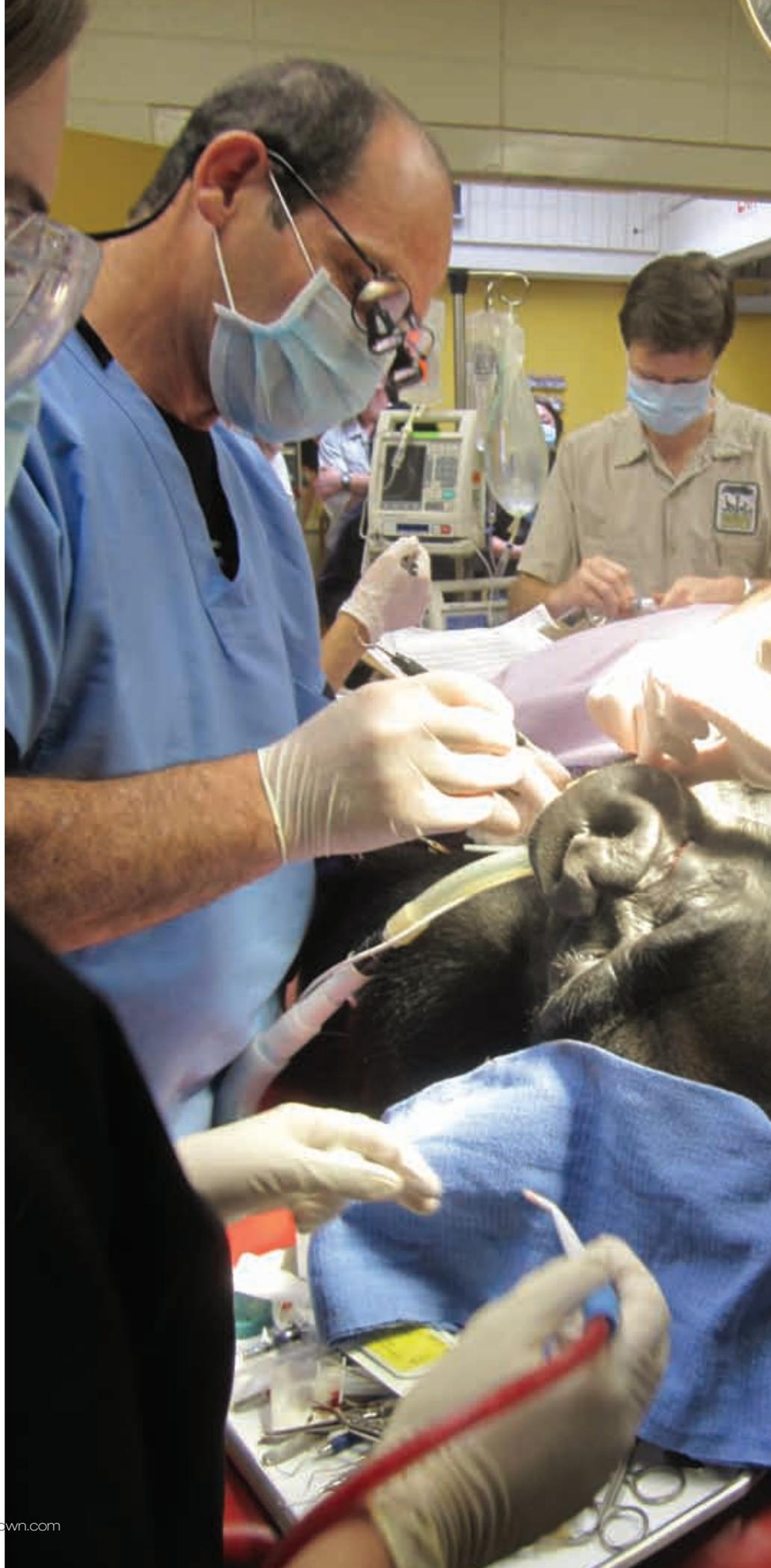


The Wild Side of Dentistry



by Chelsea Patten, staff writer, *Dentaltown Magazine*

Imagine your first encounter with a silverback gorilla – an animal 10 times more powerful than the strongest American football players¹ and tall enough to look you square in the eyes.² Then... against all your better judgment, stick your hand in his mouth.

That's exactly what Drs. Dan Mairani and Steve Holifield did. Oscar Jonsey, or O.J. for short, is a 380-pound silverback gorilla. Silverback gorillas are endangered species³ native to the tropical forests of Western Africa. O.J., however, has spent most of his life at San Francisco Zoo in California. Mairani was approached in 2010 by long-time friend and head veterinarian at S.F. Zoo, Dr. Graham Crawford, to examine the gorilla who had been suffering from a dental infection.

O.J.'s dental problem had likely gone untreated for years. Regardless of whether O.J. could feel the pain of the abscessed teeth or not, a disease can be debilitating in other ways like general malaise, bad taste in the mouth and various systemic complications due to the ongoing infection. Crawford told Mairani, "I don't want one of my animals walking around with an infection in his face, so we're going to treat this." And so they did...

The first step Mairani took was asking friend and endodontist Dr. Steven Holifield, of Sonoma, California for help. "We didn't know anything about gorillas before, but we got in touch with Dr. John Sheels who does veterinary dentistry in Milwaukee. Mairani explains most of the tools used for humans, specifically the ones used for endodontics, are just too small to use on O.J. Their teeth, used as display and as a weapon, are roughly three-and-a-half times the size of a human's. Dr. Sheels helped the doctors find larger tools, recommending DrShipp.com, an online retailer of veterinary dental tools, and explained what the doctors needed to have in their kits. "Dr. Scheels said we needed to bring the house because you never know what you're going to need," recalls Mairani. He also joined the American Association of Veterinary Dentists in his efforts to learn about the great ape.

