LIVS IN PLAIN VIEW

Long Island Veterinary Specialists

Where You Refer Your Patient First Makes All The Difference

INSIDE THIS ISSUE

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VOLUME 15 - ISSUE 1

The Failing Glaucoma Implant

John Sapienza, DVM, DACVO

A gonioimplant or anterior chamber shunt used for glaucoma therapy is a valved or non-valved tube placed into the anterior chamber through which aqueous humor is directed outside the eye (most often to the subconjunctival space). The glaucoma implant is typically sutured to the sclera or placed under the extraocular muscles. Ultimately, all gonioimplants will fail over time due to a robust capsular fibrosis around the gonioimplant reservoir. Figure 1. Several anti-metabolites such as mitomycin C and 5-flurouracil can be used to minimize this fibrosis, but the fibrosis will nevertheless occur. Knowing that the shunt will ultimately fail, what can be done to extend the functionality of the gonioimplant, by-pass the fibrosis or provide an alternate surgical procedure to maintain a low intraocular pressure (IOP)? Can a staged procedure be performed or are there certain anti-metabolites on the horizon?

The capsular fibrosis around the gonioimplant base can be simply resected, but reforms over time (usually after several months and in as short a period as a few weeks). One can periodically remove this fibrosis, but that would entail multiple anesthetic procedures. Another option is to by-pass the fibrosis in the form of a shunt or bleb-diversion device. Figure 2. We presented such a by-pass tubing in primary glaucoma cases at an annual ACVO meeting (Strauss R and Sapienza JS), and we found that the bleb-diversion device prolonged the control of IOP an average of 8.6 months (range 2-15 months). This silastic tubing was placed over the reservoir of the glaucoma implant, and a posterior drainage area was created into the retrobulbar space. Additional glaucoma surgeries were performed in all cases to ultimately control the IOP. Other retrobulbar shunts are currently being investigated as a primary shunt into the retrobulbar space and placed as a single step procedure. The results of this novel implant are still pending.

A ciliodestructive procedure is identified , whereby the ciliary body, the source of the aqueous humor, is selectively destroyed by laser energy, cryotherapy, heat (hyperthermia) or high frequency ultrasounds. Most commonly, a diode laser is used to cause cycloablation either in a transscleral or endoscopic delivery to the eye. Transscleral cycloablation is very commonly performed and requires no incisions to be made. The overall success for IOP control is 80-85% of the cases.

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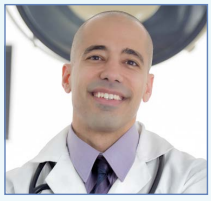

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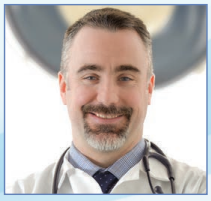

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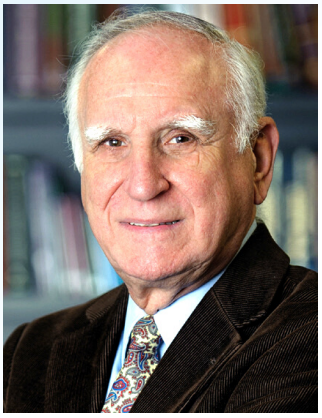
A NOTE FROM THE EDITOR



The winter season is thankfully more than half over and snow storms, which were few in 2021 may be an unhappy surprise in 2022. Nonetheless LIVS is open every day and at all hours for veterinary care for our clients and their pets...and our emergency department is ready for any eventuality.

LIVS is starting its 24th year serving the local, stateside and international community with the expansion and updating of the entire facility moving along in spite of COVID and construction supply restraints.

In its Omicron version, COVID is now putting more kids in hospitals because it's more widespread even if less severe than other variants and we are learning more about this SARS virus as each day goes by. Mask wearing at LIVS is still obligatory as each preventative action decreases its spread. Many facilities on Long Island have persisted in seeing a high number of employee absences reducing the ability to serve patients however LIVS has been functionally staffed to see all those cases that found their way here.

Dr. John Sapienza, recently in Spain, flew from Barcelona to Munich to perform 3 cataract surgeries in 2 dogs, a glaucoma laser therapy and glaucoma shunt and a parotid duct transposition to replace the tear formation in a dog with severe dry eye syndrome. He performed the procedures with the assistance of Dr. Amalie Spiess, who had spent a summer at LIVS a few years ago.

