When called upon by a patient who has an abhorrence to a removable prosthesis, dentists have historically only had a few options: fixed partial dentures (bridges) and implants. Both present considerable advantages over no treatment (tx), yet necessarily imply considerable commitment on the part of the patient.

First, a willingness to allow relatively extensive treatment is necessary. Even the most conservative bonded modalities require impressions and a laboratory phase, also provisionalization or a willingness to “go without” while the prosthesis is fabricated; more conventional bridges and implant dentistry sometimes even requiring preliminary analyses, pre-prosthetic surgical tx, wax-ups, and/or try-ins in addition to impressions and some time.

Second, there are financial considerations. All the work involved in providing a patient with an excellent replacement tooth has attendant costs. Offering a third-party financial program, such as Care Credit, often increases the patient’s willingness to move forward with the tx plan.

Third, there is a commitment to comprehensive tx of their current dental condition. This can be most daunting to dentists, especially in a patient with little or no appreciation for their diagnoses and prognosis. The ultimate course of tx hinges upon a patient who can trust the doctor to provide for them what is in their best interest. Frequently, these initial contacts with a patient, in addressing their most pressing concerns, can evolve into a relationship wherein the patient finally comes to a point that allows him or her to give the dentist both his trust and financial approval.

For a patient who has lost a tooth, and who additionally may not have a good prognosis for adjacent teeth, making a commitment to such considerable time, effort and monetary outlay may be difficult to swallow. Even if they are willing to spend some time and money, our list of options has been short in terms of what we as dentists can offer the patient. Usually we tell them about a transitional removable partial denture (a “flipper”) and attempt, through education, to steer them towards ultimately considering comprehensive evaluation and tx planning of their entire dental condition, in the hope that one day they might choose that course of tx over an ipso facto commitment to complete edentulism. But, for the patient who finds a flipper distasteful or unacceptable, we have simply been forced to take a stance wherein we, as practitioners, appear to be saying, “it’s my way or the highway,” offering the definitive route with all its attendant commitments. Not an enviable position for caregivers, particularly ones who are constantly swimming upstream in a battle against patient phobias, media misinformation and general ignorance about dentistry!

Recent application of sound engineering and metallurgical...
principles has produced a modality that, though it may serve only a segment of the partially edentulous patient population, creates an opportunity for dentists to present a long-term fixed transitional prosthetic option to patients who are missing a tooth. Another option however does exist that allows a patient to steer a middle course in fulfilling their current desire for a fixed prosthesis while making no compromises to their future, more definitive tx.

Monodont, a patented stainless steel component manufactured by EastFlex Corporation (available exclusively through Benco Dental—www.benco.com) permits the fabrication of a fixed, single tooth prosthesis using a premium denture tooth bonded intra-coronally to the two teeth adjacent to the space. The component uses techniques currently ubiquitous in dental offices and labs throughout the industrialized world. In addition to obtaining U.S. patents, EastFlex (a small startup founded by a couple of dentist-inventors) recently obtained FDA Registration for this component as a Class I Dental Device, as well as for a similarly designed component for use in periodontal splinting.

Presentation of the Case
A 48-year old male presented with a chief complaint of “loose bottom front teeth.” He currently had a full maxillary denture and bilateral mandibular fixed prostheses in gold to replace the mandibular first molars, abutted on the second molars and second bicuspid. Originally there were acrylic facings on the bridges, now virtually worn away. This tx had been provided some 25 years earlier, the patient having only sought intermittent preventative care, as he “had no need for anything more and nothing ever hurt.” The mandibular canines and incisors had no restorations. Oral health was fair to good, though the patient stated a preference for toothpicks over floss.

Clinical and radiographic examination revealed ADA Type II-III periodontitis, with generalized bone loss, most severe in the incisors. Teeth #s 23, 25, and 26 had CI. 2 mobility, #24 had CI. 3. No caries were evident. OCS was negative save for mild leukoplakia on the floor of the mouth and a nodule on the anterior dorsum of the tongue, both of which proved to be negative through an Oral CDx Brush Biopsy. TMJ’s were both normal and asymptomatic.

Despite our desire to provide a reline or refabrication of the maxillary denture, the patient was quite comfortable in its fit, its appearance and his ability to chew. He refused consent to replace or reline it.

After discussion and many questions, a plan was presented to initially include RPC and provisional periodontal splinting of teeth #s 22-27 in accordance with the patient’s wishes. The ultimate solution to be a conventional fixed prosthesis #s 22-27. Gross debridement of calculus and splinting of #s 22-27 was performed in one visit and following a review of current OHI, the patient re-appointed for RPC. We also discussed the failure of his old bridges, the need to address the untenability of the lower incisors and several other options. The patient continually expressed his absolute desire to avoid a lower removable prosthesis.

