

## Is your knowledge up-to-date?

### Case history

A 41-year-old patient visits the dental hygienist. She recently changed jobs and is currently working as a sales representative. She complains about the colour of her teeth: 'There are brown and yellow spots everywhere.' She wants her teeth to be as white as her crown on the 1.2. She has a simple care question; she wants white teeth.

### Medical history

The patient smokes 14 cigarettes each day. There are no medical complications.

### Dental history

The clinical aspects are shown in Fig. 1. Her last visit to the dental practice was 2.5 years ago. She uses therapeutic toothpaste to prevent tooth sensitivity.

### Mouth inspection

There is a generalized gingivitis. Supra- and subgingival calculus and staining on the lingual site of the lower front teeth (probably due to smoking) are present.

Discoloured restorations at 2.3–2.4, a remineralized lesion at the 4.3 and recessions are visible.



Fig 1. Clinical aspects.

### Questions

- 1 The patient needs advice about the bleaching procedures. Which issues could be addressed in this advice?
- 2 Name some possible side effects of bleaching.

### Answers

- 1 The popularity of tooth whitening among dental professionals and patients has increased due to the rapid innovation in vital bleaching. The demand for aesthetic care is high and growing.

The advice can be limited to explaining the different bleaching systems and the effects of bleaching (including possible side effects). The patient then should be able to make a decision based on this information and treatment can be provided.

However, it is good to discuss the fact that tooth bleaching should be limited on its use to patients for whom such treatment is professionally justified. Some researchers urge the dental profession to maintain high ethical standards and not to recommend performing cosmetic adjustment of tooth colour just to comply with the demand of the patient (1).

Maybe there is a discrepancy between the care question of the patient and the need for care from a dental point of view. Probably alternative treatment options are suitable for this patient. The first step should be informing the patient about her oral health and dental status. The need for oral hygiene instruction and a thorough dental hygiene treatment is obvious from a clinician's point of view. Next to that the patient needs to be informed about the fact that part of the discoloration she dislikes in the frontal area is caused by restorations as well as some remineralized lesions. Bleaching will not affect the colour of the restorations. Appropriate expectations about the bleaching procedures should be mentioned. This means that the restorations in the frontal area probably need to be replaced after bleaching.

In this case replacement of these fillings, without the bleaching procedures, could alter patient's perception about her teeth (aesthetic benefits).

If she still wants her teeth bleached she needs to be informed about the bleaching process, the bleaching systems

and the possible side effects. She suffers from tooth sensitivity. This should be taken into consideration for deciding which bleaching system will be used. One of the main adverse effects of bleaching is tooth sensitivity. (2–4)

Since she is a smoker, the advice to her is not to smoke during the bleaching procedures and several hours after the process due to increased sensitivity of the oral tissue for the toxic components in the smoke.

Dental hygienists should be aware of the indications and limitations of bleaching. The diagnoses of the discoloration based on the medical, dental and dental hygiene anamnesis is necessary. The most important factor for successful bleaching is the correct indication.

**2** The most common side effects of bleaching are tooth sensitivity and gingival irritation. Excessive bleaching can lead to alteration of the enamel surface, leading to a milky white aspect of the enamel. Side effects often occur due to poor compliance to the bleaching process when used 'at home'. Sensitivity is caused by all forms of bleaching (in-office, with or without light activation and over-the-counter) and depends on the concentration peroxide (4).

Poor tray contours (when used with custom tray bleaching 'at home') may contribute to the gingival irritation seen with bleaching (2). In patients who cannot tolerate trays, whitening strips can be a solution. The limitation of the strips is the inability to whiten the posterior dentition.

Tray insertion and removal can also lead to sensitivity and gum irritation, and tray thickness is believed to contribute to poor compliance and development of occlusal interferences (3).

It has been suggested that the bond strength between enamel and resin-based fillings was reduced in the first 24 h after bleaching. Therefore, tooth-bleaching agents should not be used prior to restorative treatment with resin-based materials (1).

Bleaching can result in a deterioration of the restorative materials. Some materials show a decrease in hardness and an increase in surface roughness (5).

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