

These X-rays show a moray eel's head and jaws: the top with the mouth slightly open and the bottom with the mouth wide open, revealing the second set of jaws. (X-ray courtesy of Candi Stafford and Rita Mehta/UC Davis)

There's More to Morays

BY PATTY REYES

In what is likely the creepiest discovery made this year, scientists at the University of California, Davis, have learned that moray eels possess mobile jaw No. 2 just behind their skull.

After the eel's main jaws clench its meal, it releases it momentarily and a nimble set of curved, second choppers propels forward and pulls the food back to gulp it down. Only fractions of a second are all it takes for this process. Luckily for the prey, the second mouth cannot protract afar the first. However, the ability to deliver not one but two bites is still a potent weapon in helping the eels feed, said Rita Mehta and Peter Wainwright of UCD who made the discovery, according to various news reports.

"This is really an amazing innovation for feeding behavior for fishes in general," said Mehta, a postdoctoral researcher in the Section of Evolution and Ecology at

CONTINUES ON 837



Zimmer One-Piece Implant Now Available in 3.0 mm Angled for U.S.

Zimmer Dental Inc. is pleased to introduce the 3.0 mm diameter, 17-degree angled Zimmer One-Piece Implant to the U.S. market. All diameters

(3.0, 3.7, and 4.7 mm) are now available globally in straight and angled designs. The latest angled Zimmer One-Piece Implant uniquely addresses clinician and patient needs in very challenging anterior areas where space is limited and an angled abutment is required. For more information, call (800) 854-7019 or go to www.zimmerdental.com.

Gingival Cell Trauma May Be Beneficial

Tearing open gingival cells when toothbrushing may help keep gingivae healthy, say researchers in the August issue of *Journal of Dental Research*.

At the Medical College of Georgia in Augusta, researchers injected a fluorescent dye that can only get into torn cells in rats' blood streams. They then brushed the rats' gums, teeth, and tongues with a modified electric toothbrush.

"We saw lots of bright cells," said study co-author Katsuya Miyake, PhD, professor, School of Medicine, and co-director of the college's Cell Imaging Core Facility.

They also found that even using the toothbrush with gentle force could tear holes in the epithelial cells lining the gingivae and tongue, causing a momentary rupture. This tearing let calcium, which is abundant in saliva, move into the cells, triggering internal membranes to move up and patch the hole. In addition, in the seconds that the repair required, growth factors, which promote growth of collagen, new cells and blood vessels, leaked out of injured cells.



Honors

Anders Nattestad, DDS, PhD, Marin, Calif., has been named professor and director of undergraduate oral and maxillofacial surgery at University of the Pacific, Arthur A. Dugoni School of Dentistry.



Anders Nattestad, DDS, PhD

MOU Renewed to Further Improve the Nation's Oral Health

The Department of Health and Human Services and the Academy of General Dentistry recently signed a renewed memorandum of understanding to promote Healthy People 2010, the country's disease prevention and health promotion goals and objectives for the second half of the decade.

Renewed from a 2002 MOU, the partnership aims to improve access to preventive oral health services and eliminate oral health disparities.

"Tooth decay and periodontal disease are two of the most common diseases of modern civilization, and poor oral health and untreated oral diseases can have a significant impact on the quality of life," said Vincent Mayher, DMD, MAGD, and AGD's president, in a press release. "The AGD is excited about partnering with HHS to ensure that Healthy People 2010's oral health objectives are fulfilled."



While not a commitment of funds or an obligation, the renewed MOU is a statement of understanding between the AGD and an agency of the federal government with the ultimate goal of improving the oral health of the nation.

The AGD, in an effort to reach Healthy People 2010's objectives, will educate policy makers by continuing to hold events such as the AGD's first-ever advocacy conference, "A Great Dentists Goes to Washington," this past summer. The AGD also will continue to promote the availability of dental continuing education opportunities at the AGD's annual meeting and constituent venues.

What's in a Name? Plenty, So Be on Guard

While one's identity is unique, theft of it is not.

Last year, more than 246,000 complaints of identity theft were made to the Federal Trade Commission. Most of the time, said Robert LeChevallier in a recent issue of *Membership Matters*, a publication of the Oregon Dental Association, identity theft occurs without the victim aware of it – until the bills arrive.

LeChevallier, an attorney in Lake Oswego, Ore., suggested minor preventive measures such as:

- Never carry your Social Security card or number,
- Limiting the number of credit cards you carry, and
- Shredding all personal information before throwing away papers.

If one does become a victim of identity theft, one should:

- Call the fraud department of the major credit bureaus and ask that a "fraud alert" be placed on your file. This prevents new accounts being opened under your name.
- Call fraud representatives of the companies you believe were targeted. Close those accounts. Follow up with certified mail and include copies of supporting documents.
- File a complaint with the FTC. This can be done online at www.ftc.gov.
- File a report with the police. This paperwork may be needed to prove to banks and credit companies that the fraud occurred.



UPCOMING MEETINGS

2007

Nov. 27-Dec. 1 American Academy of Oral and Maxillofacial Radiology 58th Annual Session, Chicago, aaomr.org.