I recently read that ants have social networks just like humans do, but instead of exchanging information through posts and comments, they vomit into each other's mouths. Trophallaxis, or the act of regurgitating food into another organism's mouth, is very common in highly social species like ants. During a trophallaxis event, nutrients and proteins are passed from one individual's social stomach to another's, and through a series of these exchanges, the ants create a "social circulatory system" that connects each member of the colony to everyone else.

By vomiting into each other's mouths, ants aren't simply exchanging nutrients, they are creating a digestive social network in which energy and information circulate constantly throughout the colony to be collected by the individuals that need these resources. This is much like how our brains can secrete a hormone and pass it to the circulatory system and it will eventually reach the liver. Before there were baby foods in jars, moms used to chew food in their mouths and pass the ground up particles/mush into the infant....not so different from ants!

Many of our patrons do rescue work and this next tale was heartwarming...

A dog in South Africa adopted from the SPCA into a loving forever home repaid her owners a thousand-fold after two armed robbers broke into their house and opened fire. The mixed breed was shot in the face while ferociously protecting the family's young lady.

She sprang at the gunman with a forcefulness that surprised him; he turned and fled after he shot her in the face, shattering her jaw, and then escaped the housel. Later on, a titanium plate prosthesis was put in to restore her shattered mandible.

While the renovation process at LIVS is progressing, all our departments remain fully staffed to serve our patients all hours of every day and night.

Consultations and appointments can be made by calling (516) 501-1700. As before we welcome all comments, please submit them to lmarino@livs.org.

-Leonard J. Marino, MD, FAAP, LVT

***Photos** from the renovation project at LIVS. Above, our in-progress lobby and reception area. Below, one of our newly completed exam rooms.*

Long Island
Veterinary Specialists

Where You Refer Your Patient First Makes All The Difference

From the Beginning...

To the Present...

Into the Future...

Dr. Dominic J. Marino named AVCS Founding Fellow in Joint Replacement Surgery (JRS)

Dr. Dominic J. Marino is one of the most experienced hip replacement surgeons in the country. He is recognized as an ACVS Founding Fellow in Joint Replacement Surgery (JRS). ACVS Founding Fellows are distinguished leaders as evidenced by their exemplary training, extensive experience, innovative research, and committed practice. They devote a significant portion of their professional effort in seeking to prevent, diagnose, treat, and rehabilitate patients in the specialized field of joint replacement surgery. Dr. Marino has performed over 2,000 THR procedures, starting in the early nineties. His areas of special interest include joint replacement surgery, brain surgery, and spine surgery.

Including Dr. Marino, there are only 15 veterinary surgeons recognized by the ACVS as Founding Fellows in Joint Replacement Surgery.

TOTAL HIP REPLACEMENT SURGERY AT LIVS

CEMENTED THR

HYBRID THR

CEMENTLESS THR

Total hip replacement (THR) is designed to eliminate the source of discomfort and restore range of motion by replacing the arthritic joint with an artificial hip joint prosthesis. THR surgery is a state-of-the-art procedure, very similar to the operation in humans. The arthritic femoral head and neck are removed and replaced with a metal head and stem (cobalt chrome metal). The arthritic socket is removed and replaced with a plastic cup (high molecular weight plastic). The metal head and plastic cup fit together like the original ball-and-socket joint, providing support and pain-free, mechanically sound movement almost immediately after surgery.

To learn more about Total Hip Replacement procedures and other Hip Dysplasia treatment options, or to refer a case: **516-501-1700 | livs.org**

The Failing Glaucoma Implant

Continued from Front Cover

Possible complications include cataract formation, uveitis, recurrence of glaucoma, corneal ulcer formation, retinal detachment (rarely), and low IOP (phthisis bulbi formation). Endolaser cycloablation requires an entry into the eye either in a clear corneal or pars plana approach. The lens, if present, needs to be removed via phacoemulsification. Endolaser glaucoma therapy allows direct visualization of the ciliary processes and thus a precise delivery of laser energy to the target tissue.

Complications include recurrence of glaucoma (10% of the cases), uveitis formation, retinal detachment (rare), phthisis bulbi formation, and corneal exposure and ulceration. Laser cyclophotocoagulation coupled with gonioimplant fibrosis resection has been shown to lengthen the time to vision loss in dogs when performed as a staged procedure (Busayawatanasood R and Sapienza JS 2011 ACVO) on an average of over 7 months. (range 17 days to 853 days) In canine patients.