As is so often the case, this patient had work scheduling problems that required the cancellation of appointments to undergo tx of his periodontitis. The splinting having been performed and his chief complaint resolved, he relates with candor that he felt little need for more tx anyway.

Our next meeting came as he presented some year-and-a-half later. He related that a month or so earlier tooth number 24 had popped loose from the splint and avulsed. We again discussed his options, now limited to the choices of a “flipper,” or definitive anterior tx with a fixed prosthesis including the canines as abutments. The patient finally admitted that the cost of definitive tx was a real obstacle for him. He indicated he would be more than willing to take advantage of financing options available at our office, and for now preferred something fixed but transitional.

An alternative fixed transitional modality was presented to him, involving use of a Bioform IPN denture tooth from Dentsply TruByte in addition to use of an EastFlex pontic-support-component to replace #24 (a “Monodont” bridge). EastFlex intracoronal periodontal splint components were used to facilitate conservative intracoronal splinting of #s.
22-27 (“Tie-Bows”). This would be about 25% the cost of definitive tx (e.g.: a conventional fixed prosthesis used to replace all the periodontally compromised lower incisors with the canines as abutments.) After discussion of the fact that the transitional modality would be merely a way to transition him ultimately into a) the more definitive tx (b) conventional fixed bridge, (c) a removable partial denture, or (d) edentulism, the patient chose this transitional option. Study models were made and the patient scheduled for this course of tx.

A denture tooth was ordered in a shade and mould to fit his space and an appropriate EastFlex component chosen. The lower study model was prepped to approximate the location of the preparations on the canines and incisors to receive the prosthesis as well as the Tie-Bow intra-coronal splinting components. The bridge component was sandblasted and the bifid wings tacked in place on the model with wax. After adjustment and modification of the lingual of the IPN tooth to fit over and around the component and in a manner wherein the tooth would be properly positioned between teeth #s 23 & 25, the tooth was bonded to the component with Pro-Tech U-Bar and removed from the model for finishing. Eastflex maintains that the use of Pro-Tech U-Bar is critical to success and the strength of the prosthesis. Please note that in this instance, the tooth was set with its incisal edge about 1.5 mm higher than those of #s 23 & 25, thus allowing its reduction in the mouth for aesthetics and occlusion at placement. Subtleties of shape and contour were performed with acrylic burs to confirm an excellent fit within the space, normal-appearing embrasures and good inferior contact with the gingiva thus ensuring acceptable phonetic function. The exposed bifid wings of the bridge, and the splinting components in their entirety, were micro-etched, cleaned and primed with Alloy Primer (www.jmoritausa.com) Now we were ready to go to the mouth.

The patient refused anaesthesia as was his habit, preparations were placed in the approximate spots determined on the study model using an hourglass-shaped Two-Striper diamond bur #1250, and the bridge and splinting components tried in. The preparations are most retentive when they have walls that converge lingually, much as was once taught when using non-bonded restoratives to restore lingual-accessed Cl. III lesions and to a depth of 1.5-3.0 mm as appropriate. The incisal and gingival margins of the preparations for the bridge were placed at distances measured from the incisal edges of their respective abutment teeth with a common periodontal probe and taken from the study model. The bridge was tried in as necessary to allow fine-tuning of the preparations for correct placement. This was not necessary for the splinting components, as they were placed at the contact points of

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adjacent teeth. Alternatively, a thin suck-down shim may be made over the study model and used as a stint to locate the spots on the abutments at preparation.

Clearfil SE bond (Kuraray) was placed as directed on the cleaned and isolated preparations and cured. A small amount of Flow-It ALC (www.jeneric.com/dental) was placed upon the facial walls of each of the preparations for the splinting components ONLY and these components then carried to the teeth and manipulated into place using an explorer. Once these splinting components were correctly positioned, they were briefly cured to tack them in place. The components were then individually covered with Flow-It ALC and the preparations filled. Following confirmation under loupes of the correct shape of each splinted embrasure for both aesthetics and cleansability using an explorer and floss as needed, the non-slumping Flow-It ALC was cured completely from lingual then facial aspects. This was repeated for each embrasure.

Finally, a small amount of dual-cured tooth colored Build-It FR (www.jeneric.com/dental/) was placed upon the facial walls of the preparations for the bridge. Once placed in proper position these were briefly cured to tack in the bridge. Using loupes and again with utmost care to facilitate aesthetic and cleansable embrasures, the bifid wings of the bridge were covered with Build-It FR and fully light-cured from lingual, incisal and facial aspects.

All embrasures were adjusted and finished under loupes using finishing burs, strips and diamonds as necessary, the incisal edge of the pontic #24 was reduced and occlusion adjusted so as to allow very light contact of the pontic with opposing dentition, and the composite and denture tooth polished as needed.