2008

May 1-4 CDA Spring Scientific Session, Anaheim, 800-CDA-SMILE (232-7645), cda.org.

Sept. 12-14 CDA Fall Scientific Session, San Francisco, 800-CDA-SMILE (232-7645), cda.org.

Oct. 16-19 American Dental Association 149th Annual Session, San Antonio, Texas, ada.org.

To have an event included on this list of nonprofit association continuing education meetings, please send the information to Upcoming Meetings, CDA Journal, 1201 K St., 16th Floor, Sacramento, CA 95814 or fax the information to 916-554-5962.

Cadent Introduces the 'Next Generation' iTero Digital Impression System



Cadent recently announced the next generation iTero Digital Impression System is now available for purchase. The new upgrades include faster scanning time, expanded shade libraries, and modified



foot pedal design. These enhancements offer users additional flexibility in designing superior fitting prosthetics. The system is commercially available in more than 30 states, and the company anticipates it will be available nationwide by mid-2008. For more information, go to www.cadentitero.com.

Size Doesn't Matter. Or Does It?

In a study of anxiety and needle size, there was no difference in the pain that patients perceived when using larger-diameter needles, authors reported in a recent issue of *General Dentistry*, the Academy of General Dentistry's clinical, peer-reviewed journal.

Michael J. Wahl, DDS, one of the authors, said there was no difference in the pain that patients perceived when using larger-diameter needles. "Many assume that small diameter needles (and therefore smaller puncture wounds) mean less injection pain — but that's not what we found. For perceived injection pain, size doesn't matter."

On the other hand, Gene Antenucci, DDS, FAGD, and an AGD spokesperson, feels patients become fearful when they see a needle. "Often times, when a patient sees a needle coming, the pain perception is heightened."

Antenucci suggested a few things dentists can do to alleviate their patients' qualms. "To ease their fears, it often helps to focus on relaxing by breathing regularly and slowly. Patients can also use hand signals to indicate when they are uncomfortable," he said.

"Dental anxiety is a real condition," Antenucci said. "I encourage my patients to speak to me about their concerns. If I am aware of their fears, I will work with them."

To help relieve dental anxiety, patients can:

- Avoid caffeine before a dental appointment;
- Eat high-protein foods, which produce a calming effect, unlike sugary foods;
- Focus on breathing slowly and regularly during the procedure. Being nervous can prompt one to hold one's breath, which then decreases oxygen levels, further increasing feelings of panic; and
- Talk to their dentist about specific fears and concerns.



Matt Mullin

New All-in-One Self-Etch Bonding System from Heraeus Simplifies Restorative Procedures

Heraeus recently announced the release of the new seventh-generation iBOND Self Etch, an all-in-one bonding agent that etches, primes, bonds, and desensitizes with just one application. The new, improved product replaces the current iBOND, and requires no mixing. It also offers less



technique sensitivity with high bond strength and proven marginal efficacy due to easy evaporation, according to results from 15 scientific outcome studies conducted by Heraeus. For more information, contact Heraeus at (800) 431-1785.

Just How Well Do You Know Your Employees?

Even if you have a practice that is doing well, oral health care professionals should think about the damage that can occur from just one bad hire and some experts recommend criminal background checks of all potential employees, according to Joanna Brown in a recent issue of *CDS Review*, the official publication of the Chicago Dental Society.

Brown wrote that not all criminal history should necessarily prevent the dentist from hiring someone. For instance, a night of drunken mayhem in college a decade ago is not quite the same as embezzling from a recent employer.

Professional background screeners can find public information on an applicant for as little as \$10 and most searches take



only a few days. Still, more thorough searches are a good investment if one is serious about protecting one's practice.

Not only is the practice at risk directly through embezzlement or theft, but patients and other employees could be victimized by a bad hire. Conducting criminal background checks on job applicants could save a dentist a lot of money and heartache later down the road.



Volunteers Sought for Overseas Program

Health Volunteers Overseas is seeking oral and maxillofacial surgeons to volunteer for two-week assignments in Vietnam throughout 2008.

Volunteers will teach surgery, bone grafts and dental implants at the University of Odonto-Stomatology in Hanoi.

HVO is a private nonprofit organization committed to improving health care in developing countries through training and education. Emphasizing teaching rather than service, HVO aims to create an indigenous group of trained health workers who can teach others. This builds an ongoing capability that benefits the population long after the volunteer has departed. Dentists volunteer at sites worldwide, including Cambodia, China, Laos, Nicaragua, Vietnam, and St. Lucia. Assignments vary from one to four weeks.

The Dentistry Overseas division of HVO is sponsored by the ADA and all volunteers must be ADA members.

Housing is provided for volunteers at some program sites, however, they are responsible for all expenses incurred. For more details, go to www.hvousing.org.

Oral Health Services for HIV/AIDS Patients Funded by New Grants

The Health Resources and Services Administration has announced that oral health care is among the services funded by \$22 million in new grants for early intervention HIV/AIDS care for medically underserved populations.