In conclusion, a staged glaucoma procedure can be used to prolong the function of a gonioimplant when couple with a laser cycloablation procedure. The combined or stage procedure has been demonstrated to prolong the time to vision loss in most dogs treated.

Any questions or concerns do not hesitate to contact us.

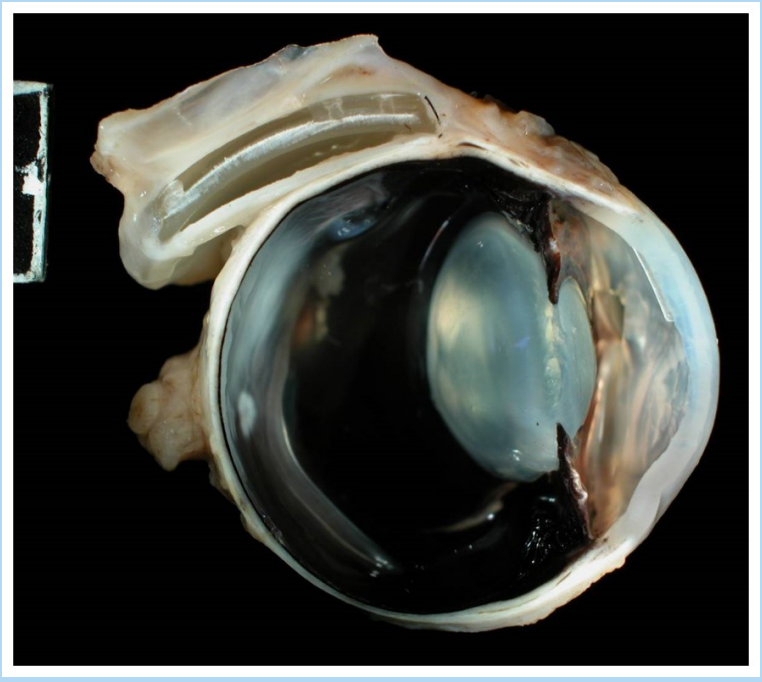


Figure 1 *Notice the fibrotic capsule surrounding the gonioimplant. Photograph courtesy of Dr. Dubielzig.*

Figure 2 *A bleb-diversion device (silastic tubing) is used to bypass the capsular fibrosis over a previously placed gonioimplant.*

VETTRIAGE

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For more information contact our medical director Dr. Shadi Ireifej DVM, DACVS at (845) 527-9812 or shadi.ireifej@vettriage.com

Skin Grafts

John Wagner, DVM, Surgery Clinician

There are two broad classifications of skin grafts. One involves a segment of epidermis and dermis which are completely removed from the body and transferred to a recipient site. The skin graft survival depends on the reestablishment of vascular supply through engraftment (or take). The other is a skin flap or flap graft which is living, vascularized tissue at the time of implantation.

There are four classifications of skin grafts according to their source. An autograft is one in which the donor and recipient sites are on the same animal. An allograft consists of donor and recipient sites on genetically different individuals of the same species. A xenograft involves the donor and recipient sites on animals of different species. An isograft is a graft between identical twins or between F1 hybrids produced by crossing inbred strains.

Before successful skin engraftment, there must be a healthy bed of tissue to produce granulation . The region must be free of contamination or bacteria. Engraftment includes adherence, plasmatic imbibition, inosculation, vascular ingrowth, and reinnervation. Adherence is established via a network of fibrin strands that contract to pull the graft into closer apposition with the bed. In phase I of adherence, fibrin strands form links between collagen and elastin on exposed graft surface about 8 hours after graft placement.

In phase II of adherence, 72 hours after grafting when fibrinous network is invaded by fibroblasts leukocytes and phagocytes, the region converts fibrin network to fibrous tissue till about day 10.

Plasmatic Imbibition is a process in which the absorbed fluid diffuses into the interstitial space of the graft, producing edema. This process peaks at 48 to 72 hours after grafting. Vascular connection between the graft and recipient bed is established at that time. Venous drainage may lag behind and edema may increase initially.

The next process, inosculation, is the anastomosis of the cut ends of the graft vessels with the recipient bed vessels of approximately the same diameter. This process may begin as early as 22 hours, however it is more commonly observed between 48 hours and 72 hours after graft placement. Normal flow velocity is reached by the 5th or 6th day.

