

## Prevention of Third-Party Eye Injuries from Outer Facebows

[NAPHTALI BREZNIAK, MD, DMD, MSD](#)

[ATALIA WASSERSTEIN, DMD](#)

[EINY SHMUEL, DMD, MSD](#)

Facial injuries from orthodontic facebows have been reported sporadically over the past 30 years.<sup>1-4</sup> Samuels recently recommended modifications to inner bows that could increase headgear safety.<sup>5,6</sup> This article focuses on the hazards to third parties from outer bows, and suggests a simple solution.

### Case 1

A 12-year-old girl had worn her headgear for 12 months. While she was playing with her dog, the dog's lateral ocular angle (lateral cantus) was caught by the outer bow. The situation was worsened by the dog's efforts to disentangle himself. Fortunately, the patient's parents were nearby and quickly cut the elastic neck strap, allowing the girl to release the facebow from her mouth. The dog was then freed. The veterinarian later found damage to the tissues covering the eye, but none to the eye itself.

### Case 2

A similar accident happened to the 3-year-old brother of a 13-year-old orthodontic patient. The two boys were playing quietly when their father heard a sharp scream. He was able to immediately disengage his sons from the headgear. As in Case 1, the 3-year-old suffered only a slight laceration of the eyelid, which was treated with a local antibiotic.

### Case 3

A cat tried to lick the face of his master, an orthodontic patient wearing a headgear. The cat suddenly recoiled back as his cornea was scratched by the outer bow. No permanent eye damage was found by the veterinarian.

### Discussion

Only one case of an injury from an outer facebow has previously been reported.<sup>1</sup> The three cases reported above, however, emphasize the potential danger to the patient's surroundings from this part of a headgear (Fig. 1). All three accidents occurred during routine use, despite regular verbal warnings from the orthodontist and printed warnings in the facebow cases from the manufacturers. In all three situations, the patients and parents refused to continue use of the appliances.

To the best of our knowledge, no manufacturer has adopted the modification to the outer bow recommended by Seel in 1980.<sup>1</sup> Several companies cover the ends of the bows with plastic caps (Fig. 2). Others reduce the protrusion of the bows by making mesial bends in the distal portions (Fig. 3).

Although accidents from outer bows may never be completely eliminated, they could be significantly reduced if orthodontists would simply bend the ends of the bows inward (Fig. 4). Corneal scratches and ocular blunt injuries could still occur, since they can be caused by any blunt object. However, lacerations, which are the most serious potential injuries, could actually be prevented by this method. Such a modification would reduce the exposure of orthodontists and manufacturers to potential litigation, and more important, improve the safety of patients wearing a common orthodontic

appliance. □

## FIGURES



**Fig. 1** Simulation of third-party injury from outer facebow.



**Fig. 2** Plastic caps on ends of outer bows from two different manufacturers.



**Fig. 3** Mesial bend of outer bow to reduce protrusion.



**Fig. 4** End of outer bow bent inward to prevent laceration injuries.

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