Discussion
Now in the midst of an economic downturn, the ability to offer a less-expensive, yet fixed alternative to conventional tooth replacement can be an adjunct to any dental practice. A new modality, the Monodont bridge, provides a viable long-term transitional prosthesis for patients who either desire to delay the inevitable, or who postpone more conventional fixed prosthetic options due to monetary concerns. For a person who is properly informed as to its intermediate longevity, it is a modality that is both straightforward and easily mastered, yet is surprisingly durable, highly aesthetic and well-accepted by patients.

The Monodont system can be found at: Keller Laboratories, Inc. 1-800-325-3056 and Lord’s Dental Studio, Inc. 1-800-821-0859.

Marshall White, DMD is a wet-gloved dentist to the common man. In 1995, after a decade of solo and associateship practice, he founded Optimal Dental Care, Ltd., focusing upon using the most conservative, long-lived and patient-friendly techniques. An avid nightly participant on the message boards at www.DentalTown.com, Dr. White is a self-described "Simple Country Dentist" and a tireless advocate of scientifically-based clinical practice. An aficionado of both the written and spoken word, he resides on 5 acres of wooded bliss in rural Licking County, Ohio, with his wife Jennifer, their two young sons and a veritable menagerie of dogs, cats and wild fauna. Dr. White welcomes any and all communication and may be reached at (740) 344-1200, or by email at dwhite@optimaldental.com.

Townies talk about other Monodont applications

Tooth #24 will require an extraction, due to caries beneath the bony crest, and a communication between the canal and pdl space. There exists a diastema between #24 and #25 of about 4-5mm. Patient refuses an implant. Is it possible to Cantilever #24 off #23?

associateboy, Official Townie

This situation is custom made for a Monodont procedure. A Cantilever bridge won't work. Check out www.eastflex.com and click on "Monodont How To" icon or email our very own Dr. Marshall White who is becoming an expert in his own right on this procedure.

dmjlans, Official Townie

In the right situation an anterior Cantilever does work. If you are unsure and the patient insists that an implant is out of the question, a transitional partial is another option.

Fistula, Official Townie

Is the main use for a low-cost bridge alternative? How is this
coded and reimbursed? Use normal denture teeth? What about bonding of the acrylic to the tooth?

rcyoungdds, Official Townie

Sand blasting and jet acrylic bonding of a denture tooth provides a pontic that can withstand 1200 psi. Many Mondodontists use the direct buildup with some sort of GMA resin. This provides an even stronger bond. Due to glycidal knotting by the chronium static charge on freshly etched steel. These Monodonts are made of biocompatible stainless steel that is malleable. It can be bent 180 deg. Small lower anteriors are best done using the direct method. Preps are best kept in the contact areas. They hold up to normal use and wear and tear. Above 1200 psi they will pop out. They are much easier to repair than MD bridges. They can be modified easier too.

daniel, Official Townie

Your description sounds like the diastema will cause the post-extraction space between #s 23 & 25 to be quite a bit wider than say the current width of #25?

If so, and you want to re-create that diastema by doing a Cantilever bridge, I’d sure consider using both #s 22 & 23 to double abut. I think that if you’re scrupulous about your occlusion you could get away with a single-abutment scenario off #23, but preventing rotation of that abutment may be the real challenge long-term due to mesial drift/crowding phenomena. If that diastema’s been there forever, it may not be a problem, but double-abutting will pretty much assure better stability with respect to that issue.

Also, the diameter of these lower incisors is narrowest at the cervix in a mesio-distal dimension, and any single-abutted Cantilever bridge is what I like to call a “perfect tooth fracturing device.” Done with a re-creation of that diastema, there is no mesial contact to help give the bridge resistance form to incisive forces. If I’m misreading the size of that space, and it is actually very close in width to #25, then a Monodont is definitely an option. The beauty of this option is its use as a conservative, yet fixed modality, and one with neither the financial nor time commitment necessary for a conventional modality. Its design is simple, yet its physics are elegant.

Yes, it is useful to think of this modality as a lower cost alternative to a conventional fixed prosthesis, but there are also applications when abutment teeth have questionable prognoses and a patient absolutely refuses something removable. In scenarios, where for monetary, emotional, or any number of other fickle reasons a patient refuses to move forward with more definitive treatment, yet is willing to spend some money and whilst demanding some kind of a transitional modality to afford them a fixed solution to a single space. Hmm, transitional? EastFlex maintains there are a lot of these in great shape and functioning after 6+ years...correct me if I'm wrong, but I believe that's better than the weighted-mean lifespan of an amalgam.

marshall_white_dmd, Official Townie