

## Introduction

Generally anterior teeth are vulnerable to traumatic injury. This case patient also uncomplicated crown fracture. Anterior portion of tooth highly recommend esthetic results. In this point of view, when it is possible, Fragment reattachment appears to be the most conservative approach and allows the maintenance of natural dental structures. This case report describes cases of uncomplicated crown fractures of the maxillary left central incisor (tooth #21, FDI), treated with fragment reattachment.

## Case presentation

### [Patient information]

1. Sex/Age: M/28
2. C.C: upper anterior tooth was broken and it's too sensitive to cold water
3. PMHx: none.
4. PDHx: Maxillary full denture
5. PI: #41-33 interproximal space with severe attrition P/R(-), bite(-), air(-), EPT(+)
6. Tx plan: #41-32 #43 M resin veneer



Fig 1A,1B. (A) Initial clinical photo (A) fragment adaptation

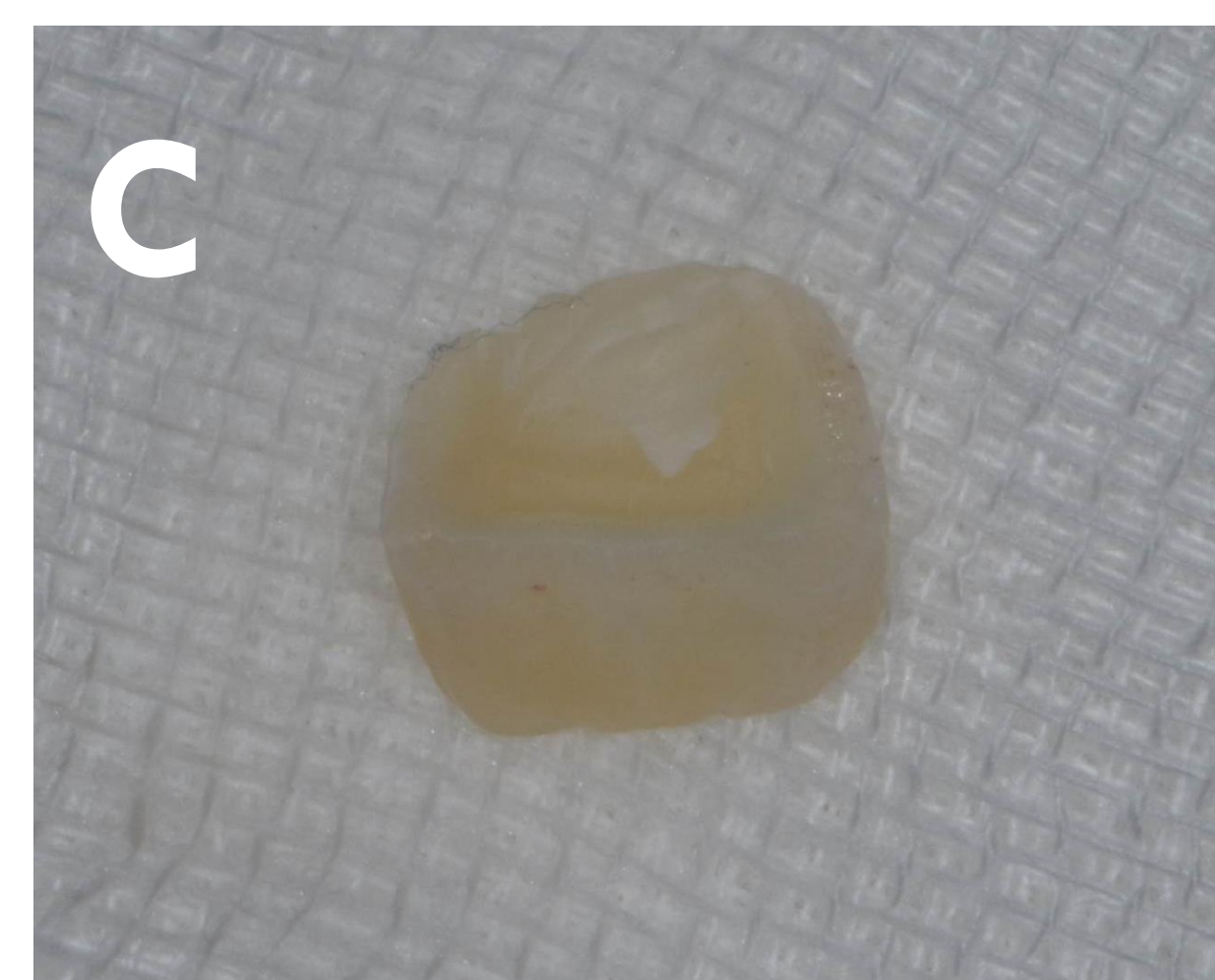


Fig 1C. #21 tooth fragment

## Treatment procedure

1. Remove lingual orthodontic retainer
2. Oral prophylaxis with pumice
3. Irrigation with saline both #21 tooth and tooth fragment
4. indirect pulp capping with TheraCal LC
5. Prepare long bevel on labial surface of #21 tooth
6. Etching, Bonding with All-Bond Universal(Bisco, Korea) both #21 and fragment
7. Bonding with Duolink(Bisco, Korea) and labial resin z350 shade A2(Dentsply, USA) filling
8. Occlusal adjustment
9. Finishing with Soflex strip, #12 blade polishing with Enhacer/ Pogo system

