

# Managing Discoloured Root Filled teeth with Inside/Outside Bleaching

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## Aims

To demonstrate a predictable and effective method to treat discoloured root filled teeth in order to help improve patient outcomes and to increase clinician's confidence

## Introduction

Traumatic dental injuries can lead to pulp necrosis and localised internal discolouration of teeth. The types and severity of injuries are strongly related the chances of teeth developing pulpal necrosis with colour changes ranging from a transient blushing to serious discolouration<sup>1,2</sup>. Internal haemorrhage of the dental pulp moves into surrounding dentinal tubules<sup>3</sup>. Colour changes can be gradual and asymptomatic, or be obvious almost straight away to the casual observer. Discolouration has a wider implication than the dental management alone.

## Technique

### Preoperative

- The tooth must have been root treated properly and be asymptomatic.
- A preoperative shade should be taken and documented.
- An alginate impression should be taken.
- The vacuum formed tray is created on the cast. It is removed and trimmed with windows being then cut out of the tray on the labial surfaces over the adjacent ("non target") teeth.

### Perioperative

- The access cavity restoration covering the root filling is removed entirely.
- The pulp chamber is cleaned ultrasonically or airsonics.
- The gutta percha is removed down to 3mm below the cemento-enamel junction (CEJ) if placing a seal over the root filling.
- If placing a seal (minimum 2mm thickness) over the overlying gutta percha root filling.
- The patient should be shown how to apply bleaching gel (10% carbamide peroxide) into the access cavity and bleaching tray.
- Excess bleach is cleaned away from the gingival margins and adjacent teeth.
- The gel should be changed every two hours and also last thing at night.
- The tray with the gel has to be worn all the time during the day and overnight and only be removed briefly for eating.
- The patient is instructed to continue the bleaching process until they are happy with the shade.

### Postoperative

- The patient must return for review after approximately 3 days
- The access is debrided with ultrasonic instrumentation and dried.
- The access is sealed using contrasting shade of glass ionomer cement
- Composite restorations should NOT be placed for at least a week after the cessation of any bleaching.

## Case One



Figure 1 showing preoperative and postoperative images and radiographs from Case One

## Case Two



Figure 2 showing preoperative and postoperative images and radiographs from Case Two

