Bonded Acrylic RPE

The orthodontist I work with wants me to do a tooth-covered bonded acrylic RPE to expand the arch and deepen the bite on a patient. Anyone know the best way to cement one of these on and still be able to get it off without making too much of a mess? Someone told me I may consider putting Vaseline on the occlusal surfaces of the teeth and etch the cusp tips and use a glass ionomer cement. Any ideas?

drick | Rick DePaul Jr., DDS | Total Posts: 3,570 | Member Since: 4/14/2000 | Location: Cleveland, OH | Posted: 1/4/2006 8:51:00 AM | Post 2 of 18

If you can get your hands on McNamara's text, Orthodontics and Dentofacial Orthopedics, he talks about this EXTENSIVELY. Otherwise I am sure someone will chime in, as many docs here use that appliance. Just out of curiosity, why does the orthodontist want you to do it, and not do it himself/herself?

stark10 | Thomas Stark, DDS | Total Posts: 29 | Member Since: 12/31/2005 | Location: Fort Irwin, CA | Posted: 1/4/2006 8:17:05 PM | Post 4 of 18

The McNamara text was really helpful. I like the cookbook style of reading. I just want to be able to get the thing off of the teeth after expansion and clean everything up without making too much of a mess. My orthodontist is a great guy, however he is fresh out of residency (like me). He has to handle all of the orthognathic and difficult ortho, so one half-day a week I do some of the easier cases to decrease his workload, and learn a little about ortho. Do you recommend any ortho short courses?


OK, I looked it up in the McNamara text. Here are some points:

Thomas, glass ionomer will not hold up to the forces applied when the screw is activated (about 10 lbs). I suggest using Excel (Reliance) or ALLY (PDS 1-800-443-3106); opaque, so you can see it on the teeth better when you remove the appliance; acid-etch at least buccal and lingual surfaces...personally, I also etch the occlusal surface, since I do not want the appliance to fall off during expansion, and I seem to get them off without problems. There was a recent thread on this appliance here on DT [Dentaltown].


Yes, I think the McNamara text is a pretty good basic text. I also like Profitt's Contemporary Orthodontics. There are many books out there, but I think these two are very good. If I remember correctly McNamara placed something on the acrylic to soften or condition it, so that removal is easier. I believe he recommended numbing the patient on removal if there were any primary teeth left because sometimes you extract those teeth upon appliance removal. It has been a few months since I read the text, so I am just going by memory. As far as good ortho courses, I see you are a pediatric dentist, so I would recommend (in no particular order) Green, Gerber, or Rondeau.

drick | Rick DePaul Jr., DDS | Total Posts: 3,570 | Member Since: 4/14/2000 | Location: Cleveland, OH | Posted: 1/6/2006 9:06:07 AM | Post 7 of 18

OK, I looked it up in the McNamara text. Here are some points:

You want to “soften the acrylic” on the appliance via the use of methyl methacrylate liquid (plastic bracket primer). This will allow for more of the cement to stick to the appliance than the teeth upon removal. You etch the buccal and lingual surfaces of the teeth on the mesial surface of the most anterior tooth and the distal surface of the most posterior tooth. He recommends that you DO NOT etch the
occlusal surfaces of the posterior teeth. The teeth are then sealed and the appliance cemented with a chemical-cure adhesive. He mentions Excel by Reliance Orthodontic Products. Upon seating, excess cement is removed with Q-tips, and then finer work can be done with small cotton pellets/spONGes. Once doughy, you can use a sickle scaler. After that you need a handpiece and a bur. When removing he recommends topical be placed if you are in the early mixed dentition. Optional, but nice for patient comfort. If you are in the late mixed dentition or permanent dentition he recommends infiltration. There is a chance of “extracting” the primary teeth in the late mixed dentition.

We use the Reliance Excel (it is an A & B) paste and etch buccal and lingual (not occlusal) as Don has suggested. The clean up isn’t too bad. Since you are military, don’t try something like Fuji (I have) that you would seat a crown with. It will certainly stay on, but you may have to cut it off, and the clean-up is a pain. You can remove them with a normal posterior band removing pliers. The secret is to slowly squeeze and flex until your feel the glue crack, and work back and forth from right to left. With a little patience, you can get them out without too much force on the child.

One more helpful hint when using composite adhesives; I assume the patient will be laying down when you seat the appliance. Be sure to get the excess from the tuberosity BEFORE final set or you will have big problems grinding it off, or an ulcer if you do not. Both Excel and ALLY [composite adhesives] have a plastic primer to paint onto the inside of the appliance to get adhesion to the plastic...be sure that the lab has removed the separator that was used on the model...sandblast, if uncertain. For more details, I was looking for the DT thread on this topic, but I think it must be mixed in with other topics, so if you want more details, photos, etc, you can refer to www.posortho.com/POSForum. Look on posts from the past two months on upper right hand corner, and then find the topic “Trouble Removing an RPE.” Have fun learning.

I recommend using ALLY from Progressive Dental Supply. It works every bit as well as Excel, but costs less.
contraangle | Total Posts: 21 | Member Since: 8/5/2004 | Posted: 1/14/2006 5:10:10 PM | Post 11 of 18

I am not very sure about this because I am new with ortho, but I don't know if a RPE can deepen the bite. If anything, it will open bite. It also depends on the patient (hyper or hypo divergent growth type). You may want to use different bonded vs. banded for each type. I did one of these a couple of months ago. I followed McNamara, but I learned a few things I wished I knew before. RPE is the best anchorage, depending on the treatment, see if you can incorporate the brackets into the RPE.