"Their anatomy is similar, but not identical," says Mairani referring to the research he did prior to the surgery. "It's more about the armamentarium than the differences in anatomy." Beyond the larger scale, gorillas suffer from virtually the same dental problems as humans, although less so



O.J., a 380-pound silverback gorilla from the San Francisco Zoo needed some dental work, and Drs. Dan Mairani and Steve Holifield came to his rescue.

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because their diet in the wild tends to be healthier than the typical human diet. Gorillas share 97 percent of the same DNA as human beings. They have the same amount and same positioning as human teeth.

Originally, Mairani and Holifield performed surgery on O.J. in December 2010. O.J. had two abscessed canines on his right side. The infections were on 27 and 6; 6 being the worst of the two. Mairani assisted Holifield with root canals and Mairani performed three interproximal fillings, one of which was an MO resin on 3. Mairani also did a cleaning. "I used Voco Futurebond as an adhesive agent fill and endo access fills." The procedure took about four-and-a-half hours. Unfortunately one of the abscesses on his maxillary canine – 6 – was so bad the root canal failed, so the doctors had to schedule a second surgery for July 11, 2011.

O.J. is very familiar with his handlers, so he will back up into the fence of his cage to allow them to inject him with anesthesia, rather than dart him. This is less traumatic for the rest of the nearby animals. Once O.J. passed out, he was intubated, placed on a gurney and wheeled to where the surgery would be performed.

The zoo has a full facility with a surgical suite and X-ray equipment. Dr. Holifield borrowed an Aribex NOMAD digital X-ray system from his rep, and Dr. Mairani donated one of his X-



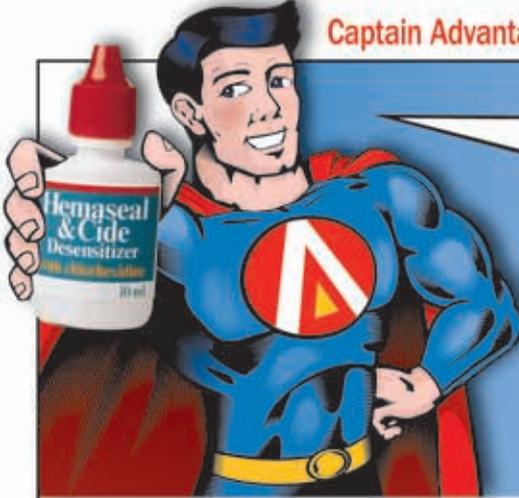
O.J. being wheeled on a gurney to the surgery center.

ray heads, an older Siemens unit, that was mounted on wheels by the zoo engineers so it could be used on any of the animals.

Mairani and Holifield describe their initial reaction to seeing O.J. wheeled into the surgery center. "Everything about this animal is massive. He looks like he could just tear you to pieces, but he's actually soft and cuddly. You kind of want to just play with him," says Mairani. Laying on the gurney, O.J. is between two-and-a-half to three-feet thick from back to chest. He also men-

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tions, “I was anticipating that he would smell pretty bad, but aside from his breath, which smelled horrible, he really didn’t.”

“Even though I knew what to expect, I could not get over how huge his teeth were,” says Holifield. “I was concerned that he might move if not completely anesthetized... but it became apparent the S.F. Zoo vets knew what they were doing.”

Mairani adds, “You feel rather insignificant when you are around something that big and strong. It really makes you appreciate life in general and it gives you a sense of where you are in the world.”

The doctors knew O.J. had an abscessed tooth on his right side and would need apical surgery. From the X-rays, they were able to determine where the apex of the root was and made an incision on the outside of his face. “We tracked the fistula to help locate where to break through,” says Mairani. Mairani played MacGyver and made a band out of thick aluminum tape since the toffelmire and segmented band were too small. They cleaned the abscess, cut off the end of the root and sutured him up. The zoo then put O.J. on an antibiotic regime. “He’s fine now,” says Mairani, still glowing from the amazing opportunity he had to work on the great ape.

The doctors said for the most part, they had the right tools, but they could have used a longer bur.

Holifield adds, “We came prepared with special endodontic files and gutta percha, but the volume of space in the canal was enormous. It took a lot more filing material to finally seal the canal.” Another challenge was in taking a digital X-ray, “the biggest sensor I have is a #2. Trying to get a good digital image was next to impossible.”

Everyone at the zoo – from zookeepers to security guards – hung around to witness the surgery. Mairani says, “How often do you get to be that close to something like that? He is so powerful and so humanoid. It was incredible.” Regarding the employees at S.F. Zoo, Mairani says, “They are the most caring, wonderful people I have ever encountered. Some people think zoos are a terrible place and would rather there not be zoos at all, but the staff at this zoo does everything it can to make these animals’ lives comfortable.”

Mairani humbly notes, “Any dentist could have done what I did. Any dentist. Any endodontist... We just happened to know the person who required our services. It’s an honor. I’m just still thrilled to have been around something that powerful.”

This isn’t the first animal Mairani has worked on. He performed needed dental extractions on a female tiger about 20 years ago and in September of this year, performed surgery on a gibbon – a species of lesser ape. He mentions his intention to continue to volunteer and work closely with the zoo. Whatever the zoo throws his way, he says, he will learn as he goes. “There is always plenty of material out there to keep learning.” ■

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Top: Dr. Dan Mairani (left) and Dr. Steven Holifield discuss the gorilla’s jaw structure. Middle photos: The doctors perform surgery on O.J. the silverback gorilla. Bottom photo: O.J. returned to his life at the zoo with better oral health.