

PP 45 THE BIOLOGICAL ACTIVE INTRASULCULAR RESTORATION (BAIR) TECHNIQUE

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Objective:

To change the emergence profile by direct restorations. The proposed method allows the management of the portion of tooth covered by soft tissues, through the use of a circular metal matrix.

Methods:

This technique is based on the use of a common circular metal matrix (Automatrix Band Dentsply/Caulk, Milford, DE, USA) that allows us to isolate the operative site and, at the same time, to move the soft tissues and provide a clear access to the intrasulcular portion of the tooth (fig.1B,C).

The matrix is positioned around the tooth, tilted, pushed in the cervical direction keeping it adjacent to the tooth, and slid down to fit into the gingival sulcus. Once in the sulcus, the metal matrix is gently pushed to move the soft tissues.

The space created by the matrix allows for the easy application of adhesive and composite thus facilitating the rebuilding of a new "artificial CEJ" (fig.1D,E). The first composite layer is particularly important: it must be applied while the edge of the matrix is in close contact with the tooth, in order to obtain a change of the emergence angle without causing overhangs. The new emergence profile will guide the soft tissues to adapt at the desired position (fig.1F,G).

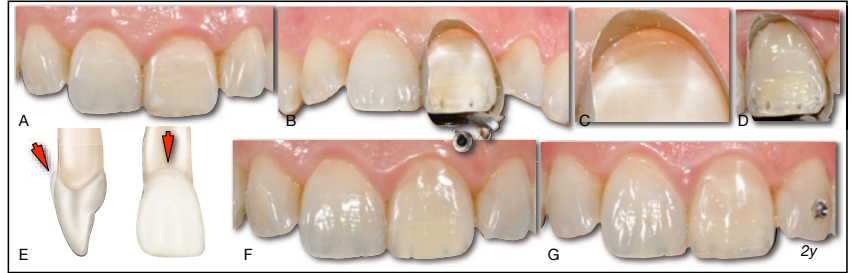


Fig.1: A- A young girl reveals a poor alignment of the two central incisors. The left central incisor seems to be extruded with respect to the adjacent teeth, the most appropriate therapy could be an orthodontic treatment that the patient had no intention of undertaking. Anamnesis tells that this tooth had a fracture and a subsequent reattachment of the fragment. At the moment there is an evident discoloration, the dentin is more opaque and with a higher chroma. B- The tooth has been shortened and space has been created to place a translucent composite. The metal matrix is applied and the gum is pushed apically. C- The cervical area is isolated. D- The composite is applied, pressed against the matrix and the tooth in order to change the emergence profile between the root and the crown. E- The border between root and composite has been moved apically. A new "hybrid CEJ" is recreated more apically, so that the gum can be supported and can adapt itself to the design that has been created with composites. F- Just after removing the matrix, the incisal and gingival levels were re-established. The finishing of the extra-gingival part of the restoration is carried out, the intrasulcular one is already smooth and well cured, because the composite polymerizes in contact with the metal matrix and in absence of oxygen. G- After 2 years we have a stable gingival health. Unfortunately, there was a failure to fully correct the discoloration. In hindsight one should have removed a greater amount of dentin, in order to reduce the opacity of the tooth.

Results:

The subgingival portion of the restoration is perfectly smooth because it is polymerized in contact with the metal matrix, in the absence of oxygen. Therefore, it does not require any finishing and polishing. It is possible to obtain a lengthening of the clinical crown without any surgical intervention (fig.2), most often without even anesthesia. BAIR technique proves useful in the closure of pronounced diastemas (fig.3, 4), in the transformation of malformed, small or peg-shaped teeth (fig.5), in the balancing of the dental proportions and of the gingival contour (fig.6).

In the treated cases the soft tissues did not show signs of suffering, both in the immediate post-operative and follow-up, indeed the gingival situation even improved. No patient has ever complained or reported any discomfort or bleeding.

It is possible to change a smile in a single appointment, in a non-invasive way, at low economic and biological costs, particularly in young patients, when treatment options are reduced.

