CASE REPORT

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Application of Kazanjian's vestibuloplasty in the prevention of gingival recession in children – a report of two cases

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Keywords

SUMMARY

Kazanjian's method, gingival recession, vestibuloplasty

Gingival recession in the central incisal region of the mandible is not a rare condition among children. Despite the possibility of a spontaneous improvement of gingival contour with the development of dental system in some patients, surgical intervention is necessary. We describe a case of two young patients submitted to periodontal surgical procedure of the vestibulum by means of Kazanjian's method.

INTRODUCTION

The need for periodontal intervention in children is usually due to the common presence of dental plaque resulting from either irregular or ineffective oral hygiene. It promotes dental caries and gingivitis, which may lead to adverse periodontal changes. Although gingival recession affects about 20% of children, the actual recession may be diagnosed only after the age of 10 years due to gingival maturation (1-5). Gingival recession - causes and management

Gingival recession in children is most often located in the region of mandibular incisors. Multiple causes of this phenomenon, such as improper tooth brushing technique (usually in highly developed countries), chronic gingivitis due to dental plaque retention, occlusal trauma, iatrogenic factors (most often due to labial tooth movement during orthodontic treatment) and, most of all, developmental factors (Geiger, Olsson and Lindhe), classified as osseous, gingival and dental, are reported by different authors (2, 4, 5). From the clinical point of view, it is important to know the cause of recession to choose the mode of treatment, especially since recessions may resolve in children after eliminating the causative factor (6, 7). However, effective plaque control in the prevention of recessions proves efficacious in children below the age of 12 years (2, 5).

Miller's classification of gingival recession may be useful in choosing proper therapy and setting expectations after the procedure (8). There are four classes of recessions:

- class I recession does not cross the mucogingival junction (MGJ), and there is no tissue loss in the interdental area,
- class II recession extends to or beyond the MGJ; there is no tissue loss in the interdental area,
- class III recession extends to or beyond the MGJ; bone or soft tissue loss in the interdental area is present,
- class IV recession extends to or beyond the MGJ; the bone or soft tissue loss in the interdental area is severe and often associated with malpositioning of teeth.

In the first two classes, aesthetics recovery can be expected; in class III and IV, full reconstruction of lost tissues is difficult. Therefore, early prevention or treatment is of particular importance among young patients.

In the case of anatomical gingival causes, such as an abnormal insertion of the lower lip frenulum or shallow vestibule of the mouth, periodontal plastic surgery (PPS) should be considered. Positive pull test indicating the presence of the so-called pull syndrome, which accompanies these disorders, is an indication for augmentation of the attached gingiva, as in accordance with the guidelines set out at the first European Periodontology Congress. The technique described by Kazanjian in 1935 is a method of choice for vestibular deepening and correction of the insertion of the lower labial frenulum in children as it spares the periosteum. The technique involves vestibular deepening by inserting a mucosal flap, which was separated from the alveolar periosteum, apically to the mucogingival junction (3, 10).

CASE REPORT 1

A 12-year-old patient reported to the Department of Paediatric Dentistry of the Medical University of Warsaw for check-up. Intraoral examination revealed Miller class I gingival recession at teeth 31 and 41, and significantly shallowed vestibule (fig. 1). Dental plaque was observed and removed during the visit; no signs of gingivitis were found. Local ischaemia of the proper gingiva, i.e. the socalled pull syndrome, was observed when pulling the upper lip. The patient's parent reported a history of unsuccessful lower labial frenulum correction. In the light of positive pull test, vestibuloplasty by Kazanjian technique was performed to deepen the vestibule and extend the region of proper gingiva without dissection of a fullthickness flap.

A semicircular incision 6 mm from the mucogingival junction was performed in the region of teeth 33-34 under local anaesthesia (articaine 4%) (fig. 2). A partial-thickness flap was formed by separating mucosa from the periosteum towards the alveolar bone (fig. 3). This was followed by apical dissection by dividing the fibres of the lower labial frenulum and the mentalis muscle (fig. 4). The flap was inserted using knot sutures, joining the dissected lower labial mucosal flap with the periosteum of the alveolar ridge 7-8 mm below the incision (fig. 5). The patient was instructed to maintain oral hygiene by brushing the teeth after each meal with a soft toothbrush, using a chlorhexidine rinsing solution 0.10% twice daily and Solcoseryl topically on the oral mucosa, as well as excluding food products that may traumatise the mucosa (seeds, scales). The patient reported for suture removal after 8 days (fig. 6).



Fig. 1. Baseline - case 1



Fig. 2. A semicircular incision 33-43 - case 1



Fig. 3. Flap dissection from the periosteum - case 1



Fig. 4. A view after flap dissection - case 1



Fig. 5. Flap insertion about 7-8 mm from the primary incision – case 1



Fig. 6. A view 8 days after procedure - case 1



Fig. 7. Two weeks after procedure – satisfactory vestibular deepening – case 1

Despite complains of pain during tooth brushing and the related retention of residual food in the vestibule, the wound healed without complications, and the patient was instructed on the need to maintain appropriate oral hygiene. A follow-up visit showed satisfactory deepening of the vestibule and resolved local ischemia of the proper gingiva (fig. 7).