Next, vascular ingrowth occurs where grafts are also revascularized by the ingrowth of new vessels from the bed into the graft. These vessels may grow into the dermis or into preexisting graft vessels which serve as non-viable conduits for new ingrowing vessels. New capillary ingrowth occurs at approximately 0.5 mm per day. New lymphatic drainage of the graft forms by the 4th or 5th day.

The graft appearance is initially pale. During the next 48 hours as inosculation begins, the graft may appear red or dark purple from congestion. By 72 to 96 hours, the graft appears a lighter reddish tone. By day 7 or 8 the entire graft is red to pink. Reinnervation depends on type and thickness of the graft and usually begins within 1 month.

Skin grafts are also categorized according to thickness. A full thickness skin graft is composed of epidermis and entire dermis. A split thickness of skin is composed of epidermis and varying partial thicknesses of the dermis. Split thickness grafts have been further classified as thin, intermediate, or thick according to the layer of dermis.

There are also island or seed grafts which consist of small pieces of skin that are implanted in to a large field of open granulation tissue. They include pinch, punch, strip, and stamp grafts.

Skin grafts are indicated when there has been major loss of skin from trauma or other factors, such as tumor removal. Skin grafts are also used to resurface large wounds of the trunk such as may be seen with large full-thickness burns. General and local conditions are considered before grafting is performed. Examples of conditions include cachexia, anorexia, hyporexia, chronic inflammatory conditions, uremia, hypoperfusion and infection. These conditions should be addressed prior to grafting.

The ideal graft donor site should be of similar hair color, texture, length, and thickness as the hair surrounding the recipient site. Also to be considered is access for graft harvest without repositioning the patient for graft placement and closure of the donor site. Thicker dermis may also help to provide a greater degree of protection from normal abrasion. Skin from the lateral neck and dorsal lumbar regions were significantly greater in dermal thickness and total thickness compared to samples from the lateral regions of the thorax, shoulder, or abdomen. Increasing haircoat density may help confer protection. The dorsal lumbar was also shown to have the greatest density of hair follicles, however, a thicker donor site involves a greater distance for diffusion of oxygen and nutrients during early post-grafting with potential for negative impact on graft survival. Historically the most common donor site selected has been the cranial lower lateral thoracic area; the skin is fairly thin, benefiting graft take, however well haired offering good cosmetic results.

The top three most common causes for graft failure include separation of the graft from the bed, infection, and movement of the graft. Disruption of the fibrin bonds that bind the graft to the bed impair revascularization and nutrition. For example, Streptococci and Pseudomonas species produce large amounts of plasmin and proteolytic enzymes.

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Neurology/Neurosurgery Department

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MRCVS, DACVIM (Neurology)
(Neurology/Neurosurgery)

Neil Mittelman, DVM
DACVIM (LAIM;Neurology)
(Neurology/Neurosurgery)

Who are we?

Our board-certified Neurologists are experts in diagnosing and treating complex neurological conditions in animals. With knowledge in today's leading-edge technology and expertise in ongoing research and treatment protocols, your pet will have access to the appropriate care and treatment necessary.

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- Epilepsy
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- Narcolepsy/cataplexy
- Neoplasia
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- Wobbler's disease

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Skin Grafts

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Full thickness unmeshed grafts are pliable and movable over subcutaneous tissue. They resist trauma and are more like normal skin in color, texture, elasticity, and hair growth compared to split thickness. Some studies show they take as well or better than split-thickness grafts. Post-operative contraction is minimal and size increases after healing. There is adequate protection with full thickness unmeshed grafts. No specialized equipment is necessary to perform this type of graft. Disadvantages include poorer survival compared to split-thickness grafts in the presence of infection. They also do not survive as well unless drainage is provided. Compared to skin flaps, hair growth may not be as thick due to damage to the base of hair follicles. Full thickness meshed grafts improve conformability of the graft and granulation may grow upward into mesh holds. Mesh grafts allows for drainage from the wound and allow for increased coverage on large skin defects.

Split thickness grafts are composed of epidermis and varying partial thickness of the dermis. The advantage over full-thickness grafts is thin split thickness grafts (89%) have better viability than full-thickness grafts (58%). This difference is due to greater capillary density in the exposed dermal plexus of partial-thickness grafts compared with subdermal plexus of full-thickness grafts. More graft vessels are available for inosculation with vessels of the recipient bed. Ingrowing vessels have less distance to traverse in split-thickness grafts. A thinner dermis means shorter distance for diffusion and therefore improved cellular survival during period of plasmatic imbibition. This results in expansion of the graft size after healing. This is good for cases where wound contraction may cause problems (ie. contracture deformity). The disadvantage of split thinness grafts is they are less durable and more subject to trauma than full thickness grafts. In addition, hair growth may be absent or sparse (depending on thickness). Split thickness grafts may require special and sometimes expensive equipment. Split thickness grafts may also be meshed to allow for increased coverage on large skin defects.

