

Immediate unitary fixed restoration with natural crown

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ABSTRACT

Post extraction of anterior teeth, and in order to find the esthetics and the fundamental functions in the immediate future, there is an original technique whose aesthetic result is incomparable since the absence of teeth will be restored by the crown of the tooth to be replaced, and will be kept in place thanks to the composite reinforcedglass fibres.

Keywords: *Anterior tooth, composite reinforced glass fibres, fixed prosthesis, immediate replacement, natural crown.*

Because of the central position of the mouth within the face, the potential loss of an anterior tooth is considered a physical alteration that can have both psychological and social repercussions[1].Therefore, bringing back the smile of the patient is deemed necessary. Different therapeutic solutions are proposed to remedy this edentulousness; one of which is using natural tooth crown with composite reinforced fibers. Of the various direct applications of CRF technology, three are the most common: Stabilization of moving teeth, post-orthodontic compression and replacement of anterior tooth. This technique has many advantages including the speed of execution, the cost and the possibility of reoperation and repair[2]. This case report illustrates through a clinical case the restoration of the natural crown of the patient put in place using the composite reinforced glass fibres.

CASE REPORT

A young man of 25, a student, came for consultation because of a functional discomfort caused by the severe mobility of the 11. He desired to have a smile and a satisfactory function, given their importance in his emotional and professional life. The interrogation had revealed a contention treatment that was done following a severe trauma.In fact, the intra-oral examination revealed

the presence of a fractured restraint splint. On palpation, 11 indicated mobility in transverse and axial directions. Periodontal examination showed no inflammation and no loss of connective bracket slots [figure 1].

The retro-alveolar radiography taken under several angulations indicated a root fracture [figure 2]. The fracture line was located at the level of the middle third of the root. The radiography examination also revealed a resorption of the radicular fragment surface and a resorption of the alveolar walls at the coronary level (which could be considered as demineralization of the bone, since we have already noted the absence of inflammation and no bracket slot loss).Since the extraction was unavoidable, the treatment by contention is doomed to failure. An immediate restoration replacing the extracted tooth was carried out according to an original technique, during which, the crown of the extracted tooth was used.

This technique is a first of its kind; usually the other techniques use the teeth of commerce. The natural crown being intact, we thought of reusing it. The chronology of the operating stages is very limited. After removing the contention, the tooth was extracted first. Then, the dental crown was prepared and finally the crown was fixed by means of composite reinforced glass fibers.



Figure 1 -Initial clinical situation, Figure 2 - Radiological examination highlighting fracture of root and splint, Figure 3 - Extraction of 11 and hemostasis



Figure 4 - The two fragments of tooth after extraction, Figure 5 - Suture placement to accelerate healing, Figure 6 - Cleaning of tooth 11 and Crown preparation



Figure 7 - Preparation of the crown after trephination, Figure 8 - Preparation of the crown: the face in relation to edentulous ridge takes the form of a modified saddle



Figures 9 & 10 - The intermediate ring closed and finished ready to be fixed by composite reinforced by glass fibers

Following are the steps through which the tooth was replaced.

1 - Surgical step

The corono-radicular fragment was first extracted; followed by extraction of the root fragment with little pressure so as to preserve the integrity of the bone plates. Indeed, the use of a well-inserted scraper in the channel can be effective. In this way, the two fragments were extracted. Once the hemostasis was established; socket was compressed and edges of the wound were sutured in order to accelerate the healing [figure 3, 4, 5].

2 - Preparation of the crown:

After cleaning of tooth, using a diamond bur, the crown preparation was done. Then the trephination was carried out and the pulp chamber was perfectly hollowed out. The preparation of the frontal side located next to the edentulous ridge was done according to the principles of bridge pontic preparation to preserve the fibro-mucosal of any irritation [figure 6, 7]. Modified-ridge-lap type according to Stein [3] [figure 8], which ensures aesthetics while allowing easy cleaning, was considered. The pulp chamber was sealed with a self-polymerizable composite or glass ionomer cement [figure 9]. Finally, after applying the finishing touches, tooth was polished.

3 - Setting up the crown:

The palatal faces of the teeth bordering the edentulousness, as well as that of the crown of substitution, was prepared according to the following protocol [figure 10, 11, 12] [4,5]: after application of tin strip (2mm wide), the template was adapted to the interproximal areas using composite spatula. Once the length was measured, template was transferred on to a ribbon and equivalent length was cut. Rubber dam was applied, tooth surfaces were cleaned. Enamel surface was etched using 35% of orthophosphoric acid. A thin layer of dual type adhesive was applied once the enamel had chalky appearance. The dental crown was held in place while arranging the glass fibres so that they are completely included in the adhesive layer; excess was removed at the level of the embrasures, bonding agent was applied and composite was photopolymerized. Finally the crown was finished and polished.

4 - Post operative advice:

Immediate postoperative treatment such as antibiotic, anti-inflammatory, analgesic and mouthwash were prescribed. The patient was followed up every three

days for three weeks to control the cicatrization, to prevent a possible complication and to make retouches if necessary.



Figure 11 - Implementation of the crown after polymerization, elimination of excess and polishing



Figure 12 - Restoration completed restoring the aesthetics and integrity of tissues during single session at the dental office

DISCUSSION

Faced with the aesthetic urgency, the practitioner is led to restore the smile of the patient by;

- Removable prosthesis made beforehand (solution refused by the patient because of his discomfort and the visibility of the metal hooks);
- Loading of an immediate implant (high cost);
- Bonded bridge made beforehand (time constraint),
- Crown of the extracted tooth attached immediately to the adjacent teeth.

This last technique is indicated in case of anterior unitary dental gap. The tooth to be extracted for periodontal (alveolysis) or traumatic reasons (a root fracture provided that the fracture line is at the level of the middle or apical third). These are the favorable clinical situations for subsequent treatment with implant-supported prosthesis, bonded bridge or conventional bridge. The objectives of this line of treatment are;

- To regain bodily integrity;
- To restore the oral-facial aesthetics;
- To restore one of the fundamental functions of a person's masticatory apparatus: the function of communication which brings together verbal (phonation) and nonverbal (mimic) functions [6].
- To minimize the psychological trauma related to edentulousness;
- To guide the healing
- To prevent dental movement

CONCLUSION

This simple technique is to implement and allows to immediately solving the delicate problem of a transitory unitary dental gap. The final restoration is done in optimal conditions of comfort and healing.

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