

Consumer alert on the use of elastics as “gap bands”

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The use of elastics in dentistry is not a new development. One of the earliest applications of elastics in dentistry was to extract teeth in patients with bleeding disorders (eg, hemophilia, purpura), cardiac problems, or mental deficiency. The practitioner simply placed a rubber band around the tooth to be extracted; because of the shape of the teeth, the rubber band slowly worked its way up or down the sides of the tooth roots, destroying the bone and soft tissues, and the tooth just fell out, all in about 4 to 6 weeks. This use of elastics was intentional and considered a safe and effective procedure. This procedure is also advocated in the current literature involving patients treated with bisphosphonates. In this context, the characteristics of the elastics and the shape of the teeth are used to effect bloodless, atraumatic extractions.

In a similar way, elastics have been of value in animal research conducted in the area of periodontics. In this context, elastics are placed around the tooth near the gingival sulcus and allowed to submerge into the animal's periodontal tissues. The elastics destroy the periodontal attachment between the bone and the cementum, and the tissues become inflamed, producing lesions similar to those seen in periodontitis. Once the lesions are produced, the efficacy of various treatments is then tested.

For more than a century, similar examples of this type of elastics use have also appeared in the orthodontic literature, but in a negative sense. Such articles show the possible consequences of using these same principles to close a space (ie, a gap) between 2 teeth. Most of the time, there are no problems, but if the rubber band slides into the soft tissues, it is difficult if not impossible to retrieve it, and it continues along the distal surface of the roots, destroying the periodontal attachment and producing inflammation.¹ As this occurs, the teeth extrude, the crowns fan out as the roots are pulled together, the teeth become increasingly mobile, and then they might just fall out (Fig).

This situation is made more difficult because elastics usually cannot be seen on radiographs. As a result, consideration of the symptoms (ie, extrusion, change of

tooth position, and mobility of the teeth) might not result in a definitive diagnosis. In the absence of the patient's or parent's acknowledgment of the use of rubber bands, trauma is usually suspected, and palliative periodontal therapy and splinting are usually performed. Alas, if the cause of the symptoms is a submerged rubber band, the teeth will continue to loosen and most likely be lost. Subsequent repair and replacement of the missing teeth and bone can require dental procedures that are complex and expensive.

Because of this known risk, orthodontists and other dentists generally consider the uncontrolled (ie, unsupervised and unsecured) movement of teeth using just elastics to be below the standard of care. Having attachments on the teeth with a secured wire between them is the simple remedy. So, if a practitioner used just a plain rubber band to close a space between 2 teeth and the teeth were lost instead, a malpractice claim would be expected.

Given the consistency of the orthodontic literature on this topic, why write an editorial about it? The answer to this question can be found on the Internet. A recent search using the words “gap bands” and related terms produced millions of hits. Although “gap bands” is newly minted, it is clear that it is now in common use around the world. Judging by the available videos, it is also clear that the topic is of considerable interest to many minors and adults. The most common risk being described on the Internet appears to be the chance of latex allergy; mentions of the possibility of rubber band aspiration and tooth loss appear to be scarce.

Because of the risks involved, it would be beneficial for consumers to be properly informed about the benefits and risks of any self-treatment situation such as this. Or consumers could seek the information they need from a practitioner who has the knowledge, skill, and experience to know what is safe and what is not.

So that it is crystal clear, I am not suggesting that elastics should not be manufactured, sold, and bought. To the contrary, we buy elastics and use them in our clinic every day, but we apply them in specific ways and in a controlled fashion. Furthermore, every orthodontist I know does the same thing. Instead, the purpose of this editorial is to point out that the use of elastics in orthodontic tooth



Fig. Exploratory periodontal surgery showed an elastic band.¹ The facial surface of the bone is missing as are the distal surfaces along the roots to a level 3 to 5 mm from the apex of the teeth. This figure was reproduced with permission from the American Academy of Periodontology. Additional figures relating to this case are available on the *AJO-DO Blog*, ajodoblog.blogspot.com.

movement can be advantageous, but their use is also associated with disadvantages and risks. This should be known and appreciated by practitioners and consumers alike.

Rolf G. Behrents

“We’ve heard that a million monkeys at a million keyboards could produce the complete works of Shakespeare; now, thanks to the Internet, we know that is not true.”

Robert Wilensky, computer scientist, 1996

REFERENCE

1. Marino VA, Fry HR, Behrents RG. Severe localized destruction of the periodontium secondary to subgingival displacement of an elastic band. *J Periodontol* 1988;59:472-7.

Additional references and information on these topics are provided on the *AJO-DO Blog*, ajodoblog.blogspot.com.