

IMPLANTS

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The True Cost of Not Knowing What's Going on Top of Your Implants



By David Barget (/spear-review/author/david-barget/) on February 1, 2016 | (/bookmarks/bookmark/38761)

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Implants often seem easy. They come back from the surgeon, make an impression and seat the crown a few weeks later. Most of the time, with careful attention to tissue, occlusion, cement technique, screw torque, etc., the restorations do really well.

Then on a busy day, of course, a patient comes in asking for her crown to be “put back on.” You hope it is a loose screw or that it came de-cemented.

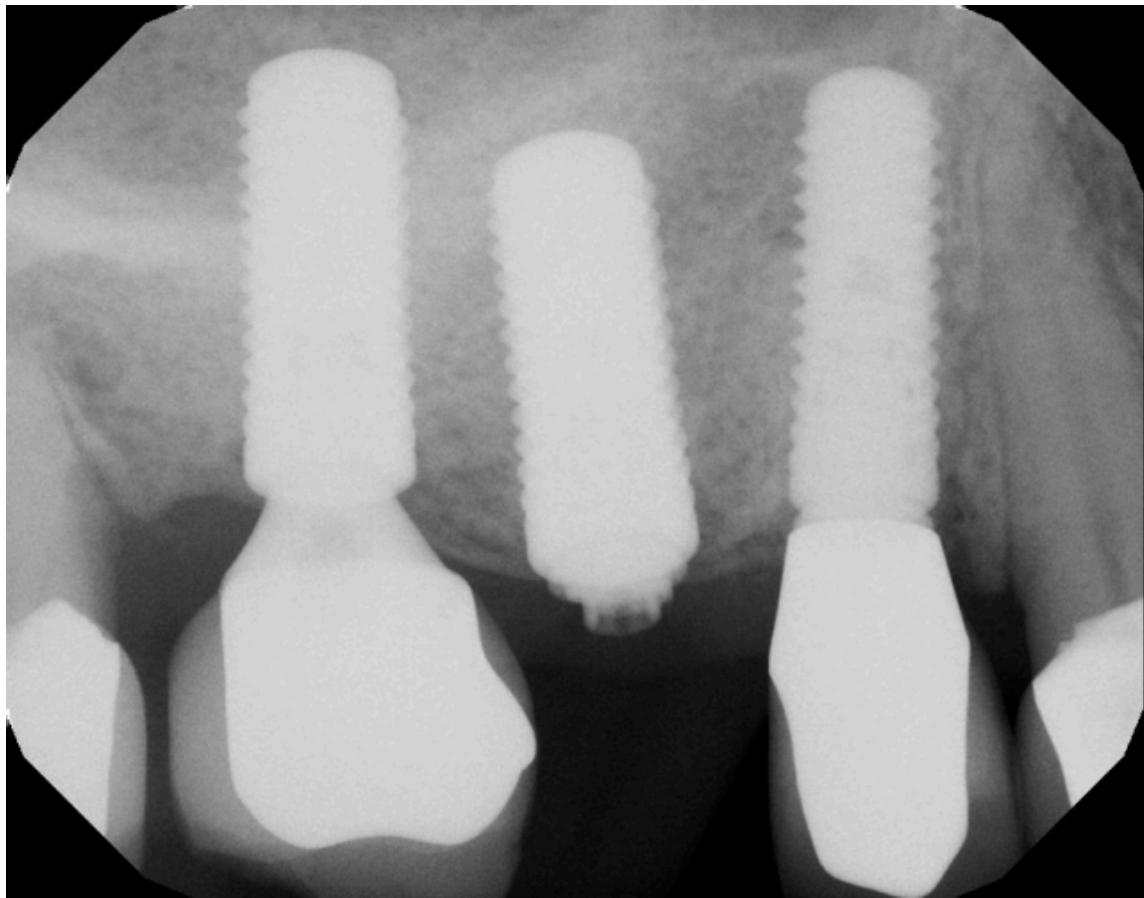
But you see this:



It looks strange because the abutment itself has fractured and the image shows the head of the screw that fixes the abutment to the implant (<https://www.speareducation.com/spear-review/category/implants>). In this particular patient, there may very well be some occlusal issues that were not addressed completely for some reason. Still, why did the abutment break, when typically we would expect to see a screw loosen?

(Click the link for a word of warning regarding hybrid implant abutments (<https://www.speareducation.com/spear-review/2015/12/if-youre-using-hybrid-implant-abutments-heed-this-word-of-caution>).)

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This case created a particular problem. The screw retaining the abutment was relatively easy to retrieve; however, the abutment itself was fractured in such a way that there was nothing left for an instrument to grip and coupled with the tight internal connection the result proved challenging. The ultimate solution was to use an implant removal tool, tightened manually into the top of the abutment so that the tool itself could be a “handle” to pull the abutment complex in a coronal direction and remove it.



