A common trauma of anterior teeth is a coronal fracture. In according with the other article of Fabio Gorni on the same topic, also in this case we report a new conservative approach of a complex double reattachment associated to root canal therapy followed by fixing the fragments with a post. Due to the young patient age, the only conservative approach can solve successfully the treatment. Revascularization is becoming very popular in treating teeth with wide canal and open apex but restoring teeth using the fragments requires a quick, easy and aesthetic procedures.

This case shows a complex situation as the fracture of teeth is on the gum level. It causes a difficult reattachment especially because the dentist tried to reattach the fragments. Previously adhesive procedures altered the fragments fitting. Tips and tricks are showed to make this procedure as simple as possible.
Fig. 1: An 11 years old patient comes in emergency after a dramatic accident on both 11 and 21. The fracture involves enamel; dentin and pulp due to the high horizontal fracture on both teeth at the gum level.

Fig. 2: According to the treatment guidelines described in the literature, this patient has a complicated crown fracture.
Fig 3: Dramatic horizontal fracture with pulp canal exposure on both teeth
www.styleitaliano.org - Restore the Natural: A complex horizontal fragment reattachment
Fig. 4: The PA shows a wide canal on 11 and 21 as an immature teeth and the fracture at gum level.

Fig. 5: The patient's father is a dentist and he could keep fragments. The father tried to reattach the fragments using composite with no success due to the deep fracture. With complicated crown fractures, the best option is to reattach this fragment, by using a bonding agent and composite resin and without any preparation of the tooth or the fragment. But in this case a RCT is highly recommended to perform a post restoration. The provided fragments were stored in distilled water during the clinical procedures.
Fig. 6: The gingival gum has been cut using electrosurgical tip to obtain a proper fitting of the clamps.
Fig. 7  After rubber dam isolation, the RCT on 11 and 21 has been performed using MTA material due to the open apex

Fig. 8  The fragments were put in purified water 0.9% NaOCl and then they were cleaned with 0.2% chlorhexidine. After that the fragments were been cleaned using burs polishing tips and paste to remove completely the previously composite material
Fig 9: The fragments are now clean and ready for the adhesive procedures.
Fig 10: Fortunately the young patient had a gum shield where the fragments were fitting very well

Fig 11: Using the gum shield, it was easy the reposition of the fragments and it was possible to reattach the fragments
Fig 12: At this point the fragment is prepared using a carbide bur to make enough space to fit a glass fibre post.
Fig 13: A carbide bur has been used to avoid potential fracture of the fragment as the cutting is more efficient than a diamond bur. It is extremely important to evaluate the size of the post by taking into account the depth of the canal and the intra-coronal space. In this case a Medium glass fibre pos (HFO, Micerium) has been selected and then reduced and modified with a diamond burs to be fit passively on the fragment.

Fig 14: TRY-IN PROCEDURE: This step is the more important step of all procedure. The fragment with the post has been tried to check the marginal fitting. It is necessary to try the perfect fitting of the pos into the canal and the post into the fragment without any interference.
Fig 15: The fragments adaptation is imperfect due to the lost of enamel and dentine but we decided that the best treatment plan was to reattach the fragment.
Fig 16: The fragment was etched with 35% phosphoric acid for 15 seconds and rinsed.

Fig 17: Fragments and fibre posts cemented permanently with dual composite.
Fig. 18: The fragments are put on a stick to handle it easily. Both fragments are ready to be treated for adhesion.
Fig 19: The fragment and the bonded fibre post were etched with 35% phosphoric acid for 15 seconds and rinsed.

Fig 20: An etch and rinse procedure has been performed. The first step is to sandblast the surface and after we use an 37% orthophosphoric acid on enamel and dentin; for 15 seconds and rinsed.
Fig 21: Many layers of primer agent are used on the tooth and the fragments and after are carefully dried. The surface are then brushed with the bonding agent and light cured for 1 minute.
Fig 22: TRY-IN PROCEDURE. Before using the composite material to fit the reattachments, both fragments were been tried again to double check their fitting.

Fig 23: A dual composite resin was placed into the canal over the entire fractured surface, and the fragments were positioned and properly adjusted. After the dual composite completed the self curing, the restoration was light cured; in a soft mode for 20 seconds and then for 1 minute for buccal and palatal sides with glycerin gel to avoid the inhibited layer. Finishing and polishing was performed using brush and diamond paste.
Fig. 24: Result after rubber dam removal, finishing and polishing procedures. We have to wait for the rehydration of both fragments.
Fig 25: Post Op X-Ray shows a nice MTA apical plug and good fitting of the posts and the fragments on the teeth.
Fig 26: Review after 4 months. Preparations can also be performed after bonding to improve esthetics by grinding the buccal fracture line and masking it with composite. The final result after 8 months review is showing a good adaptation and great aesthetic result.

If the original tooth fragment is retained following fracture, the natural tooth structures can be reattached using adhesive protocols to ensure reliable strength, durability, and aesthetic. The limitations are only a possible fragment de-bonding or an incomplete fragment rehydration that can result in a color mismatch.