

HOW ORTHODONTIC FACEBOW INJURIES OCCUR: SELECTING EFFECTIVE SAFETY DEVICES TO AVOID THEM

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ÖZET: Diş hekimliği ve tıp literatüründe, ortodontik yüz arki yaralanma olaylarına ara sıra rastlanmaktadır. Bu olgular seyrek olmasına rağmen, yaralanmalar çok kötü sonuçlar doğurabilir. Bu yüzden, klinisyenlerin bunları nasıl önleyebileceklerini mutlaka bilmeleri gerekmektedir. Çalışmamızda bu yaralanmaların nasıl oluştuğu tarif edilmiştir. Şu anda mevcut güvenli aygıtların, bu yaralanmaları önlemedeki etkileri tartışılmıştır. Yüz arklarının, kullanım sırasında, ekstra oral traksiyon tüplerinden çıkmasının önlenmesi gerekliliği sonucu çıkarılmıştır. Kilit sistemli ortodontik yüz arki ile kendinden gevşemeli ekstra oral bir traksiyon sisteminin en güvenilir aygıt kombinasyonu olduğu önerilmektedir.

Anahtar Kelimeler: Headgear Güvenliği, Facebow yaralanması, Güvenlik elemanları.

ABSTRACT: HOW ORTHODONTIC FACEBOW INJURIES OCCUR: SELECTING EFFECTIVE SAFETY DEVICES TO AVOID THEM. Reports of injuries from orthodontic facebows have occasionally appeared in the Dental and medical literature. These reports are rare but the injuries can be disastrous and Clinicians must know how to avoid them. How these injuries occur is described. The effectiveness of the currently available safety devices in preventing these injuries is discussed. It is concluded that the facebow needs to be prevented from coming out of the extra oral traction tubes during use. It is suggested that a locking orthodontic facebow and a self releasing extra oral traction system are used as the most effective combination of safety devices.

Key Words: Headgear safety, facebow injuries, safety devices.

INTRODUCTION

Extra oral retraction appliances have been successfully used for many years to provide additional anchorage in treating many malocclusions. In 1975 practitioners were first advised to take particular care to prevent the facebow accidentally coming out of the buccal tubes to prevent injuries to patients (1). Unfortunately there have been several case reports (2, 3, 4, 5, 6, 7, 8) and three questionnaire studies (9, 10, 11) reporting injuries that have occurred with standard facebows when used with extra oral retraction appliances since then. The number

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of reports are small when compared to the number of patients treated with this appliance, but the morbidity can be very high. Reported injuries range from minor soft tissue lacerations to the loss of one or both eyes. Because of the risk of such severe injuries Orthodontists need to be aware of how the injuries occurred so that they can select and fit effective safety devices to their patients to prevent further injuries occurring.

The reported injuries have resulted from either the elasticated recoil of the facebow or from the facebow that has accidentally come out of the mouth at night, and the child is thought to have rolled over onto the facebow in their sleep. These injuries have been previously categorised into the following four groups (10, 11, 12):

Group 1. Accidental disengagement of the facebow when the child was playing whilst wearing extra oral traction. In these cases the facebow was knocked out of the buccal tubes and catapulted backwards and hit the patients in the face or eye. The patients were wearing non releasing elastic extra oral traction.

Group 2. Incorrect handling by the child during the fitting or removal of the headgear and facebow. In these cases the facebow was removed from the mouth while still attached to the elastic traction by the patient and lifted up and over their head. During this manoeuvre the facebow slipped from the patients hands while in front of the face and catapulted backwards striking the face or eye.

Group 3. Deliberate disengagement of the facebow caused by another child. The facebow was deliberately pulled from the mouth of the patients then allowed to catapult backwards and hit the patients in the face or eye. The patients were wearing non releasing elastic extra oral traction.

Group 4. Unintentional disengagement or detachment of the headgear and facebow whilst the child was asleep. The headgear or neckgear detached at night which allowed the facebow to come out of the mouth and end up on the pillow. The patient then rolled on to the facebow in their sleep and damaged the soft tissues of the face or eye.