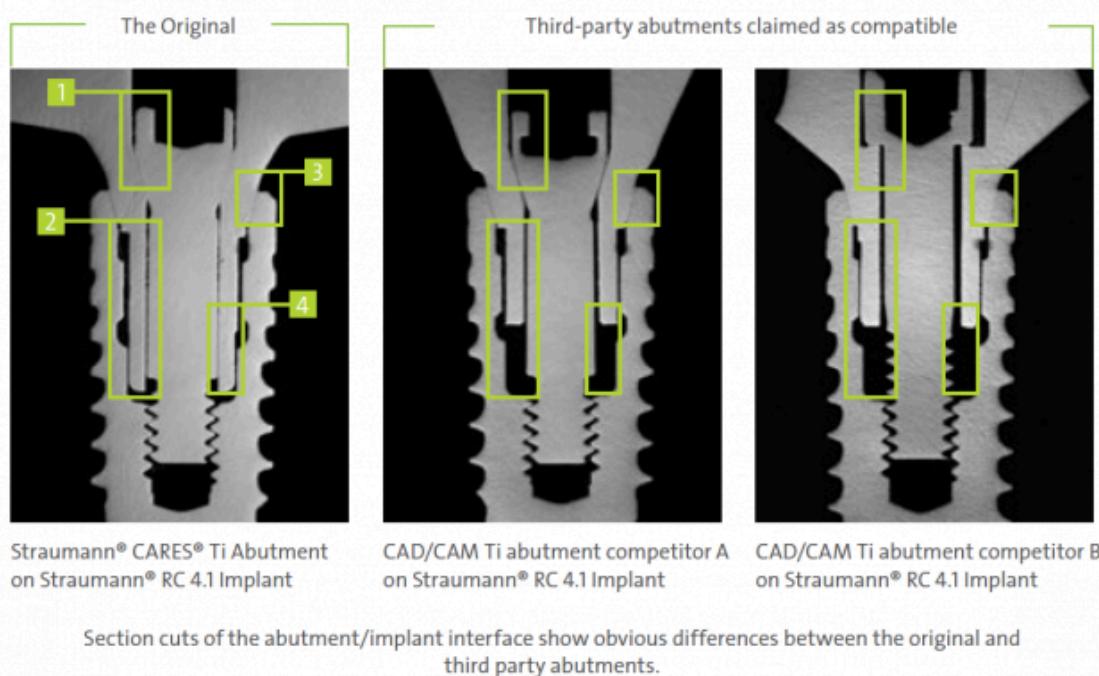


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The Third-Party Issue

The implants are Straumann and the failure rate of Straumann implants and restorative components is very, very low. Wittenbenn¹ reported that the abutment failure of Straumann abutments was less than 1 percent. Anecdotally, the Spear faculty report they have never had a Straumann abutment failure or a screw fracture since restoring them as early as 1992.

However, a manufacturer other than Straumann made this particular abutment. In order to avoid patent infringement, the design of the knockoff had to be altered. Unfortunately, this resulted in the aftermarket parts not fitting as intimately as a dedicated abutment.



This image is taken from a Straumann publication, so it must be taken in that context. However, if you look at the three images (Straumann's abutment is on the right) and simply compare the fit of the third-party abutments, there are very obvious structural differences. The screw-abutment interface is much larger and the depth of the abutment is much

shallower in the aftermarket abutments. Additionally, the screw threads do not fit as closely as the Straumann threads. All of these spaces are part of the “microgap.”

The Space Between

Siu et al², in a study of custom zirconia (<https://online.speareducation.com/course/adjusting-and-polishing-zirconia-restorations>) abutments, determined that the space between the implant and the abutment – or the microgap – was a determinant in abutment failure. The smaller the microgap, the less likely the abutment is to fracture when cycled under force.

There are many excellent implant systems available today. Each system has been designed and engineered with the intention of creating the longest term success possible. In fact, implant companies don't want their systems to fail; it impacts their business and most certainly isn't good for our patients.

The simple solution is to choose an abutment that is of the same manufacturer as the implant. Therein lies the challenge: As the restorative doctor, you must prescribe a dedicated abutment, otherwise your lab may use whatever they choose.

(Click the link to learn the three ways to ruin the relationship with your dental lab technician (<https://www.speareducation.com/spear-review/2013/01/three-ways-to-ruin-the-relationship-with-your-technician-ed>)).

The True Cost

The economics of implant dentistry are always part of the discussion. Dedicated systems are more costly than aftermarket components, and it can be tempting to use these components to lower the lab fee or for the lab to lower its direct costs.

However, you must consider the true cost of saving \$50. In the case presented above, almost an hour was spent working through a process to retrieve the abutment, and it was done at no cost to the patient as a service to his referring doctor. Now the restorative dentist must remake the crown, pay a new lab fee and manage the patient's dissatisfaction.

The total cost in dollars and time is far more expensive than what was saved. The message seems pretty clear: Use original components on the original implant.

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(This article was co-written by Steve Ratcliff, DDS, MS, Spear Faculty and Contributing Author)

References

1. Wittenben JG, Buser D, Salvi GE, Bürgein W. Complication and failure rates with implant-supported fixed dental prostheses and single crowns: a 10-year retrospective study (<http://onlinelibrary.wiley.com/doi/10.1111/cid.12066/abstract;jsessionid=C40CEC1E9FEEB40968EEB785F01F5AD4.f02t01>). *Clinical Implant Dentistry and Related Research* 2014;16(3):356–364.
2. Sui X, Wei H, Wang D, Han Y, Deng J, Wang Y, Wang J, Yang J. Experimental research on the relationship between fit accuracy and fracture resistance of zirconia abutments ([http://www.jodjournal.com/article/S0300-5712\(14\)00056-6/abstract](http://www.jodjournal.com/article/S0300-5712(14)00056-6/abstract)). *Journal of Dentistry* 2014;42(10):1353–1359.



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(<http://content.speareducation.com/social1-implants-the-surgical-restorative-connection-20170310>)

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