## Consequence of Preparation

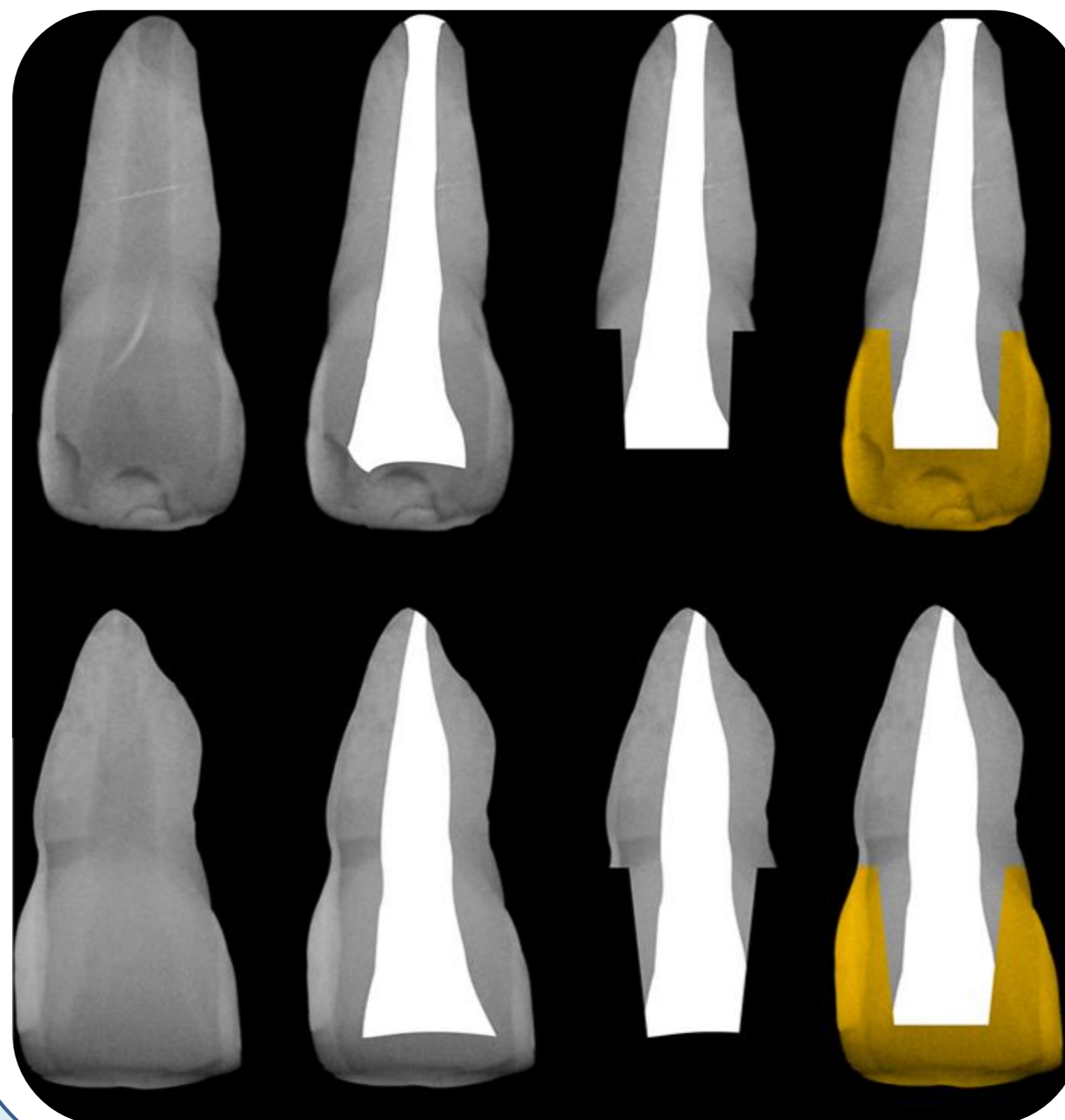


Figure 3 showing consequence of crown preparation on Case One and Case Two

## Cases

Case 1: A female patient (18 years old) presented with a discoloured and fractured upper central incisor with an open apex due to early trauma. Following root canal treatment, inside-outside bleaching was undertaken and the composite restoration was replaced (Figure 1).

Case 2: A male patient (37 years old) with discoloured central incisors following trauma at age 11. Both upper centrals were discoloured; one due to pulp necrosis and the other due to pulp obliteration. The UR1 was root treated and had inside-outside bleaching completed. The UL1 was treated with vital bleaching (Figure 2).

## Discussion

A large proportion of traumatic dental injuries occur at a young age, while dental development is still on-going. The management of these patients must take into account the pulpal and radicular development at that time.

Conventional crowns result in the removal of 63 to 72% of sound tooth tissue<sup>5</sup>. This is something that metal or ceramic cannot replace. Little remaining coronal tissue may result in crowns that have inadequate retention and resistance form, which may require a post and core to retain a crown (Figure 3). Inside-outside bleaching is able improve aesthetics, whilst minimising the potential impact of initiating a destructive restorative cycle.

## Conclusion

The implications of a discoloured dentition are serious due the associated psychological impact that can affect a patient's quality of life. Whether it is fair or not, society constantly judges people on their appearance<sup>6</sup>. It is therefore important to appreciate the seriousness of a patient's presenting complaint about discoloured teeth and the subsequent impact that any effective non-destructive treatment can have on patients' dental and mental well-being.

Following the Montgomery ruling in the Supreme court in 2015<sup>7</sup>, the various different treatment options ought to be explained in detail to the patient for their consent to be valid. Patients are becoming increasingly aware of the various treatment options available to them and their relative risks and benefits, including the various long term biologic as well as financial costs of any treatment.

## References

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