In one questionnaire survey (11) it was reported that 57% of the injuries occurred with molar bands and 43% with removable appliances. 17% of the injuries occurred

in group one, 8% in group two, 4% in group three, and the majority 71% occurred in group four. All the reported injuries occurred in 10 to 14 year old children. It is not surprising most injuries occurred at night as most if not all extra oral traction is prescribed to be worn at night. One of the conclusions from this study suggested that night time disengagement of headgear was an important causative factor of injuries. Eye injuries from orthodontic facebows have several associated consequences that may not be appreciated by some Clinicians. Facebow injuries to the eye may be relatively asymptomatic at the outset often delaying the child seeking treatment especially when it occurs at night (5). This delay encourages any infective process to proceed unchecked. The risk of infection to the eye following an injury by a facebow is extremely high due to the micro-organisms that are present on the facebow which get transferred from the mouth to the eye (5). The eye is an excellent culture medium and when infection does occur it is very difficult to control (5). When one eye is injured there is a risk of loosing the other undamaged eye due to contra lateral endophthalmitis (5). Patients with unilateral eye injuries are often prescribed steroids to preserve the sight in the undamaged eye. These steroids may have an effect on their weight and fertility. In children there is the associated problems of diminished facial growth around the lost eye, managing a prosthetic eye, the psychological damage and the continuing long term review of the remaining eye. As the width of the inner bow is the same distance apart as the eyes, there is the risk of a bilateral eye injury. Because the consequences of these injuries are so severe it is very important that effective safety measures are used to try and prevent their occurrence.

SAFETY DEVICES

Currently, there are four types of safety equipment commercially available for extra oral retraction with facebows. They are self releasing headgear or neckgear, plastic neckstraps, shielded facebows and a locking orthodontic facebow. Which ever piece of equipment is selected either on its own or in combination with another they must be effective in counteracting the catapult risks and the accidental disengagement of the facebow from the buccal tubes especially at night. This recommendation was originally made by the American Association of Orthodontists in 1975 when they wrote "practitioners should take precautionary steps in their practice to eliminate accidental disengagement of the facebow from the buccal tubes and thus prevent any possible soft tissue damage" (1). This recommendation has also been supported in several of the reports on the injuries (10, 11, 12).

The current standard orthodontic facebow design relies on the headgear or neckgear and any incidental friction in the extra oral traction tube housing (usually about 4

mm long) to hold it in place. If the headgear or neckgear becomes detached during use, then only the incidental friction of the tube housing, if present, is left to resist its displacement at night.

Self Releasing Headgears And Neckgears

The anti recoil mechanism in these devices has been targeted at the recoil injuries which were one of the first problems reported, those in groups 1,2 and 3. The safety modules are manufactured in many designs (Figure 1) with a variable amount of extension of the straps required to activate the modules (range 11 to 65 mm) (13). The amount of force required to release the module has also been reported to vary (13). When selecting a suitable self releasing system choose one that has a short travel that will release when required and is comfortable to wear. For high pull or headgear traction the module only requires enough travel to allow the patient to attach the straps onto the outer bow without activating the modules. Further extension is not required as the distance between the back of the head and the upper first molar remains a fixed distance during the movement of the head. For cervical pull or neckgear there needs to be some additional travel built into the module to prevent unintentional release, as the distance between the back of the neck and the upper first molar does change with movements of the head. Unpublished data of 77 twelve year old children of mixed race found an average change in this distance of 22 mm with a range of 7 to 42 mm. Several designs of safety module have the ability to extend to 22 mm before releasing presumably to accommodate this change in distance with movements of the head and prevent unintentional release.

However, self releasing systems used on their own have the disadvantage of not covering the risks of accidental disengagement of the facebow at night. In one study 65% of Orthodontists reported that their patients experienced detachment of either self releasing or non self releasing headgear/neckgear or the facebow at night (11). Therefore self releasing headgear or neckgear on its own cannot be relied upon to keep the facebow in place while the patient is wearing extra oral traction at night. This needs to be done by some other mechanism. A carefully selected self releasing system will help to counteract the recoil injury risks in groups 1, 2, and 3.

