The morphological and functional restoration of missing teeth is always a challenge in prosthetic implant dentistry, especially in aesthetic cases. The case described underlines the possibility, through clinical and technical measures, of a prosthetic resolution with a minimally invasive approach. The patient, an 80 year-old woman, presented to us with a cosmetic problem. She was missing the upper-left lateral incisor (Fig. 1).
The patient’s wishes were very specific: she wanted a tooth that matched the other side in size, shape and color. The patient also required a fast treatment. There was great gingival tissue without inflammation (Fig. 2). The radiograph (Fig. 3) shows the healing extraction site. After an interview with the patient, I decided to place an implant without opening a flap and I planned to mill a ceramic crown with CAD/CAM technology (Fig. 4).

Treatment

The treatment was divided in two parts: a surgical phase and a prosthetic phase. The surgical phase began with anesthetic at the implant site using a Peripress syringe in order to have an immediate anesthesia and we had no plans to flap. After a few minutes, I performed the initial drilling (full thickness) with a 1.5mm triangular pilot drill, calibrated to measure the depth of the implant. Immediately after, I performed a second drilling, always full thickness, with a 2.5mm drill. Finally, with a powerful drill, I prepared the implant site (without removing the bone, because it would have compressed the walls of the future implant cavity). After the bone preparation was screwed, manually tapping the implant stabilized it with a final torque of more than 80Ncm. Thanks to this enormous initial stability it was possible to move to the prosthetic phase (Fig. 5).

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Second phase

This phase represented progress as we finalized the implant with a ceramic crown, milled using CAD/CAM technology (Figs. 6-9). This technology allowed us to copy the contralateral incisor morphologies and reproduce with perfect precision both aesthetic (the tooth surface, shape, color) and functional (occlusion pressure below 25 microns in contact) aspects of the restoration. The stability of the dental implant was absolutely necessary for the finalization of the crown. The value indicated by the abbreviation ISQ (Instant Stability Quotient) needed to be higher than 75.

For the construction of the final crown, we used a digital system for the impression and the final production (CAD/CAM technology). Thanks to the digital impression we measured the quantity and the quality of the occlusal contact, which must not be more than 25 microns—the flexibility of the implant during the occlusion. Then 25 micron occlusal paper was used to verify that the contacts were not too heavy. Following this, the cementation with dual cure cement was done.

The patient was allowed to leave the office with the recommendation that she avoid intentionally chewing with this implant for three weeks. She would be able to start using the crown with the implant after about one month, and osseointegration will be complete in three months.

Conclusion

These cases can be solved in one appointment, reserving future visits for routine checks. The patient was pleased with the final result (Figs. 10 & 11).
Dr. Francesco Campione earned his bachelor's in medicine and surgery from the University of Catania in Italy in 1982. His graduate work focused on dental implants, and he graduated with honors in 1984. Dr. Campione worked with Dr. Castellani Dominic until 1987 before doing freelance work in 1988. From 1990 to 1993, Dr. Campione worked at Columbia University in New York with Dr. Ernesto Rapisarda, where he published several works on reconstruction with CAD/CAM technology. Dr. Campione has also worked with the University of Naples, where he specialized in aesthetic prosthesis, implants and metal-free materials, and where he also received a Master's in aesthetic anterior prostheses in 2011. He currently practices in Rome and Catania, Italy.