampus. Accordingly, a higher number of cells expressing the proliferation marker Ki-67 and platelet-derived growth factor-B was observed in the hippocampus. Malignant cells entering in the parenchyma expressed the mesenchymal marker vimentin, whereas in metastasis the epithelial marker pan Cytokeratin was observed as well, particularly in the hippocampus. Moreover, an earlier expression of Rac 1 was observed in the hippocampus, compatible with mesenchymal-like migration. The brain metastatic process was accompanied by BBB alterations, depicted by impairment of tight and adherens junctions' proteins claudin-5 and β-catenin, and enhanced caveolae protein's expression, together with an earlier activation of myosin light chain kinase in pericytes, in the hippocampus.

Conclusions. These results reveal the alterations occurring in BBB endothelial and mural cells along brain metastasization, and the ability of BCC to express growth factors and migration-associated proteins, essential for their survival and invasiveness. Moreover, they reveal that brain metastasization of BC occurs earlier and more severely in hippocampus than in cerebellum. Supported by FCT (Portugal) and NKFIH/OTKA (Hungary).

MORPHOMETRIC ANALYSIS OF THE PATTERNS OF CALCANEAL FACETS FOR THE TALUS

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Key words: *calcaneus; facets for the talus; variations; morphometry*

Background. The literature describes different patterns of calcaneal facets for the talus in terms of whether some calcaneal facets are connected or separated from each other or completely absent.

Aim. The aim of this study was to establish the patterns of calcaneal facets for the talus, calculate their total size and analyse data considering the gender.

Material and Methods. Study involved 33 calcanei. The gender was established according to average parameter values standardly used for that purpose. The calcanei were photographed using a digital camera. The patterns of calcaneal facets were determined by comparing these photographs with photographs from the literature. ImageJ program was used to measure gender determination parameters and size of calcaneal facets.

Results and Discussion. Pattern 1 was the most commonly found in the study sample (51.52%), then pattern 2 (42.42%) and pattern 3 (6.06%). Among female bones the most frequent was pattern 1, while among male bones patterns 1 and 2 were present