Plastic Neckstraps

These simple rigid plastic neckstraps are designed for cervical use only and are not suitable for use with high pull headgear (Figure 2). The function of the strap should be to keep the facebow within the tube housing on the molars or removable appliance while in use. However the rigid nature of the strap creates problems in attempting to achieve this goal. The thickness of the soft

tissues at the back of the neck create a certain amount of flexibility in the cervical traction system which is greater than the length of the tube housing in which the ends of the inner bow are situated. Most extra oral traction tubes are approximately 4 mm long. If the facebow is distracted forward the compression in the back of the neck is enough to allow the facebow to come out of the tubes. Unpublished data on 105 nine to fourteen year old children suggests this distance is on average 7 mm per side. Retention of the facebow within the tube housing is also affected by the movement of the head. The strap is usually fitted comfortably with the patient seated upright in the dental chair. However when the patients tilts their head downwards more slack is created in the strap making it less retentive, due to the change in the distance between the back of the neck and the upper first molar teeth. When the patient tilts their head upwards the strap becomes very restrictive and uncomfortable (Figure 3A, 3B). Poor compliance with this strap has been reported, and stapling the plastic strap to the neckband or crimping it to one end of the facebow, does not ensure that it will be attached to both ends of the facebow by the patient (11).

A further disadvantage of this strap is the variable amount of tension placed on the strap when fitted by different Orthodontists. This has been shown to vary by as much as 4 holes, a distance of approximately 2.5 cm (10). This increased slack in the restraining strap allows further distraction of the facebow from the tube housing.

The rigid nature of these plastic neckstraps do not prevent a standard facebow separating from an upper removable appliance should the appliance come away from the teeth.

The principle of a stiff plastic neckstrap around the neck, restraining the facebow in the extra oral traction tube housing, is based on the opposite principle to the cervical self releasing modules. Several self releasing modules have approximately 22 mm of extension built into them to allow head extension and flexion to occur without unintentional activation of the safety modules. There is little possibility of head extension with a tight stiff plastic neckstrap.

It is important to protect the patient from intra oral as well as extra oral injuries. Intra oral injuries at the back of the mouth from standard facebows have been reported (11). There are risks from penetrating and blunt trauma to the oropharynx, which have been reported with various objects in the medical literature (tooth brush, lollipop stick, pencils, sticks, metal rod), that Clinicians should be aware of (14, 15, 16). The incidence of penetrating intra oral trauma in children is unknown and most cases probably heal spontaneously without being seen by Doctors (11). Occasionally these children have developed acute life threatening complications of retropharynx-

geal and mediastinal abscess, mediastinitis, widespread emphysema, internal carotid artery thrombosis and airway obstruction (14).

The stiff plastic neck strap cannot prevent a standard facebow from coming out of the buccal tube housing when it is distracted forward, and in some situations is unlikely to prevent the facebow coming out of the mouth as the facebow can rotate once it is out of the tube housing.

Shielded Facebows

Shielding the ends of the facebow does not prevent it coming out of the tube housing as recommended, and assumes that the shielded end of the inner bow will protect the soft tissues from injury (Figure 4A). If used with non safety extraoral traction and allowed to catapult backwards outside the mouth the shielded ends of the inner bow cannot always be relied upon to hit the face simultaneously and prevent an injury (Figure 4B). They could hit the face at any angle. The design also assumes that being hit in the eye by a blunt extension will not damage the eye, which is unlikely. However, both the shielded and pointed ends of the inner bows are covered with oral micro-organisms. In previous eye injuries it is the inoculation of the mouth flora into the eye that radically altered the situation, rather than the trauma, producing an overwhelming infection, without which the wound would probably have been self healing (5). When shielded facebows are used with safety release headgear or neckgear the shielded facebow can accidentally disengage at night in just the same way as the standard facebow. Once the shielded facebow is on the pillow the child could turn on to the facebow at any angle in their sleep and end up with one or both ends of the inner bow damaging the eye (Figure 4C). These facebows do not retain themselves within the buccal tubes while in use and although the shielding may reduce the severity of some skin and mucosal injuries they are still heavily contaminated with oral micro-organisms which can be transmitted to the eyes.

A Locking Orthodontic Facebow

As previously mentioned suitable self releasing headgears and neckgears are designed to counteract the catapult risks (groups 1, 2 and 3), but don't counteract accidental disengagement of the facebow at night (group 4). To prevent the facebow from accidentally coming out of the extra oral traction tubes, especially at night, the facebow needs to be retained or locked into the Extra oral traction tubes while in use by some other mechanism.

