

Application of transpalatal distraction (TPD) in orthodontic and surgical treatment of maxillary strictures

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Objective

The aim of the study is to present the procedure used in the treatment of large jaw strictures, to discuss indications, orthodontic treatment, and to analyze the results and complications of maxillary transverse osteodistraction (TPD).

Material

The sample consisted of patients from Stomatologia Predko-Engel and Klinika Dowgierd (63 patients; 34 women; 29 men) with jaw narrowing above 7 mm in whom distraction was performed in the years 2013-2022. In 5 patients, TPD was the only one surgical procedure, in the others it was the procedure preceding the orthognathic surgery. Patients were 14-48 years old.

One week after the surgery, disassembly of the distractor was started at a rate to 0.5 mm per day until the desired width was achieved. Then, after a consolidation period of approximately 6 weeks, a orthodontic appliance was affixed and the diastema was gradually closed and the teeth were aligned. After 6 months, the distractor was removed under local anesthesia.

Results

In 58 patients, the desired width was achieved, in 1 person too much widening was performed. The correct width was not achieved in 3 people (1 patient due to an injury and loosening of the distractor, 1 patient due to the appearance of an oronasal fistula, and 1 patient due to the loss of the distractor due to improper assembly). In the case of 6 people, there was an asymmetric distraction. In case of 5 patients, it was not possible to completely close the diastema formed during the distraction. Pulp necrosis of the central incisor occurred in 4 cases.

Conclusions

The transverse osteodistraction of the jaw is an effective procedure in the treatment of large jaw narrowing, especially when preparing for orthognathic surgery. The big problem is asymmetric distraction. It may be caused by improper installation of the distractor or displacement of the jaw fragments and their wedging together, or improper release of the jaw fragments on one side. In patients with difficulty in diastema closure, it is assumed, after a retrospective CBCT analysis, that the cause may be an undiagnosed incisive canal cyst. To sum up, 82% of patients from the analyzed group did not experience any signific.