# Summary

Gingival recessions is a common irregularity consisting of apical displacement of the gingival margin in relation to the cemento-enamel junction with the exposition of the root surface. They are a serious disorder of pink aesthetics and can be a cause of loss of the hard tissus of dentition. Denudation of the roots may often cause increased sensitivity to thermal stimuli associated with the exposure of root dentin. The presence of these abnormalities is the reason, that in the majority of cases, gingival recessions should be treated surgically.

One of the methods of treating gingival recession is the tunnel technique. This technique is characterized by low invasiveness, but requires the harvesting of connective tissue graft from the palate. In recent years, substitutes for connective tissue of animal origin have appeared on the market. The use of a commercial product replacing autogenous connective tissue graft is more comfortable method from the patients perspective. The treatment is less invasive because there is no wound at the donor site, the surgical technique is easier and the duration of the procedure is shorter. However, current literature data does not provide an answer, whether soft tissue substitutes can be as effective as autogenous grafts in treatment of gingival recessions.

Considering the above, the aim of the study was to evaluate the effectiveness of the tunnel technique with use of the connective tissue graft and its substitute in the treatment of Miller class I and II gingival recessions.

The study group consisted of 20 generally healthy people, including 13 women aged 20-56 and 7 men aged 23-43, with the multiple recessions of Miller class I and II in the mandible. The study was planned as a randomized, split-mouth study. Gingival recession were treated with tunnel technique with sub-epithelial connective tissue graft (SCTG) on one side of the dental arch (46 recessions) and with the collagen matrix (CM) (mucoderm®, bottis biomaterials, Germany) on the opposite side (45 recessions). The clinical examination was performed twice - before surgery and 6 months after surgery and consisted in evaluation of the following parameters: height (GR) and width (RW) of gingival recession, probing depth (PD), clinical attachment level (CAL), width of keratinized tissue (KT), gingival thickness (GT), amount of root coverage (ARC), percentage of root coverage (% RC), compete root coverage

(CRC), keratinized tissue gain (KT gain) and gingival thickness gain (GT gain). The results were analyzed statistically using the Statistica 12.0 package.

Before treatment, no differences were found between the examined parameters between the groups. After treatment, on the SCTG side, the mean height of the gingival recession decreased significantly from 1.94 ± 0.66 mm to 0.38 ± 0.67 mm, similarly to the side treated with CM, from 1.95 ± 0.76 mm to 0.87 ± 0.79 mm. The width of the recession also significantly decreased from 3.04 ± 0.73 mm to 0.81 ± 1.33 after applying SCTG and from 2.97 ± 0.75 mm to 1.86 ± 1.41 mm after CM. After treatment, significant differences in the above parameters between the groups were demonstrated.

After applying SCTG, the average %RC was 84.07 ± 27.32%, and after applying the CM - 58.06 ± 37.53%. The ARC was 1.56 ± 0.59 mm and 1.07 ± 0.68 mm, respectively.

In the group in which SCTG was applied, a significantly larger gain in keratinized tissue width was found from 1.28 ± 0.72 mm to 2.90 ± 1.49 mm (gain - 1.61 ± 1.27 mm) in comparison with the CM group in which this parameter changed from 1.38 ± 0.68 mm to 1.75 ± 0.80 mm (gain - 0.36 ± 0.57 mm). Similar differences were in the thickness of the tissues - GT. In the SCTG group, this parameter increased from 0.76 ± 0.31 mm to 2.07 ± 0.54 mm (gain - 1.31 ± 0.59 mm) and in the CM group from 0.82 ± 0, 3 mm to 1.17 ± 0.37 mm (gain - 0.35 ± 0.33 mm).

Based on the obtained results, the following conclusions were drawn:

1. The use of tunnel technique with sub-epithelial connective tissue graft or collagen matrix provides effective way of treatment of Miller's class I and II mandibular recessions.

2. There are better results of treatment of gingival recessions with the sub-epithelial connective tissue graft as compared to the collagen matrix.

3. The use of sub-epithelial connective tissue graft gives much larger widening of the keratinized tissues with respect to the collagen matrix.

4. The application of sub-epithelial connective tissue graft provides predictable thickening of the gingiva as compared to the collagen matrix.