The principle of a locking orthodontic facebow is not new. Previous designs have been put forward by An-

draws, Dougherty and Samuels et al (18) to prevent the facebow accidentally coming out of the tubes at night. However they have not become commercially available. These designs may have been too specific and were not adjustable to accommodate different tube assemblies.

Recently a new design of locking facebow (Figure 5A & 5B) was introduced to help prevent accidental disengagement of the facebow from the buccal tubes (19) ('Nitom', Ortho Kinetics Corporation, 1611A South Melrose Drive, Suite 16, Vista, CA, 92083/GAC International Inc. 185 Oval Drive, Central Islip, NY 11722, USA). This facebow fits most manufacturers popular fixed appliance upper first molar buccal tube assemblies whether they are double or triple. It can be used with extra oral traction tubes situated gingivally or occlusally and with the upper second molar banded and connected to the working archwire (Figure 6). It fits removable (Figure 7) and functional appliances (Figure 8A & 8B), with the advantage that if the appliance comes away from the teeth the facebow remains locked to the appliance. It can be easily adjusted to fit different lengths of buccal tubes on either fixed, removable or functional appliances (Figure 9). The distal end of the tube needs to be flush with the distal arrow head of the crib on the upper removable appliance, to allow the lock to work (Figure 7). The catch is easy to engage by the patients, and the facebow is supplied with instructions for the patient. If left unlocked (Figure 5A) by the patient the position of the unlocked catches should alert the patient to engage the lock. If one catch fails the other should maintain the lock until the patient becomes aware of the problem. The hook on the outer bow is recessed to avoid being caught or snagged. In a current ongoing unpublished study this facebow has now been successfully used on over 400 consecutively treated extra oral traction patients. To date reported accidental disengagement of the facebow at night numbers less than 1%. This contrasts with the reported 65% disengagement rate in the 1996 study (11).

SUGGESTED CURRENT PRACTISE

From all the information currently available on how extra oral traction injuries have occurred the following practise is suggested.

Extra oral traction should only be prescribed to those patients who are likely to comply with the Doctors instructions. The use of the equipment should be clearly demonstrated to the patient and or parent, consent obtained and an entry made in the case notes. Written instructions should be issued to all patients and parents to take away with them. The equipment should be carefully checked at each review appointment and the patient asked if it has ever come off or caused a problem. A warning should be given that failure to comply with the instructions may result in injury.

The instructions for the patients/parents/siblings should include the following:

1. Patients should be advised never to wear their headgear whilst playing or messing about.
2. If another person grabs their facebow, the patient should also take hold of it until the other person has released their hold. They should then dismantle the headgear and facebow to check that nothing has been dislodged or broken.
3. Always fit the locking facebow first. When the locking facebow has been fitted, patients should check to make sure it is seated correctly in a mirror, and then confirm the 'lock' by trying to lightly pull it anteriorly. Once the facebow is in position then the safety headgear/neckgear strap may be fitted whilst holding on to the facebow, to the prescribed tension (mark the hole).
4. If the headgear/facebow ever comes off at night, or they have any other problems, the patient should stop wearing it and return to see the clinician as soon as possible.
5. Before removing the facebow the patient must always remove the headgear/neckgear first.
6. If the patient wakes up and removes the headgear and facebow in the middle of the night they must place it outside the bed before going back to sleep.
7. The patient and parent should also be advised that, "if in the rare and unlikely event, they suspect that part of the headgear/neckgear/facebow might have caused an injury to the eye, then the eye should be examined without delay by an eye Doctor". Use a locking facebow and contour the outer bow of the facebow to fit the patients face. Fit a self releasing headgear and or neckgear with a suitable force and a short travel. If facebows are used with removable appliances construct them as an integral part of the appliance. If for a good clinical reason they need to be a separate unit, then use a locking facebow. Always ensure extra retention is built into any removable appliance used with extra oral traction.