CASE REPORT 2

An 8-year-old patient reported to the Department of Paediatric Dentistry of the Medical University of Warsaw for a consultation due to exposed neck of tooth 31. Dental examination revealed Miller class I gingival recession at the left central incisor (fig. 8). Dental plaque was observed on the surface of all mandibular incisors, and was professionally removed during the visit. Significant vestibular shallowing and evident local ischaemia of the proper gingiva of tooth 31 were observed on pulling the lower lip – pull syndrome. The patient was qualified for vestibuloplasty due to the characteristic clinical picture. As in the above case, vestibuloplasty by Kazanjian' technique was the method of choice. A semicircular incision about 4 mm from the mucogingival junction was performed in the region of teeth 73, 32-42, 83 under local anaesthesia (articaine 4%) (fig. 9). A flap was separated from the periosteum, by cutting off the fibres of the lower labial frenulum and the mentalist muscle. The flap was sutured to the periosteum of the alveolar portion of the mandible about 6 mm below the incision line, using knot stitches (fig. 10). The patient received postoperative instructions and reported for a follow-up visit to remove the sutures after 7 days. Intraoral examination revealed neglected hygiene in the operated area, which had some limited negative effects on wound healing (fig. 11). The patient and his parent were informed on the need to maintain optimal oral hygiene. The pull test did not show the previously described local ischaemia, which may indicate effective vestibular deepening in the operated area.

DISCUSSION

The management in gingival recession in children is widely discussed by many authors. Due to the young age of patients, the width of the proper gingiva changes, which results from tissue maturation and development, as well as replacement of deciduous teeth with permanent teeth (9). Therefore, making the correct diagnosis, which is crucial for effective treatment, poses challenge. In the described case, both medical history (an interview with both the patient and the parent), and physical examination clearly outlined further stages of therapy. Methods alternative to the Kazanjian's technique, such as Clark's and Corn's method, Friedman's method, Edlan-Mejchar's method or modified Kazanjian's technique, seem less effective both in terms of the healing process and treatment outcomes (the degree of vestibular deepening, hypertrophy of the alveolar gingiva and periodontal improvement) despite their significant similarity. In the case of Corn's, Friedman's and Edlan-Mejchar's methods,



Fig. 8. Baseline – case 2



Fig. 9. A view after flap dissection – case 2



Fig. 10. Flap insertion about 6-7 mm below the primary incision – case 2



Fig. 11. A view 7 days after procedure – case 2

dissection of the mucoperiosteal flap may cause bone atrophy, increased discomfort and pain (10). Kumar et al., who compared the Kazanjian's technique with its modified version, showed better 3-month outcomes in terms of maintaining vestibular deepening in the anterior portion of the mandible (11). Good tolerance of the procedure itself and the postoperative period, which is of great importance in paediatric population, is an advantage of Kazanjian's technique, and the procedure itself is relatively short and technically easy to perform.

Free gingival graft (FGG), which has recently become a popular method due to its high predictability, seems more appropriate for older patients with reduced healing potential rather than children, and the need to establish two surgical sites (donor and recipient) is its unquestionable disadvantage (12).

In our paper, gingival recessions were found in 8and 12-year-old children and were mostly anatomically determined. Although it is difficult to clearly define the role of dental plaque, it certainly contributed to the state of marginal gingiva. Although maintaining good oral hygiene is an obvious recommendation, inappropriate choice of toothbrush and toothpaste, as well as tooth brushing technique unadjusted to age may cause recessions affecting about 2-8% of 7-year-olds and up to 72-75% of 17-yer-olds, as pointed out by Ainamo, who evaluated almost 300 Finnish children aged 7, 12 and 17 years. The majority of patients assessed by Ainamo used medium-hard or hard toothbrushes and Bass brushing technique (3). Therefore, both oral health monitoring and instructions adjusted to periodontal conditions, which change during the maturation process, are crucial. Both patients and their parents (legal guardians) should be informed that gingival recession will not resolve or will resolve only to a minor extent. It should be noted that the primary goal of this type of vestibuloplasty is to interrupt the cascade of mucogingival pathologies, which would most likely increase with age and the development of the stomatognathic system, but it is not a remedy to prevent gingival recession. In situations such as those described in this paper, once the mucogingival complex is stabilised, further stages of therapy in the form of coverage of already existing recessions in order to improve the aesthetic conditions and prevention of root cement caries should be considered.

Conclusions

Although impaired width of the attached gingiva and the resulting complications are rare in young patients, when coexisting with poor oral hygiene they can cause rapidly progressing marginal periodontal destruction. Making use of high regenerative potential in patients in developmental age and the predictability of the method for vestibular deepening using the Kazanjian's technique is the method of choice in the treatment and prophylaxis of recessions. The postoperative convalescence is rapid and the clinical outcome is permanent; therefore, an assessment of both the width of attached gingiva and the pull syndrome should be a standard element of screening among children and adolescents.

CONFLICT OF INTEREST

None

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