

CUTTING EDGE

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The vast majority of canine total hip replacements continue to be cemented.

The replacement of diseased hips with prostheses has been in development for nearly 100 years.

In the early 20th century the surgery was plagued with problems related to the materials used, and the lack of awareness of surgical principals that we take for granted today. In the 1950s joint replacement was revolutionized with the development of polymethylmethacrylate ("bone cement"). Since that time there has been an evolution in cemented system designs and

infection became less of a problem, but implant loosening became a greater problem, especially in the first few months after the surgery. It appeared that one potential complication was being traded for another, which spurred the development of "hybrid" joint replacement, in which one component of the prosthesis was cemented, and the other uncemented. Currently in human medicine there is not standard method. Different surgeons have different preferences, and the jury is still out as to what is the optimum configuration.

Veterinary medicine, as it often has been done historically

TOTAL HIP REPLACEMENT

In recent years uncemented systems have been developed.

implant materials, but the cement itself has remained largely unchanged.

With cemented systems, the short and long term stability is related to the cement interface with the implants and the bone, and initial stability (at time of surgery) was excellent. Loosening of implants was seen years after implantation in humans however, and infection was catastrophic to a cemented total joint replacement, requiring explantation and pseudoarthrosis formation.

In the late 1980s joint replacement in humans began to move away from cemented systems, and towards uncemented systems. This principal involves initial stability from driving the implants into the bone forcibly, and long term stability from bone growing into porous surfaces on the implants themselves. The hope was that infection would cease to be such a catastrophic problem (the incidence was low, but consequences unacceptable). Sure enough,



Figure 1: Biomedtrix system

in other areas, has mirrored human medicine in the development of joint replacement. The vast majority of canine total hips have, and continue to be cemented, but in recent years uncemented systems have been developed. While they are still in the minority, uncemented hips are gaining popularity in part because infection is

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Criteria for Uncemented Systems

Uncemented total hip replacement systems may be used in dogs for a variety of reasons, such as dogs with:

- ✓ autoimmune disorders,
- ✓ concurrent infection,
- ✓ hip conformations not suited to the cemented system,
- ✓ dogs suffering complications from cemented hip implantation, or
- ✓ dogs less than one year of age.



Figure 3: Kyon uncemented hip

less feared, in part because the uncemented systems are being modified to improve performance, and in part because "it's what doctors do in humans".

At the Dallas Veterinary Surgical Center, we have used the Biomedtrix cemented total hip system for many years (Figures 1 and 2). It has proven reliable and with complication rates comparable to those seen elsewhere in the US. Infection rate is about 2%, long term implant loosening rate about 4%, and rate of various other complications such as dislocation and fracture combine for about 2-3%. Over 90% of patients recover remarkably quickly, have very low morbidity, and client satisfaction is very high. In those patients with complications, there are almost always options for revision, that in most cases improve their conditions to near what is expected in uncomplicated hip replacements.

The surgeons at the DVSC are currently being trained in the application of the two most commonly used uncemented total hip replacement systems, BFX and Kyon (Figures 3, 4, 5 and 6). These may be used in dogs that are considered high risk for compli-



Figure 4: Kyon uncemented hip

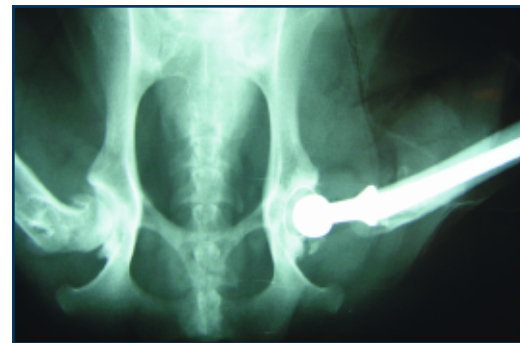


Figure 2: Biomedtrix system

cations with the more commonly implanted cemented hip system. These may include dogs with autoimmune disorders, concurrent infection, dogs with hip conformations not suited to the cemented system, dogs less than one year of age, or even certain dogs that are suffering complications from cemented hip implantation.

The majority of hip replacement cases are those diagnosed with hip dysplasia (Figure 7), but it can be used to reliably alleviate pain from other hip diseases as well such as recurrent luxation, femoral head/neck fracture, or autoimmune hip arthritis. It has even been used in a very small number of cases to temporarily alleviate pain from neoplasia of the femoral head/neck, or acetabulum, although we do not routinely recommend hip replacement for neoplastic disease. The only reasonable surgical alternative for patients with these

conditions is femoral head osteotomy, but most hip replacement cases are larger dogs, usually with advanced degenerative disease and concurrent hind limb muscle atrophy. FHO does not produce reliably good results in patients such as this.

