Note technique

Foreign body in the cheek following crown-lengthening surgery

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Abstract – Iatrogenic foreign bodies located in the cheeks may appear after traumatic injuries or plastic surgery procedures using skin fillers. Located in the oral mucosa or in the periodontium, this pathological situation is rarely reported in the literature and usually follows diverse traumatism, iatrogenic or not. A new case report is presented in which a resin mass was discovered in the lower vestibule after a preprosthetic periodontal surgery and temporary crown adjustment. Clinical examination and computed tomography were not specific and diagnosis was made only after surgical excision of the resin material. This case highlights that temporary crown lengthening should be adapted several days after surgery to prevent resin fusing into soft tissue.

Foreign bodies in the cheek skin or oral mucosa may be encountered after traumatic injuries or surgical procedures. Traumatic injuries with blunt objects could lead to the penetration of diverse materials [1–3] inside the soft tissues of the face and oral cavity. These materials may provoke infections, pain and/or swelling, thus requiring foreign body removal [4], or may sometimes stay in place for a long period of time without any complication.

A second aspect of foreign bodies in soft tissues of the face concern biomaterials used for soft tissue augmentation, which may cause adverse reactions such as allergy and infection or could migrate into surrounding tissues after various period of time [5, 6]. Some materials can also be forgotten at the surgical site by clinicians, provoking different complications [7]. These iatrogenic situations are rarely located in the oral mucosa and diagnosis may be complicated because of the unusual aspect of these lesions. We present here the first case study of a foreign body of the oral mucosa appearing after a crown lengthening procedure.

Case report

His general dentist addressed a 75-old man in good general health for a hard and well-limited mass of the left mandible angle that had appeared 2 months before, following a crown lengthening surgery of the first and second lower

molars. Clinical examination revealed a tumefaction of the left lower vestibule that was spontaneously painless with overlying normal mucosa (Fig. 1). Palpation of the mass provoked a limited pain reaction and the lesion seemed fixed to the bone surface. Because conventional radiographs were not contributive, a computed-tomography exploration was performed. The scanner displayed a 10 × 5 mm radio-opaque mass in immediate proximity to bone surface with a radiolucent space separating the lesion and the cortical bone surface (Figs. 2A and 2B).

Surgical removal of the lesion was decided under local anesthesia and proceeded with an incision of the mucosa until contact with the hard mass. After tissue dissection, a foreign body enveloped by fibrous tissues was visible and was subsequently completely removed. Macroscopic examination of the material revealed dental resin (Fig. 3), which was consistent with the patient's medical history.

Discussion

Foreign bodies of the oral mucosa could appear after oral surgery, dental treatments [8], traumatic injuries [9], maxillo-facial skin augmentation procedures, plastic surgery of facial skin [6, 10] or self-mutilation [11]. When clinical manifestations appear, they are related to the volume, situation and composition of the foreign body, but sometimes, inert materials may remain unnoticed for a long time [9]. Diagnostic signs include an obvious deformation related to the foreign body

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Fig. 1. Intra-oral swelling caused by foreign body.

size, associated with spontaneous or provoked pain, and/or infection. However, this is a rare situation, which may lead to delayed diagnosis and treatment. The surgical removal technique is generally not planned and is guided by material situation.

In the reported case, pain was present since the day of the periodontal surgery and a limited swelling was observed extra-orally. The patient took several medical treatments and was finally taken for diagnosis and surgical exploration of the lesion. Computed tomography was not specific and a final diagnosis was obtained during material removal from the lower vestibule.

Crown lengthening was performed before crown restoration of the mandibular left molars because of a tooth fracture lower than vestibular bone level [12]: the surgical procedure consists most often in apically positioned flap surgery and after elevation of a full thickness flap around treated teeth, bone resection is performed until achievement of a space of 3 to 5 mm between tooth cervical restoration limits and alveolar bone crest [12, 13]. To enhance hard and soft tissue healing and for functional and esthetic reasons, the cervical portion of temporary crowns has to be modified after surgery by resin adjunction [12, 14]. In the reported case, the temporary crown margin was modified during the surgery and it seems that the resin fused underneath the mucosa during crown modifications. Some authors propose to wait until initial healing is complete before modifying temporary crown margins, to avoid interfering with wound healing because of resin toxicity [15]. Another reason to allow initial healing to occur would be to prevent resin fusing into the surrounding soft tissues.

Along with the clinical aspect of foreign bodies, there is a wide heterogeneity in the radiographic findings, associated with shape, density, volume and anatomical situation. In this case report, the radio opacity of the resin used was observed in computed tomography to be close to that of bone's radiological aspect characteristics, and lead to misdiagnosis during scanner interpretation. Previous studies have

(a)

(b)

Fig. 2. Computed tomography of the left mandible angle (2A: coronal slices / 2B: reconstructed transversal slices) displaying the radio opaque foreign body in immediate proximity to the cortical bone.

reported radiographic images mimicking mucoepidermoid carcinomas [10] or congenital lesions [11], and after surgery, inclusions of foreign bodies in the oral mucosa were revealed.

Conclusion

This case illustrates an uncommon complication of crown lengthening surgery caused by diffusion of dental resin inside the elevated flap during the surgery. To avoid this kind of

Fig. 3. Dental resin removed from the mucosa.

complications, it appears that a temporary crown should be adapted only after several days of initial healing.

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