Crown Margins on PFMs According to Dr. Gordon Christensen

andee

Posted: 12/7/2003 2:31:47 PM
I watched a Gordon Christensen tape on optimum PFM fabrication. He recommended using a 360 chamfer margin and cutting back the metal on the facial. My question is, doesn’t that leave your crowns more prone to open margins due to the shrinkage of the porcelain? My technique for the PFM is the shoulder/bevel and the margins are very nice. Any opinions out there about this technique he advocates? Also, if you’re putting a porcelain shoulder on the facial, shouldn’t the prep be a butt joint, not a chamfer?

rgkbmk

RGK Dental Lab, Inc
Friendens, PA
Posts: 294
Reg.: 1/17/2002

Posted: 12/7/2003 2:41:16 PM
Andee, the quality of the porcelain margin all depends on the quality of the preparation and the skill of the dental laboratory technician. Yes, porcelain will shrink, but at the glaze cycle the technician will do an add on to the porcelain margin for a better fit. It’s scooping this out at the end that will determine the amount of opening.

You can do a porcelain margin on a chamfer, all ceramics recommend this but it’s a heavy chamfer. A shoulder is a 90-degree angle from the internal axial wall but lately everyone recommends rounding the internal line angle.

mjkdnc

Longmeadow, MA
Posts: 548
Reg.: 5/1/2001

Posted: 12/7/2003 6:56:47 PM
I like a modified shoulder prep 360. Good impression, prep, and lab work will yield a good fit. I like this prep because I will generally use a porc butt margin on the buccal with PFMs.

doctored

California
Posts: 2,818
Reg.: 9/21/2002

Posted: 12/7/2003 7:24:43 PM
I don’t think anyone would disagree that a 90-degree butt margin enables the best esthetics. However the “butt” margin is the most prone to recurrent caries. This margin design also significantly reduces the “ferrule” effect. In non-esthetic areas I educate my patients to these problems and suggest a small metal margin with a beveled shoulder preparation. After understanding the benefits most accept my recommendations. I rarely place a mandibular PFM with a porcelain butt margin for these reasons. A rounded internal angle on the axial of the shoulder is a good idea. It enables the technician to readily provide a passive fit and reduces unnecessary tooth removal. In areas where esthetics are critical, I often use other types of crowns like Procera and Cercon with a chamfer margin.

rgkbmk

RGK Dental Lab, Inc
Friendens, PA
Posts: 294
Reg.: 1/17/2002

Posted: 12/8/2003 6:37:34 AM
Ed, are you basing the recurrent carries for porcelain butt margins that are cemented in or bonded in? Most lecturers recommend bonding porcelain margins and not cementing. Also, I thought that the ferrule effect was 2mm up the axial wall. Has this changed?

nickazzara

Captek
Altamonte Springs, FL
Posts: 18
Reg.: 7/15/2003

Posted: 12/8/2003 8:34:32 AM
This is a subject that is near and dear to me. While putting together a prep kit for Captek (a crown that not only can be fabricated on any margin design but is viable on any margin design), we surveyed 15 dentists for two years on their personal prep preferences. Forty-nine thousand dollars and two years later we discovered earth shattering information; dentists did not want to completely change away from their preparation styles they either learned in school or felt was structurally necessary or superior. Most of the Townies could have told me this information even before we started the survey and saved us a lot of money. Might have cost us a few drinks. Point is, a chamfer may not be the easy solution to all of our preparation issues.

It makes sense to me that we need all margin designs to accommodate various clinical situations and to incorporate the necessary elements of resistance and retention. The real key in achieving an esthetic result is, as I see it, placement of the various margin designs appropriately in relation to the tissue and tissue type, communicating with the lab, understanding the laboratories’ abilities with various situations, and finally, material choice (one can imagine I would believe this.)

I look forward to reading the discussion on this thread.

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Crown Margins on PFM...

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**Andee**

> Nick, what was the most common margin design used by dentists for the PFM? You did not mention it.

> Andee, 75% of the time, the dentists we surveyed felt a knife-edge, bevel or soft chamfer was appropriate in one or more areas of a given tooth preparation. Only 25% of the time, these dentists seemed to feel a 360-degree shoulder or more definitive chamfer was appropriate.

> How do these percentages match to your practice Andee?

**Nickazzara**

> I think a 360 degree Procera type modified chamfer (60 degree angle chamfer) is best for all preps. The exception is an all ceramic that is not cementable...then the 90 degree shoulder (with internally rounded angle) is best. I just don’t like the feather edge margin...it is nearly always “clickable” with an explorer.

> I think the prep design is important but it’s the lab technician’s skill that is the most important. I have a lab technician who can make a porcelain butt margin as smooth as glass.

**Andee**

> I agree, the skills of the laboratory technician are a key element to achieving results no matter the preparation style or material. Yet, I do still see confusion as to when metal should be cut back for a porcelain butt margin, extended to the edge and covered with porcelain or polished and made into a collar.

**Nickazzara**

> Nick, I mostly do shoulder and bevel on 75% of my preps, and the rest facial porc. shoulder and chamfer on the lingual and interproximal. I still believe the shoulder/bevel is a better fitting crown. I was taught that in dental school, and it’s what works better in my practice. I tried chamfer preps, and some were open margins.

**Andee**

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**Andee**

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**Nickazzara**

> Andee, do you have the lab place a metal collar on the bevel? And by the way, I believe your preparation style represents the silent majority of dentists.

**Andee**

> I just place the metal collar on the lingual, probably like many other dentists do. I don’t like to have metal showing on the facial, as sometimes the tissue shrinks a little and I would hate to see that metal, much less have the patient see it.
There are several threads of thought in this conversation. First of all I think almost everyone will agree there is no one prep style for all situations. But, if your goal is the best retention and marginal seal then you have to go with a shoulder bevel or straight bevel with a metal margin. You might include a feather-edge prep in that too. If you move away from a metal margin it is a compromise. It is a compromise most clinicians are willing to make for esthetics but a compromise nonetheless.

The Esthetic Zone is the question area. I think there are 3 or 4 options that will accommodate different preferences but all have some compromise.

1. Best esthetics probably goes to pressable but it requires a heavy 1mm+ shoulder or chamfer margin.

2. Captek is probably 2nd or 3rd esthetically in smile zone, but you can be much more conservative with margin prep, a bevel or feather edge can be done (I like a very thin metal margin with these—great for lingual) or a more moderate chamfer than any metal free .5mm or so covered with porcelain. And you can do reliable 4-unit bridges with Captek.

3. Pressed to metal i.e. Authentic applies more to what was attributed to Gordon, 360 chamfer with metal cut back and what I call porcelain “window” margins. With porcelain extending 2mm down the axial wall. This also requires about a 1mm chamfer or shoulder margin and more aggressive prep over all than Captek, about the same as all of the metal free restorations. You can do long span bridges with this.

If you want to do a shoulder on the facial and feather/bevel on the lingual with metal margin, Captek is the very best choice. And any time you want a metal margin there is nothing like Captek, really great for posterior singles and 4-unit bridges.