The limitations to total hip replacement in dogs are mainly related to body size and age.

The limitations to total hip replacement in dogs are mainly related to body size, and age. While implants are made for mid sized dogs, the complication rates are higher in these patients, and the DVSC currently is not recommending hip replacement in dogs less than 45 lbs body weight.

Complication rates used to be higher in skeletally immature dogs. With the Kyon system it could be considered in dogs as young as 9 months. Counseling the client considering hip replacement in dogs this young is of paramount importance.

The biggest impediment to consideration of canine hip replacement is it's cost, but for those clients that own large dogs with painful hips, that are willing to consider a surgery that reliably restores comfort and function, total hip replacement continues to fill that need.

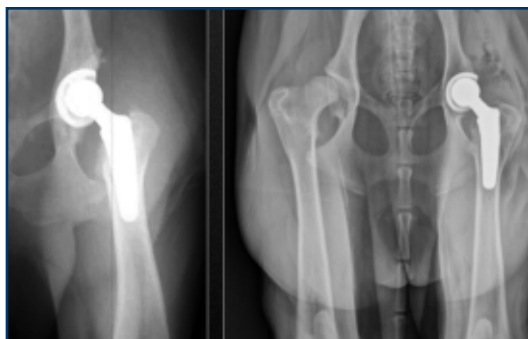


Figure 5: BFX uncemented hip

Figure 6: BFX uncemented hip



Figure 7:
Hip dysplasia

The DVSC Welcomes Dr. Greg Arnold



Dr. Arnold graduated from the College of Veterinary Medicine at Texas A&M University in May of 2001. After completing an internship at Kansas State University, he practiced in general and emergency medicine at Sherrill Veterinary Hospital and the North Texas Emergency Pet Center in the Coppell/Carrollton area of Greater Dallas for two years. At that time, he left private practice to do a surgical fellowship in osteoarthritis, gait analysis, and physical rehabilitation at the University of Tennessee in Knoxville, TN.

Since that time, he has completed an ACVS accredited surgery residency program at North Carolina State University where his primary interests included fracture management, the BFX cementless hip replacement system, oncologic surgery and general soft tissue surgery. After finishing his residency in June 2008, he has decided to return to the

Dallas area to join the DVSC and be around his friends and family.

Dr. Arnold grew up in the Dallas area and is active in his church. He enjoys exercise, NHL ice hockey, cooking and acoustic guitar. The area has changed a lot in the last four years and he's looking forward to establishing a host of new contacts and friends.

Our Doctors

Greg Arnold, DVM
Small Animal Surgery

Robert D. Barstad, DVM, MS
Small Animal Surgery

Scott G. Bertrand, DVM
Diplomate American College of Veterinary Surgeons

Joanne N. Franks, DVM
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Darryl E. McDonald, DVM, MS
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Robert M. Radasch, DVM, MS
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Brent E. Wilkens, DVM
Diplomate American College of Veterinary Surgeons

Katherine L. Wells, DVM
Small Animal Surgery

WELCOME TO THE DVSC IN GRAPEVINE

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In early July 2008, the DVSC Southlake location is relocating to our new facility in Grapevine, the Animal Emergency Hospital and Veterinary Specialty Center. The new address is:

2700 West Highway 114
Grapevine, TX 76051
tel 817.379.5444 (same phone)

If you need
a surgeon
after-hours,
please page
214.246.2819.
If no response
in 15 minutes,
feel free
to call
214.289.3215.

The new state-of-the-art facility includes a variety of specialty practices: Surgery, Internal Medicine, Dermatology, Ophthalmology, Physical Therapy and a 24-hour Emergency Hospital.

Physical Therapy is expanding to offer full rehabilitation services with state of the art equipment including an underwater treadmill. The physical therapy practice is owned by Angie Faver, PT and is available to treat not only DVSC cases, but patients referred from general practices as well.

The DVSC continues to increase surgeon staffing to accommodate your cases promptly. Our services also will expand through the addition of a CT scanner and minimally invasive surgery: arthroscopy and laparoscopy.

Please stop by for a visit, to see our new facility, and to meet with the DVSC surgeons.



DVSC

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