Peri-implantitis Due to Excess Cement – Dr. Bruce Edwards

Dr. O'Keefe: Today, I welcome Dr. Bruce Edwards, who's a dentistry graduate from Dalhousie university in Halifax but now practicing as a periodontist in Michigan. Bruce recently showed me a case of peri-implantitis associated with excess cement; and we both agreed that there's quite a learning opportunity out of sharing that case. Bruce why are you sharing this particular case with our viewership?

Dr. Edwards: Sure. It's a case that is not atypical to see in our office unfortunately. And when you have a look at the literature, you actually see that upwards of 70% or even more of peri-implantitis cases are directly tied to excess cement within the restoration itself.

Dr. O'Keefe: What are the key points to avoid us going down the road of the case that you're going to show us?

Dr. Edwards: I think much of it is prevention of a situation like this. Ideally, if the implant is properly placed, a screw-retained restoration, especially in the posterior may be indicated. It is also about techniques to avoid extruding excess cement. And obviously, being able to clean it up when prior to sending the patient home with their new crowns.

Dr. O'Keefe: So, let's go and have a look at that case.

Dr. Edwards: Excellent.

Dr. O'Keefe: So, Bruce, the case is up now. First of all, you're showing us a radiograph. Could you run through what we see here that's relevant to the presentation?

Dr. Edwards: So, this is a middle-aged man that had two implant fixtures placed in Costa Rica in the summer of 2017. The locations are 3.6 and 3.7; they were restored in the fall of 2017. The patient was referred by a general dentist whose hygienist had noticed an increase in probing depths since they were first done. So, looking at the periapical, we can see that there is a fair amount of bone loss in the area, especially in between the two fixtures as well as what appears to be some excess cement that was left the bodies on both fixtures. Also looking at the 3.7 especially, it does appear that the crown is not fully seated on the abutment.

Dr. O'Keefe: There's a little piece of radiopaque material there just mesial to the first of the implants there. Is that germane to the case?

Dr. Edwards: I'm not entirely sure to be honest. It's definitely quite a bit more radiopaque than the retained cement appears to be. My thought is that it may be some routine gutta percha from the previous tooth that was root-canal treated.

However, when I went in clinically, I wasn't able to locate it. My thought is that it likely went up and in the suction prior to me being able to find it.

Dr. O'Keefe: So, let's move to the photograph and I believe that's when you actually went in clinical. Isn't that right?

Dr. Edwards: Yeah, sure. So, what we like to do in these cases, we go by the CIST protocol [Niklaus Lang protocol] that we put together and basically if there's more than 5 millimeters of probing depth and an appearance of more than 2 millimeters of bone loss with the implants, it's recommended that we try a resective or a regenerative procedure. So, in this case, between the fixtures, we were probing upwards of 8 to 10 millimeters, clearly more than 2 millimeters of bone loss. So, this is the reflection of the lingual flap and you can see the retained cement on the fixture body of the 3.7 lingual and it was actually circumferential on both implant fixtures. There was a significant amount of cement and you can also see clinically where the crown is not fully seated on the abutment as well. As well, you can see the circumferential defect here were it kind of craters inward from the crestal bone. Of course, the retained cement on the implant fixture body, on the lingual of 3.7 and what appears to be a gap between the crown and the abutment where it's not fully seated in the 3.7 area.

Dr. O'Keefe: So, what do you think happened here?

Dr. Edwards: Well my first thought is that likely this is a case where the implants appeared to be appropriately placed a mesial distally, buccal lingually and likely depth-wise at the time prior to bone loss, all in correct positions. In restoring these implant crowns, I think an excessive amount of cement was used and not enough care unfortunately was taken in ensuring that that excess cement was removed. I believe that the amount would likely have had an effect on the crowns not fully seating as well. As a periodontist, when you look especially in the posterior, these are cases we see quite a fair bit honestly. Ideally, we always try to recommend a screw-retained restoration when possible, especially in areas that are difficult to access. And this was a very difficult area to access. You can see a relatively large tongue there that was kind of difficult to fight with, so the less that you would have to try to maneuver around and remove cement, I think that the easier it would be. I know there are many techniques; clinicians who are more familiar with prosthodontics than myself where you can do a cement-retained restoration without as much risk of extruding that cement are available as well. But that would be more a question for a prosth expert.

Dr. O'Keefe: Now let's pretend for a second, I'm the patient. Talk to me about what you see and what you might do

Dr. Edwards: Anytime we see a significant amount of bone loss, whether it be a tooth or an implant, if we can see an obvious etiology that's causing it that we can remedy, that's really a best-case scenario. If we were to flap that open and everything looks perfect and we can't decide where the bone loss is coming from, then we get a little bit more worried. So, I try to start off with something positive because of course, ultimately you do have to explain that an error was made in his treatment and that's what's causing this issue. Unfortunately, there was a fair amount of bone loss around the implants; however, they were not mobile, and it was approximately down to about the third or fourth thread which by most protocols, if there's no mobility, people do recommend trying to treat and maintain. And I, I personally tend to be a bit more aggressive in the situation. Like I said, when we're able to locate the etiology that's causing this and remove it from the patient.

Dr. O'Keefe: So, what did you propose to do?

Dr. Edwards: So, what we did in this case was to elevate a full-thickness flap. We have our protocol at the office which starts with a going circumferentially around the implants with an air polisher. Then Tetracycline was packed in the sulcus with cotton pellets and left for about two minutes and rinsed out. Lastly, the crater defects were grafted with a combination of bio Oss. Then the flap was a sutured at an apically repositioned position to ideally reduce the amount of probing. So, after the procedure was finished of course with the amount of bone loss around the implant, we say, well, this is a compromised situation. The course of peri-implantitis is not as predictable as periodontitis and in most cases the patient's hygiene regimen is going to be crucial. So, if we are able to maintain this level here, or in a perfect world obtain some regeneration, it will depend on the patient's home care as well.

Dr. O'Keefe: So, there'll probably be quite a frequent hygiene recall protocol for a case like this after the intervention you've made?

Dr. Edwards: Yes. So, this case was done two weeks ago. I'll be seeing the patient this week and removing sutures. And then in another two weeks afterwards. And then ideally a three-month recall, alternating between our office and the restorative dentist office.

Dr. O'Keefe: Well, we look forward to finding out how this case progresses. And Bruce, if dentists viewing this have any questions, are you prepared to come back and talk to us and field any questions?

Dr. Edwards: Absolutely. I'd love to.

Dr. O'Keefe: Thanks very much for this case.

Dr. Edwards: Thank you. I appreciate your time.