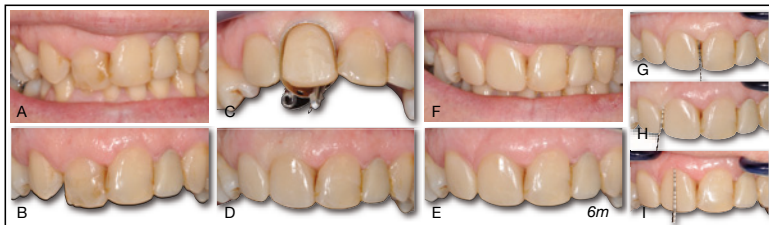


Fig.2: A, B- A 55-year-old woman presented agenesia of 12 and 22. The 22 was previously replaced with a Maryland bridge, in position 12 there is the canine, the right central incisor is extruded and tilted towards the palate. The gingival levels are unbalanced and the smile is compromised. C- The right canine was transformed in lateral incisor, the central incisor was shortened, then the metal matrix was applied and the gum was pushed apically. The composite was pressed against the matrix and the tooth, in order to change the emergence profile and support the soft tissues. D- The incisal and gingival levels were re-established. An area of more whitish gingiva can be seen suggesting transient ischemia. E, F- At the 6-month follow-up, the soft tissues show no signs of suffering, redness or inflammation. The gingiva has resumed a normal appearance. G, H, I- The probing shows no pockets and does not cause bleeding.

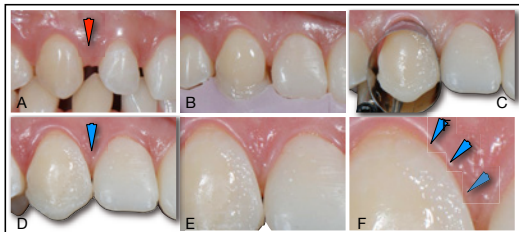


Fig.3: A- A young patient at the end of orthodontic treatment needs and wishes for an enlargement of her tiny teeth. B- A wax-up was carried out and, on this, a template was prepared. This helped us to place the incisal edge and the mesial and distal walls. C- The restoration was completed connecting the incisal part with the cervical one, with the help of the metal matrix. D- In this way the proximal walls emerge from within the gingival sulcus. E, F- It can be noted how the composite supports the gingival tissue, and how in this way we can instantly obtain a papilla. The composite that supports the gum was polymerized in contact with the metal matrix, therefore there is no inhibition by oxygen, the surface is smooth and the intrasulcular part of the restoration does not require finishing and polishing.



Fig.4: A- An elderly patient, wearing a removable prosthesis, showed an unpleasant smile due to small and worn incisors and no papillae. Her poor economic resources don't allow her to pay for a complex treatment plan. B- In a single appointment, using the BAIR Technique, the aesthetic problems were solved, changing the shape of the teeth with consequent adaptation of the soft tissues.

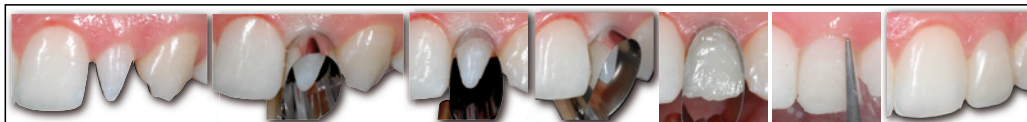


Fig.5: Peg-shaped upper left lateral incisor was treated using the BAIR technique to build a new emergence profile. The intrasulcular part of the restoration is perfectly smooth and it does not require any finishing and polishing. Changing the emergence angle allows us to obtain a rapid adaptation of the soft tissue, the restoration draws the gingival contour.



Fig.6: A 16-year-old girl with several agenesia asks for an improvement of her smile. In order to minimize time and the cost of the therapy the patient was treated with the BAIR technique: 11 and 21 were enlarged, 52 was modified to get the shape of 12, 23 was changed in 22. The spaces were filled by soft tissues and despite the differences in dimension, the new smile seems to be more harmonic.

Conclusions:

The BAIR Technique, based on the use of metal matrices that allow us at the same time to isolate the operative site and displace the soft tissues in a non-traumatic way, makes possible the rebuilding of a new intrasulcular "artificial CEJ" and the changing of the natural emergence angle. The new emergence profile will drive the gingiva to adapt to the desired position. Using this rapid, non-invasive and reversible therapy it is possible to solve aesthetic and functional problems, not only at the teeth level but also at the gingival one. Using the BAIR technique, it is possible to obtain in a single appointment, in selected cases, a drastic improvement in the aesthetics of the smile, without resorting to surgery or orthodontics.