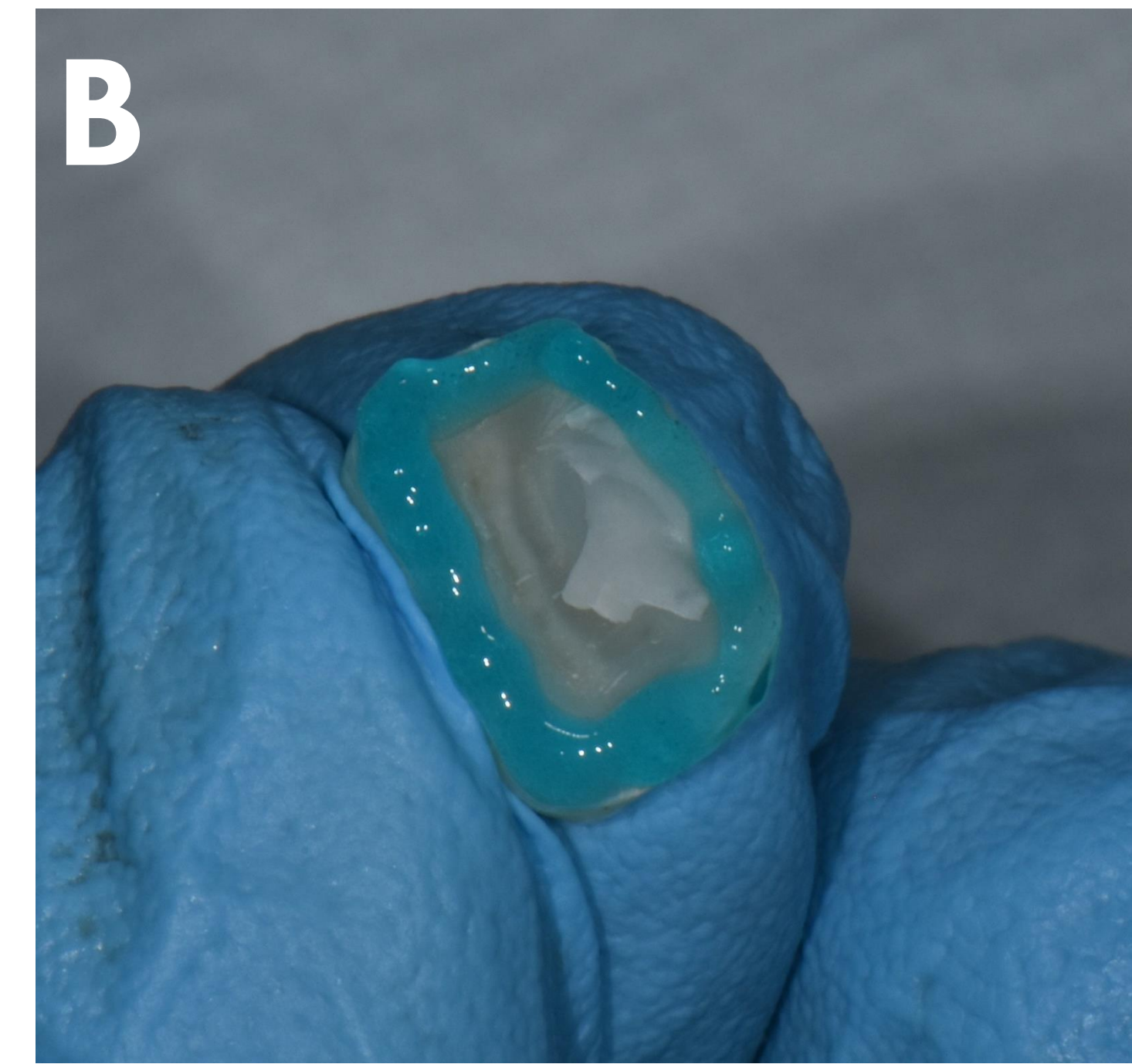


Fig 2A,2B. Selective Etching on (A)#21, (B) fragment

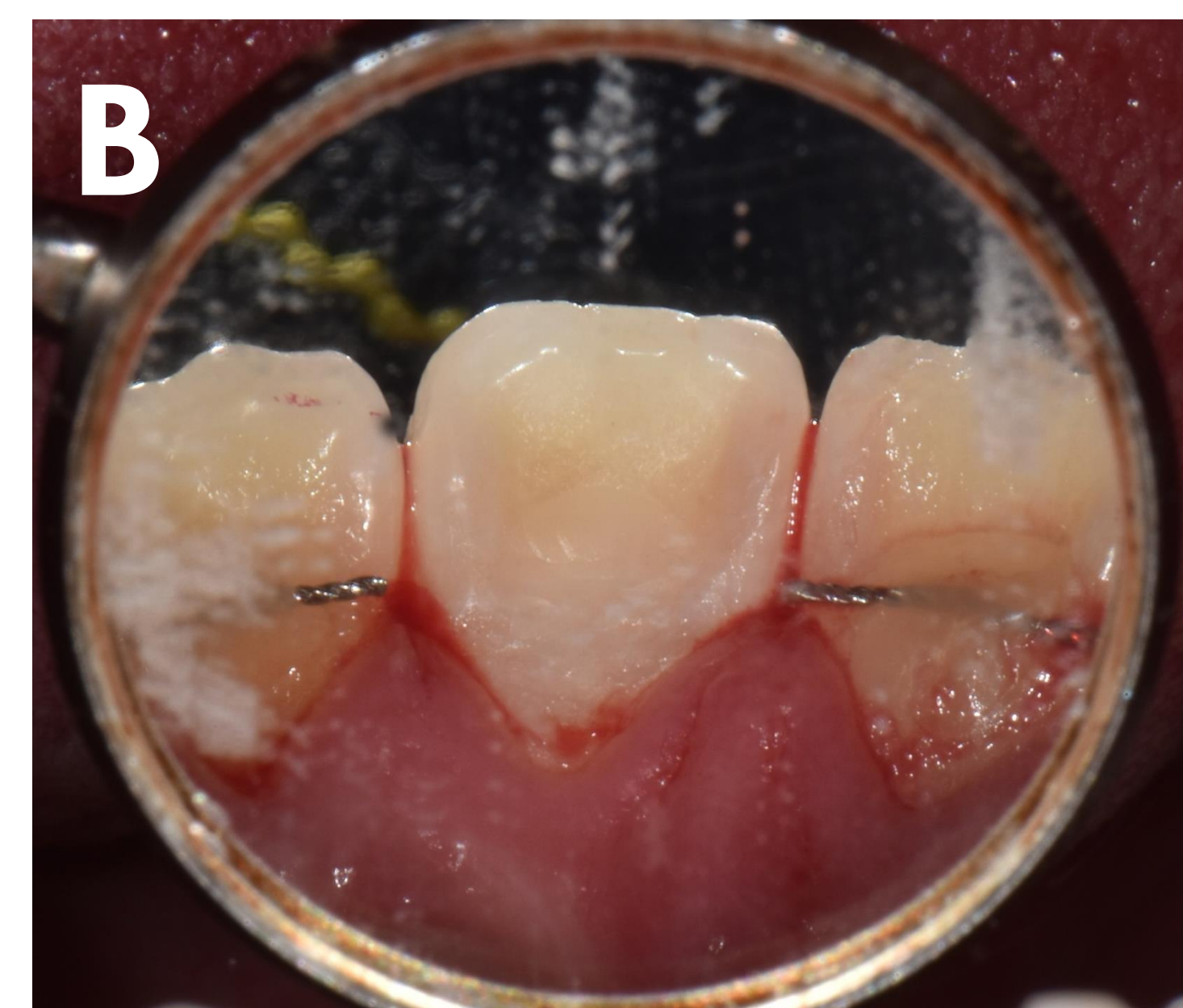


Fig 3A, 3B. final restoration (A) labial view, (B) Palatal view



Fig 4A,4B. Periapical x-ray (A) pre-OP (B) post-OP

## Discussion

Majority of trauma is occurred at maxillary anterior teeth(83%) and 0.89% at mandibular anterior dentition. In this case, maxillary incisor was fractured not including pulp space and dislodged fragment was well maintained in saline. Therefore fragment reattachment was possible. During bonding procedure, two strategies were considered. First, give long circumferential bevel on labial side of fractured tooth. And secondly, use dual cure resin for thin film thickness and composite resin on outer surface area. According to previous studies, physical bevel was more efficient in bond strength rather than chemical approaches such as, self-adhesive bonding, dual-cure luting cement and light cure composites. That is elucidated through the adhesive layer between enamel surface. And the dual-cure resins typically contain both hydrophilic and hydrophobic components in their formulation. That is prolonged exposure to moisture can lead to hydrolytic degradation. Therefore, dual cure luting resin should be protected by composite resin.

## Conclusion

1. In fragment reattachment, giving long bevel is strategical in the aspect of bond strength.
2. Using dual-cure resin for thing film thickness is admitted, but should consider hydrolysis when it exposed to outer surface.

### [Funding/Conflict of interest]

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