Abstract:

Deformational plagiocephaly represent a positional deformity, that is the most frequent abnormality of misshapen head presenting at an early age. It is accepted as clinical insignificant finding with possible unfavourable superficial effect. Its increased incidence is associated with recommendation of supine sleep position as a prevention of sudden infant death. The most common therapy for correction of this asymmetry is conservative treatment in the form of rehabilitation and regime arrangement and in the case of failure the application of cranial orthoses.

The main aim of the thesis was to evaluate the growth of neurocranium during the orthotic treatment. The partial aim was to describe the shape of neurocranium in early postnatal ontogenesis in healthy infants.

Two cohorts are analyzed in this thesis. The first group are patients (n = 22; patients), who underwent orthotic therapy. The second, control group (n = 26; control group) includes individuals without diagnosed deformational plagiocephaly.

The results of orthotic treatment (patients) were evaluated using geometric morphometry methods based on 3D scans. Both sets were evaluated using classical morphometry.
The work demonstrates the positive effect of treatment of deformational plagiocephaly using cranial orthoses („helmet“). Using of helmets significantly reduced the asymmetry of calva and changed the cephalic index. The thesis showed statistically significant differences between patients and control group before the start of treatment and after its ending too. Mild forms of the asymmetry and provable tendencies of reducing the asymmetry were found in the control group.

Key words:
Cranial asymmetry, deformational plagiocephaly, brachycephaly, hyperbrachycephaly, cranial remodeling orthoses, geometric morphometry, 3D scan