Thesis deals with the study of the longitudinal growth changes of the palate including alveolar pocesses and its variability within the analysed group of 14 patients with UCLP. 28 dental plaster casts obtained from each patient in the two examinations (always before and after the cleft lip surgery), were used for the evaluation process. The first dental plaster cast was taken from patient with an average age of 6 months, while the average age for second continuous casting was 4,5 years. Dental casts were scanned using a 3D laser scanner and then analysed, using methods of geometric morphometrics.

The main aim of this study was to evaluate the possibility of FESA application for the analysis of palates with different shapes consisting of two separate maxillary segments. Individual and complete evaluation of the growth changes of palate alveolar processes and palate in patients with UCLP showed that during the monitored period, mutual approximation while narrowing the width cleft occurs, mainly in the anterior part of both maxillary segments. Growth occurs primarily in the posterior parts of both maxillary segments, the most significant changes in the size and shape then correspond to places where new dentition arise. Complementary assessment of size and shape variability of alveolar processes and palate in UCLP patients was performed through the principal component analysis (PCA). This assessment showed significant differences among both patient age groups. While the maxillary prominences corresponding younger age group were relatively shorter, lower, and particularly narrower in its molar segments, conversely, older age group is then characterized by prominences longer, higher and wider in molar regions. Although the use of FESA methods has some advantages as well as some disadvantages, its application of different age level palatal surface analysis drawn before the surgery, has proven to work successfully.