In addition, if you use a light-cure cement, you can clean up the mess and take your time without worrying about it setting. Also, you can include a breakaway screw in the occlusal surface of the RPE. When you are ready to remove simply use a wrench and screw it in that way you will lift the RPE off the occlusal surface (do not etch or bond the occlusal surfaces). Ortho is lots of fun.

MarkCT | Total Posts: 270 | Member Since: 10/18/2001 | Location: Buffalo, NY | Posted: 1/14/2006 8:54:59 PM | Post 12 of 18

Now, I am still in ortho residency, so my experience is limited, but this is what I use and have had pretty good success. We have the appliances made at Great Lakes Orthodontics, here in Buffalo. They can incorporate debonding screws and debonding cages to help with removal. They use Biocryl pressure molding instead of cold cure acrylic (I was in Michigan recently to hear McNamara, and he also recommended Biocryl for easier removal). We have the Reliance Excel bonding system, but there are some stories in our clinic of difficult removal and extended cleanup after removal (although some residents swear by it). Some of us have started to use Reliance Band-Lok because it seems to hold strong enough and initial cleanup of excess is less time sensitive (which helps when there isn't an extra set of hands available).

My protocol is:

• Pumice teeth
• Isolate with NOLA without tongue guard
• Etch buccal and lingual surfaces only, rinse
• Place a small amount of OrthoSolo on the buccal/lingual surfaces and air thin
• Treat intaglio of appliance with plastic conditioner or monomer
• Load appliance with Band-Lok
• Seat and cleanup (I like Band-Lok because it is light-cure and I don't feel rushed)
• Cure thoroughly

The Band-Lok does give the appliance a blue tint, but patients don't seem to mind. To remove, the debanding screws are turned with an Allen wrench to press on the occlusal surfaces to help break the bond, then the debonding cages provide "handles" to pull it off. The plastic conditioner helps ensure that a good portion of the Band-Lok stays in the appliance to aid in cleanup. I realize the bond strength is less than with the Excel or other systems, but I have yet to have any loosening or signs of leakage. Again, this is what seems to work in my hands, so I'll stick with it until I have a reason to change.

Here's one I put in about two weeks ago:


I'm also a new orthodontic resident, just six months into training...here we make almost all of our appliances ourselves. We also use Excel (Reliance) bonding agent once we get isolation to cement the bonded RPEs. Usually another person needs to help mixing the cements, while I prep the tooth surface and keep them dry. We only etch the buccal and palatal surface of the teeth, never the occlusal.

One of my colleagues was removing a loose bonded RPE from a seven-year-old girl and he ended up extracting three primary teeth! The mother was laughing her head off and the child was annoyed with her mom having fun, and finally got upset because her mom couldn't stop laughing about the incident.

I made a bonded RPE today for a bilateral cleft lip/palate six-year-old child. It also has bilateral hooks to allow us with protraction headgear...I will be placing it on Tuesday. Perhaps I will post a picture of the seated appliance later this week. Please wish me luck!
I know how RPEs tend to open the bite due to their effect on the posterior occlusion after expansion. However, I think the thing about “deepening the bite” may have had to do with hoping to get some eruption in the anterior, since the bonded RPE kind of acts as a posterior bite plate. After the appliance is removed and the teeth are aligned with full bonded ortho, this could make the bite look deeper...I think. Seemed to make sense to me, but then again, lots of things in ortho tend to make sense one day and not the next. I’m just thankful I work with an orthodontist one chair away from mine.

We’ve done primarily bonded RPEs for many years. We used to use lab acrylic to bond them in place, but it was hard to remove and it took a long time to set. Then we found a product called Exactobond from GAC. It works well, sets fast and is easy to remove. No material sticks to the tooth upon removal. Plus, since it usually doesn’t destroy the appliance when we remove it, we can use the RPE as a retainer while the tissue heals and the seps make space to fit bands for the TPA.

Our protocol:
• Try in the expander for fit
• Remove expander and Vaseline the expansion screw and the occlusal surface on the OUTSIDE of the expander
• Place foil strips on the outside occlusal surfaces of the expander
• Isolate the teeth
• Etch the lingual and occlusal surfaces
• Seal
• Dry the teeth
• Mix the Exactobond—it’s a liquid /powder system
• Load the expander and place
• Use scaler and cotton 2X2s to clean expander
• Place cotton rolls and have patient bite until acrylic is set to remove

Tell patient that if any baby teeth are ready to come out, they will. Tell them they will feel pressure and a pop, then the expander will come out. Have patient rinse for three to five minutes with hot water. Using heavy ligature cutters, grasp gingival and occlusal surface of expander and rotate wrist to pop expander loose. Repeat on opposite side of the arch.

Jeff: Today, I size the band BEFORE taking the impression for the bonded RPE, have the Goshgarian TPA sheaths welded to the band (plus the appropriate buccal tube for the case on the other side). Immediately upon removal of the RPE, the bands are cemented and a palatal bar is made at the chair (pre-formed palatal bar with double back bends its shaped to the palate) as the retainer of the expansion.

Since our bands have buccal and lingual tubes on them already, that’s not a bad idea. Often, if the tissue isn’t too aggravated from the acrylic, we’ll fit/cement the bands and make the TPA the same day also. Just depends on the patient.

This is an excerpt from the Dentaltown.com message boards. To read the complete thread or join in the conversation go to: http://www.dentaltown.com/idealbb/view.asp?topicID=61366