The instructions are designed to reduce the risks of injuries associated with horseplay, incorrect fitting and to some degree the 'other child' (groups 1, 2, 3). The locking facebow is designed to counter the mild/moderate forces of accidental disengagement at night (group 4), and will provide some moderate resistance to intentional disengagement during the day. The suitable self releasing headgear/neckgear should release the recoil traction if a large anterior displacing force, such as aggressive behaviour by another child, overrides the locks on the facebow and pulls it out of the patients mouth (Groups 1, 2, 3).



Figure 1. One of several different designs of self releasing extra oral traction systems currently available.



Figure 2. The white plastic safety neckstrap worn by a patient with a non-safety elasticated neck strap.



Figure 3A-B. This patient has been fitted with a plastic safety neckstrap and a sliding black module to measure the change in distance between the upper first molar (attached to the facebow) and the back of the neck as the patient moves their head. The patient starts with their head tilted forward, figure 3A. A mark is placed on the strap next to the black module. The patient then moves their head to the upright position allowing the strap to slide through the module but keeping it in close contact with the back of the neck. A second mark is placed on the strap, the middle mark in figure 3B. The patient then extends their head to the position observed in Figure 3B. The difference between the front mark and the black module in this position is 79 mm. This is the change in circumference that this patient achieves on moving their head up and down which is equivalent to 39.5 mm per side.

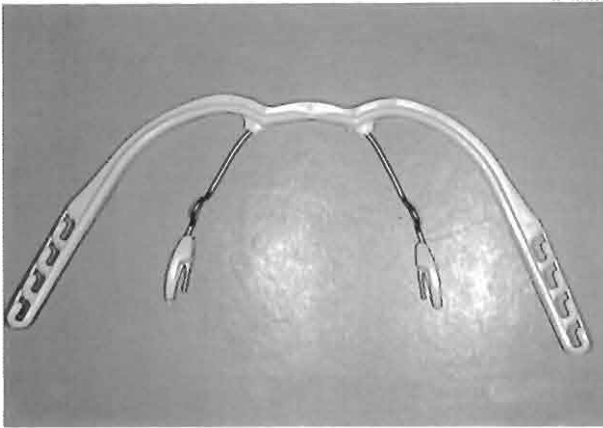


Figure 4A. One example of facebow with a shielded inner bow.



Figure 4B. Shielded facebows will not reliably recoil back at the face at this angle. If they do, they can hit both eyes as the ends of the inner bow are the same distance apart as the eyes. There is also a high risk of infection as both the ends will be covered in oral micro-organisms.



Figure 4C. If the patient rolled onto a shielded facebow at night, the shielding cannot protect the pointed ends from the eye at all angles. At this particular angle the eye is exposed and the facebow end covered with micro-organisms increasing the chance of infection.

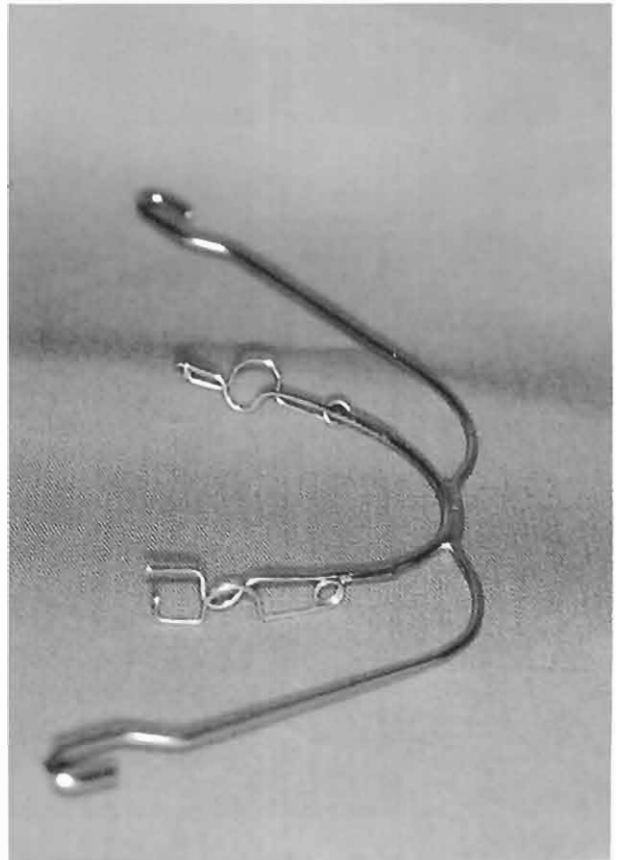


Figure 5A. The Nitom facebow with the near catch unlocked and the far catch in the locked position.