An island or seed graft consists of small pieces of skin that are implanted into a large field of open granulation tissue. They are different from sheet grafts in that island grafts rely mainly on keratinocytes that proliferate and migrate from the edge of the islands to cover the recipient site. Different types include pinch, punch, strip, and stamp grafts. The advantage of island grafts is they are simple to perform; they take quickly and reliably because of relatively large ratio of surface area to volume compared with larger sheet grafts. They are easily harvested with use of local analgesia and can be used on irregular surfaces. Donor sites can be closed with a single suture.

The disadvantage is they can excessively bleed and may float the graft out of the recipient pocket or delay graft revascularization. They are delicate and prone to injury compared with normal skin.

The aftercare for skin grafts is variable and usually includes a soft padded bandage and/or splint depending on the skin region. The bandage is changed every other day however sometimes daily for the 2 to 3 weeks depending on the need to protect the skin viability and/or manage the drain or discharge present.

Figure 1

Right hind paw 3 days post full thickness mesh graft.

Figure 2

Right hind paw 41 days post full thickness mesh graft.

Integrative Medicine at LIVS

Michel Selmer, DVM MS, CTCVMP

The Integrative Medicine Team takes a holistic and gentle approach to treating animal disorders. While combining techniques of both Eastern and Western medicine, our Integrative Medicine Team puts an emphasis on the patient's emotional and mental well-being. Dr. Michel Selmer is one of only a handful of Traditional Chinese Veterinary Medicine Practitioners that holds a Master's Degree in the United States.

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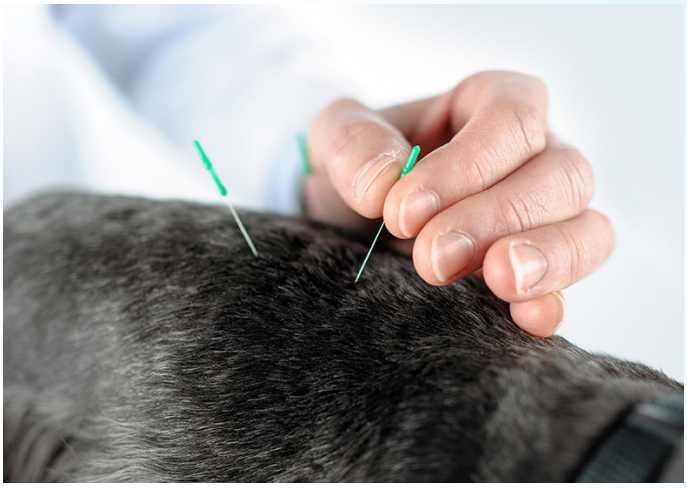

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Radioiodine therapy at Long Island Veterinary Specialists is the preferred choice! Radioiodine therapy (I-131) is the safest treatment for hyperthyroidism in cats and has been proven to be 96-98% effective, employing a single treatment. At LIVS, our specially designed radioiodine facility allows us to accommodate many patients and permits quick access to this life-saving therapy.

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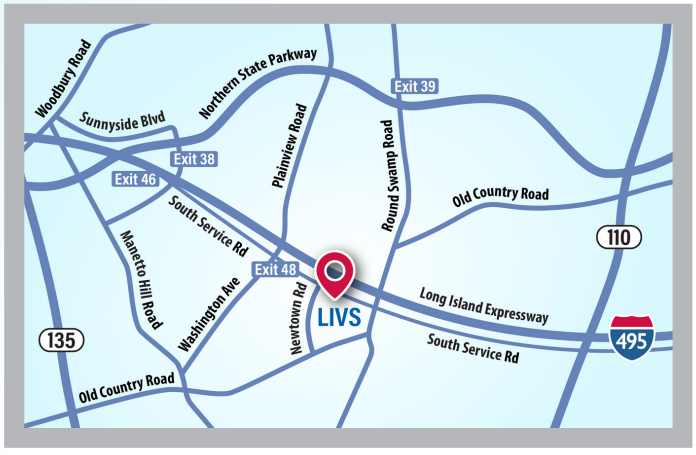

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