When Plans Go Awry
A Townie shares his first-ever implant case

When I was a dental student, I looked at implant dentistry as the pinnacle of my chosen profession’s achievements. I wanted to learn all that I could, but the overwhelming nature of the information made applying that knowledge a challenge:

Where do you start?

How do you take all the pieces and put them together so that at the end of the day you have a successful solution for your patient?

I didn’t learn the answers to those questions while I was in school, and although every dental school is different, I would even say that this sentiment is likely common among new dentists.

After graduation, I moved back to my hometown in rural British Columbia, where I had landed an associateship in an office that highly valued teaching and mentorship. This, above all else, has had the greatest impact on me as a new professional: All the seemingly convoluted pieces of information that I had gathered during school started to come together.

While I have learned a lot about this profession and myself in the two years since graduation, I know that I have a long way to go. To that end, I wanted to share my experience with my first-ever dental implant and the things that I learned along the way.

Case report

A 35-year-old new patient presented with the chief complaint of wanting a dental implant placed in her lower right first molar site (#46). Medical history was noncontributory. The patient had already lost her lower right first and second molars because of failed root canal therapy. While #47 had been lost years ago, #46 had been extracted only four months prior by a local periodontist with a concurrent socket preservation treatment using a cortico-cancellous allograft material. A CBCT scan (Fig. 1) and periapical radiograph (Fig. 2) were taken of the site.

The case was discussed with the patient and the principal dentist of...
the practice, and we determined that the case would be an ideal candidate for a novice dentist to place an implant. The decision was made to perform the implant as a guided case using the Simplant system. Informed consent was acquired, diagnostic models were taken and the patient booked an appointment to proceed with treatment.

Before the surgery date, finalized implant planning was performed and a Simplant implant placement guide (Fig. 3) was manufactured using data from the CBCT scan and the diagnostic stone model. A 4.8-by-9mm Astra Tech EV implant was selected, based on the available horizontal and vertical bone volume.

**A twist in plans**

On the day of the surgery, the patient was anesthetized and a crestal incision with distal vertical release was performed to expose the surgical site. The Simplant guide was placed on the teeth, ensuring complete seating, and the initial punch osteotomy drill was used to depth.

At this time, an unforeseen complication arose with the use of the Simplant guide. While the initial punch drill had a short enough shank to pass through the keyway...
in the guide, the longer twist drills used by the Simplant system couldn’t pass through the guide because of the patient’s small mouth and limited opening. As a result, I was unable to use the guide for anything more than the initial punch osteotomy. The guide was removed and, following the Astra Tech EV protocol, the #1 twist drill was used to prepare the initial osteotomy to a few millimeters’ depth. A periapical radiograph (Fig. 4) was taken to check positioning and angle.

After verification of the position and angle of the osteotomy, the remaining twist drills were used per Astra Tech EV protocol to prepare the remainder of the osteotomy. Type II bone was noted, so the A twist drill followed by the V twist drill were employed to complete the prepared site.

The implant was placed in the site with a final torque value of 40 Ncm; a HealDesign EV 6.5mm healing cap was placed on the implant and the site was sutured with 4-0 chromic gut sutures. A final periapical radiograph (Fig. 5) was taken, and then postoperative instructions were given to the patient before dismissal. Sutures were removed at the one-week follow-up appointment, when excellent soft-tissue healing was noted.

Fifteen weeks later, the patient returned to the practice for restoration of the implant. The healing cap was removed and an impression was taken using an open-tray impression coping and PVS impression material (Fig. 6).

A gold titanium Atlantis custom abutment was selected for the restoration with a screw-retained, high-translucency zirconia crown that the lab had cemented to the abutment using a dual-cure resin cement. The crown was inserted into the implant, occlusion and contacts were verified, and the crown was torqued to its final value of 25Ncm. A final periapical radiograph was taken (Fig. 7) and the screw access was sealed with Teflon tape and opaque composite.

**Conclusion:**

Overall, this case offered me an enormous learning opportunity. Despite the planning, sometimes there will be cases where you’re forced to think on your feet. Being unable to use the guide that I had spent so much energy designing was one such unforeseen situation; fortunately, I had over-the-shoulder assistance of my principal dentist and my local Dentsply Sirona rep to help me through it. Despite the issues during the surgery appointment, I was pleased with the final result of this case.

I am immensely grateful for the mentorship I am so fortunate enough to have in my office. It has allowed me to push myself to do things that I may have hesitated to do otherwise. Although I’m still a novice dental practitioner, I’m excited to keep learning.