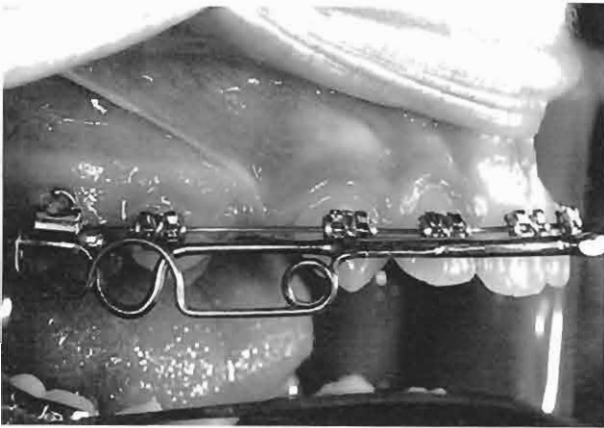


Figure 5B. The Nitom facebow locked to the upper first molar tube assembly (occlusal tube) in a patient.



Figure 6. The Nitom facebow locked to a gingivally situated upper first molar tube with the upper second molar banded and an archwire running between the first and second molar. In the patient the anterior teeth would have brackets present. For convenience they have been excluded on this model. Note the facebow has been fitted the other way up to avoid interfering with the archwire when compared to figure 5B, where an occlusal tube is present. If the second molar is not banded the facebow can be fitted either way up to the first molar.



Figure 7. The Nitom facebow locked to two upper removable appliances. The extra oral traction tubes are of different lengths. The upper is longer than the lower. Both need to be flush with the distal arrow head on the crib to allow the lock to function. However, the inner bow and catch can easily be adjusted to accommodate the longer upper tube by opening out some of the adjustment 'U' bends on both the inner bow and catch.

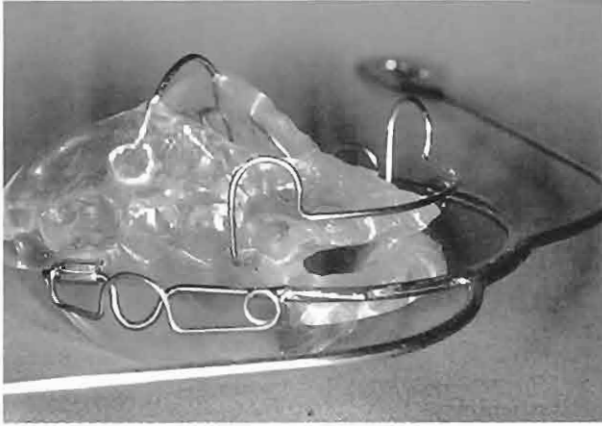


Figure 8A. The Nitom facebow locked to a Bionator type of functional appliance



Figure 8B. The Nitom facebow locked to the Twin Block functional appliance.

