

## SUMMARY

### **Development of the palate morphology and shape of the dental arch in patients with cleft**

**Objective:** The aim of this study was to compare the differences in development of the palate morphology and in the relationship and shape of the dental arches in two groups of individuals with different types of orofacial cleft defects.

**Introduction:** Orofacial clefts are the cause of the insufficient growth of the face. Range of the resulting deformation depends on the type of cleft, individual growth disposition of the patient and comprehensive interdisciplinary treatment of the cleft.

**Material and Methods:** The sample consisted of 18 patients with unilateral cleft lip and palate and 18 patients with isolated cleft palate. Measurements were performed on study casts of patients aged 9 and 13 years in average. Following measurements were performed: the frontal and distal width of the upper and lower dental arch, the length of both halves of the upper dental arches, the frontal length and depth of the upper dental arch and the overjet. According to the sagittal relationship of the dental arches, patients were classified into one of five categories of the GOSLON yardstick score. The results were compared between groups and between both age periods using one- or two-sample Wilcoxon test and Fisher test for the GOSLON Yardstick score. For assessment of transverse relationship of dental arches the differences in the frontal and distal width were calculated. In patients with unilateral cleft lip and palate the length of the halves of the dental arch with cleft defect was compared to the half without cleft. Comparison in patients with isolated cleft palate was done between right and left side of the dental arch.

**Results:** Significant differences were found between the two groups of patients in the values of the GOSLON Yardstick score and the size of overjet in both examination periods. Between nine and thirteen years of age in the group of patients with unilateral cleft lip and palate varied the depth of dental arch and frontal and distal width of the lower dental arch; in patients with isolated cleft palate varied dental arch depth and frontal width of the lower dental arch. The average difference of the frontal and distal width of the dental arches was negative in the patients with unilateral cleft lip and palate; in patients with isolated cleft palate the mean difference of the width of dental arches was also negative, more between first permanent molars. Halves of the upper dental arch did not differ in length for either group of patients. In

patients with unilateral cleft lip and palate the mean total GOSLON yardstick score was 3.2 in the age nine group, and 3 in the age thirteen group; in patients with isolated cleft palate it was 1.7 in both measurements. Overjet size was positively correlated with the frontal width of the upper dental arch in the group of patients with isolated cleft palate in both examinations periods.

**Conclusion:** Comparing the morphology of the dentition of patients with unilateral cleft lip and palate and isolated cleft palate between nine and thirteen years old patients was found that both groups differed mainly in the sagittal dental arch relationship. Frontal length and depth of the upper dental arch or transverse parameters were indistinguishable between patients with different types of cleft defects either at nine or thirteen years of age. The larger discrepancy in anteroposterior dental arch relationship was found in patients with unilateral cleft lip and palate. Results of the GOSLON yardstick score in patients with unilateral cleft lip and palate point to a very unfavorable sagittal development of the upper jaw in the test group, probably due to limited sagittal development of the upper jaw, which is caused by congenital tissue growth deficit and presence of scar tissue on the upper lip, in the vestibulum and on the alveolar process (after surgical reconstruction of the alveolar process). The upper dental arch in patients with unilateral cleft lip and palate showed transverse deficit compared to the lower dental arch. In patients with isolated cleft palate was also found inadequate width of the upper dental arch; the discrepancy between the upper and lower dental arch, however, was less critical.