Community-based health centers, migrant health centers, hospitals, and other facilities — 53 in all; in 23 states and Puerto Rico — will receive early intervention services grants under the Ryan White HIV/AIDS Program, the agency said. The grants support oral health, nutritional, medical, psychological, and other treatment for patients who are HIV-positive.

A list of grant recipients is available at the HRSA Web site, <http://newsroom.hrsa.gov/releases/2007/PartCgrantsJuly2007.htm>.



MORAYS, CONTINUED FROM 833

UCD. The research shows the amazing diversity possible among living things, even in something as fundamental as feeding, she said in an interview.

Mehta likened the moray eels to snakes, which also have the challenge of trying to ingest a large object using a small opening and fitting it into an elongated and slender body. Snakes have the ability to separate both of their jaws. They are able to seize their prey with one side of their jaw while working the other side around it.

When not in feeding mode, the mobile jaw is just behind the skull of the moray eel. But when propelled forward, the pharyngeal mouth moves nearly the length of the skull. If the outer jaw is able to capture its prey and hold it with a few teeth, the inner set of choppers can secure the food, said Mehta and Wainwright.

Other fish have pharyngeal jaws that function to mince their meal, although “nothing this spectacular,” said Wainwright, professor of evolution and ecology at UCD and co-author with Mehta on the research paper that appeared in the Sept. 6 issue of *Nature*.

Using a high-speed digital camera, the sequence of this two-part collaborative feeding system was captured while the eels were feeding in a laboratory. Also used was other imaging equipment and X-ray to determine how the tandem jaws could move. Research-

ers currently are trying to determine how the pharyngeal mouth developed.

While it has been known that numerous fish species have tucked into their throat extra jaws that pulverize the prey or filter food from the water, the moray eels’ newly discovered secret are the first known to assist in entrapping a meal instead of just being part of the gulping process.

Suction is how most fish feed, including the American eel *Anguilla*. Other fish are adept at snatching their food in their jaws or overtaking their next meal with a wide open mouth. But even then, most fish then rely on suction to move it from their jaws to their esophagus.

Mehta discovered, however, that moray eels have little ability to generate suction through their mouths.

There are more than 200 moray eel species and they can be found all over the globe in tropical waters, making their homes in coral reefs and rock cavities. Some can grow to a length of 10 feet in the wild.

In a newspaper interview, Mark Westneat of the Field Museum of Natural History in Chicago said the discovery is reminiscent of a time when natural phenomena was discovered instead of developing theories and setting out to prove them. He noted it was “a classic example of discovery-based science, stemming from a ‘wow’ moment.”



Heraeus Kulzer Introduces Venus Temp C&B

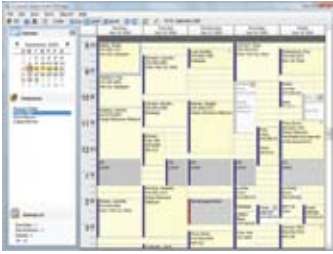
Heraeus Kulzer, Inc., says patients undergoing a temporary restoration can now enjoy the same esthetics found in final restorations with its newest product, Venus Temp C&B. At the same time, dental professionals will appreciate the product’s unique combination of strength and beauty. Venus Temp C&B is indicated

for the fabrication of esthetic temporary crowns and bridges, inlays, onlays, and veneers. Additionally, its unique and proprietary formulation makes it ideal for long-span bridges. For more information, call (800) 431-1785 or go to www.Heraeus-Venus.com.



If the outer jaw is able to capture its prey and hold it with a few teeth, the inner set of choppers can secure the food.

— RITA MEHTA AND PETER WAINWRIGHT



**Atlas Business Solutions
Introduces Patient
Appointment
Manager 3.0**

Patient Appointment Manager 3.0 is an electronic appointment book designed to keep track of multiple schedules and organizes patient information all in one place. Users can quickly find available appointments and make changes. Features include the ability to customize fields, create service

templates with a set duration and color scheme for each service, book repeat appointments, manage waiting lists, send appointment reminders via e-mail or letter, e-mail appointment schedules to employees via a Web browser or PDA, and export or print reports. For more information, call (701) 235-5226 or go to www.abs-usa.com.

Life Insurance Proceeds Can Be Taxed

While death proceeds from a life insurance policy are generally income tax-free, people should be aware they are subject to other forms of taxation, said Dick Cavaliere, in an issue of the *WSDA News*, the journal of the Washington State Dental Association.

The proceeds of a life insurance policy will be included in your estate, and subject to estate taxes, if your estate is named as the beneficiary, or if you have “incidents of ownership” in the policy (e.g., the power to change beneficiaries, borrow against the cash values, etc.), said Cavaliere, director of insurance services, Washington Dentists’ Insurance Agency. The proceeds will also be included in your estate if you make a gift of your policy and subsequently die within three years.

And even though federal law permits for an unlimited amount of assets to be transferred to one’s spouse without subject to gift or estate taxation, it’s key to remember that when the surviving spouse dies, the money is then included in the estate and then is subject to taxation, said Cavaliere. An irrevocable life insurance trust for grandkids or children can remove the proceeds from an estate subject to taxation.