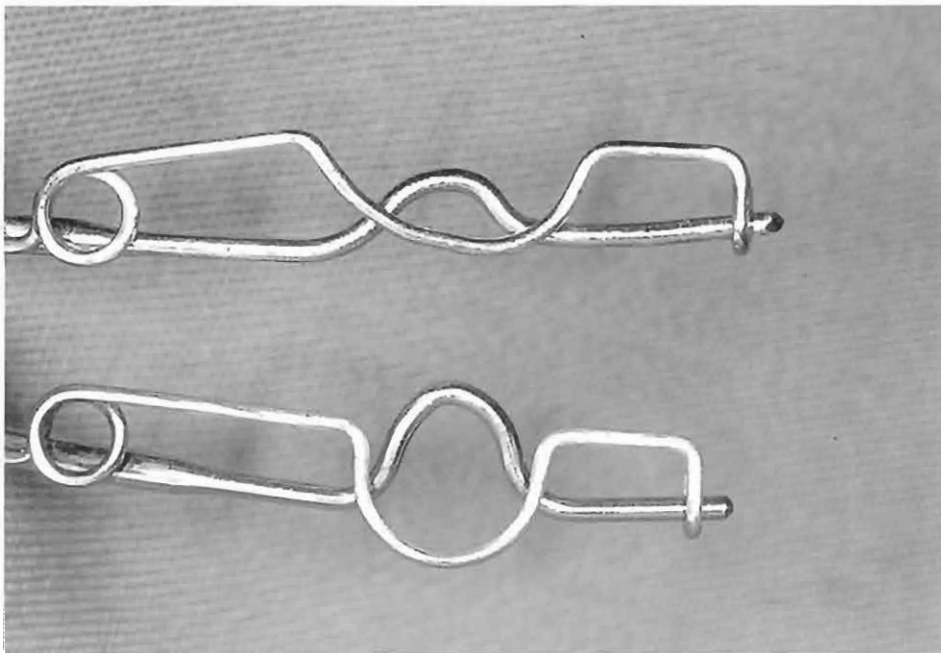


Figure 9. The lower catch and inner bow have not been adjusted and will fit tubes of about 3.5 to 4 mm long. The upper catch and inner bow have been adjusted to fit a longer extra oral traction tube by opening out the 'U' bends.

CONCLUSIONS

It has been recognised for some time that to prevent soft tissue injuries to patients the facebow had to be prevented from coming out of the extra oral traction tubes while in use (1). This cannot be reliably achieved with the use of either self releasing headgear, neckgear or stiff plastic neckstraps used alone. Shielded facebows may reduce the severity of some trauma but will still transmit oral micro-organisms to the eye leading to the devastating effects of an infection of the eye. The American Association of Orthodontists have recommended that accidental disengagement of the facebow from the buccal tubes should be eliminated (1). Following the injuries in France Doctor Bonvarlet concluded that it was necessary to use two systems simultaneously (17). Following a UK court case it was recommended that "effective" safety devices should be mandatory with extra oral traction.

Extra oral traction is very useful in treating many malocclusions, the risk of injury maybe small, but the morbidity for the individual child is unacceptably high. A locking facebow is described to provide effective retention when used with a suitable self releasing headgear or neck gear. These simple safety devices are easy to introduce into ones practise. Waiting for an injury to occur before introducing effective safety devices should now be considered too late. They should be introduced before an injury occurs so that extra oral traction can continue to be successfully and safely used.

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ORTODONTİDE HEKİM-HASTA İLİŞKİSİ

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ÖZET: Ortodontik tedavi, çocuk, ebeveyn ve hekim için karşılıklı bir yaratıcılık eylemidir. Ortodontistin yaptığı klinik gözlemler seçtiği tedavi metodu ve bunun hasta tarafından kabul edilerek tedaviye başlanmasıyla sonuçlanır. Bunun aksi gerçekleşirse vazgeçme veya başarısızlık ortaya çıkar. Her tedavi ilişkisinde, kişilikler de karşı karşıya gelir. Bunlar bazen uyumlu, bazen karşıttır. Böyle durumlar bir çatışmayla sonuçlanır. Hekim bunları iyice analiz etmeli ve uygun bir şekilde yararlanmalıdır. Bu, ortodontistin önce kendisini tanıması, empati niteliklerini ve başkalarını tanımasını da gerektirir. Tedavi ilişkileri tarafların ekonomik ve enerjetik imkânlar ile derin motivasyonlarının bir toplamıdır.

Anahtar Kelimeler: Ortodonti hastası, motivasyon, hasta kooperasyonu, psikolojik durumlar.

SUMMARY: ORTHODONTIC TREATMENT IS AN CREATIVE ACTION FOR THE PATIENT, PARENTS AND THE ORTHODONTIST. The accuracy of the clinical examinations of the orthodontist depends on the treatment method which she/he choose and beginning treatment after the acceptance of this method by the patient. If opposite failure or dropsouts happen. In every kind of treatment, characters come face to face. They are either harmonious or inharmonious. These kinds of situations are endel with conflict. Orthodontics should analyse these situationss perfectly and use them as useful as can be. This causes orthodontist to known himself and the others. Treatment relations are same of the economical and energetic sources and deep motivations.

Key Words: Orthodontic patients, motivation,, patient cooperation, psychological issues.

GİRİŞ

Yaratıcılığın temelinde eylem yatar. Bilinçli ve örgütçü bir eylem... Ortodontik tedavi insana yönelik bir yaratıcılıktır. Bu tedavi sonucunda ortaya çıkan güzel bir gülümseme, canlı ve saygı dolu gözler hem hekim başarısının kanıtıdır, hem de başarılı bir iletişimin başlangıcıdır. Anomalinin tedavisinde sırasında ortaya çıkan tüm sorunlar ve yorgunluklar yaratılan bu "eser" karşısında silinip gider...

Ortodontide yaratıcılık başlıca üç temel koşula bağlıdır:

1- Motivasyon Koşulu: Yaratma arzusu ve başarıya erişme için tabulara ve beklenmeyen engellere boyun eğmeden "özgür" bir uygulama için gereken koşuldur.

2- Sabır Koşulu: Sabır, hekim ve hasta için gereken bir koşuldur. Ortodontik tedavi iki taraf için de enerji gerektirir.

3- Değer Koşulu: Teknik ve ekonomik olanaklara sahip olabileme, tedavi yöntemleri, ücret, zaman vb. gibi konularda da değer koşulu gündeme gelir.

Ortodontistin kliniğine gelen çocuk, anomalisi nedeniyle ruhsal yönden "örselemiş" birisidir. Fizik, moral ve sosyal zorlar onu "kötü yaratık" ya da "ortodonti hastası" yapmıştır. "Çarpık dişli" olduğu söylenmiş ya da bunu kendisi fark etmiştir. Arkadaşlarının, bazen de öğretmenlerinin alayları ile karşı karşıya kalmıştır. Ana-babası, onu tikleri, parmak emmesi ya da diğer kötü alışkanlıkları nedeniyle azarlamıştır. İlgisiz gibi görünse de, çoğu zaman toplum içinde değerini düşüren bu durumdan kurtulmayı o da arzu etmektedir.

Ana-babalar, bu durumdan kendilerini suçlu bulur ve "gereken ilgiyi gösterdiklerini" ısrarla belirtirler. Anomalinin kalıtımla geçtiğini tahmin eder veya öğrenirlerse durumu onunla yorumlarlar. Parmak emme gibi durumlarda suçu gene çocuklarına yüklerler.

Hastasının tedavisine yeni başlayan ortodontist, önemli bir sorumluluk altına girdiğini fark eder. Çünkü tedavi tekniği seçiminde, teknik uygulamada veya psikolojik yönden güçlüklerle karşı karşıyadır. Yeni bir hastaya başlama, birçok yılı kapsayacak bir sabır ve çaba yatırımı anlamına gelir. Ortodontist, bu zorların üstesinden kişisel çabası, bilgisi ve deneyim birikimi ile gelebilir.

KİMLER ORTODONTİK TEDAVİ İSTER?

"Kimler ortodontik tedavi ister" konusunu birkaç örnekle açıklamak daha uygun olacaktır:

1. Annesi ile beraber gelen küçük bir kız çocuğu. İki de zarif ve mütebessim, söylenen herşeyi kabul ediyorlar. Bu, oluşacak güzel bir iletişimin ilk belirtisidir ve ortodontistin tedaviyi uyumlu bir biçimde, fazla güçlük çıkmadan yürüteceğini gösterir.

2. Hırçın, kırgın bir tavırla gelen bir ergen. Ortodontisti gözlerini kaçırarak ve homurtulu tarzda selâmlıyor. Bu davranış, tedaviyi onun istemediğini, duruma üzülen ana-babasına boyun eğerek ortodontiste geldiğini gösterir. Zaten böyle çocuklar dönemlerinin de özelliği ana-babalarının sözlerine sık sık karşı çıkarlar.

3. Hüzünlü, başını omuzlarının arasına çekmiş, diastemalı ön dişlerinin altından dili görülen bir erkek çocuğu. Kapanmayan dudakları ona aptalimsi bir görüntü vermektedir. Evde, okulda kendisiyle alay edilir. Annesi, halâ parmak emdiği için ondan ümidini kesmiştir ve hekimin öğüt verip ona hemen bir aparey yapmasını beklemektedir. Ağız hijyeni çok kötü olduğundan hekim tedavi-

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