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Surgical Magnification

Magnification using an operating loupe has become routine for many soft tissue surgeons. Magnification of 2.5 or 3 x is the most common. Operating loupes are manufactured by companies such as Designs for Vision (http://www.designsforvision.com/), Heine (http://www.heine.com/), and Sheervision (http://www.sheervision.com/). Advice on how to choose an operating loupe is copied below from the Sheervision website.

“Resolution - Resolution is the ability to define small details. Not all surgical loupes are made the same. Companies use different glass, different coatings on that glass, and different procedures to arrive with the finished product. When evaluating resolution it is important to make sure that the image is crystal clear from edge to edge. Field-of-View - This is the total size of the operating site when viewed through the loupes. By having a large field of view, many medical professionals are able to adjust to using loupes in a very short time. Weight - This is one of the most important issues to consider. How much weight are you willing to wear? At SheerVision, we have addressed that concern by designing one of the lightest weight loupes in the world - the Ultra-Light series! Magnification - One of the most important decisions when buying loupes is how much magnification you will need. At SheerVision we offer multiple levels of magnification, so we can help you determine the best choice for your practice. Depth-of-Field - This is the range of focus that the loupes are able to deliver. The greater the depth-of-field, the easier it is to move around the patient. Company - When choosing a loupe to purchase, look for a company that not only provides all of these requirements, but also has a professional staff that is able to work with you through your transition into using loupes. Also look to what type of service and warranty services that they can provide, and make sure that they have a trial period so you can insure that you have the best solution for your individual needs.”

Vessel Sealing Technology

Valleylab’s patented LigaSure™ vessel sealing technology (http://www.ligasure.com/) 

“Permanently fuses vessels up to and including 7 mm in diameter and tissue bundles without dissection or isolation
Provides a unique combination of pressure and energy to create vessel fusion. An optimized combination of pressure and energy creates the seal by melting the collagen and elastin in the vessel walls and reforming it into a permanent, plastic-like seal. It does not rely on a proximal thrombus.

The Ligasure system works by applying a precise amount of bipolar energy and pressure to denature the elastin and collagen in vessel walls, resulting in permanent occlusion.

**Porcine Collagen**

Porcine collagen provides an acellular matrix for tissue ingrowth and is potentially useful for supporting soft tissue surgical repairs as well as stimulating fibrous tissue production in areas requiring additional strength (such as the urethral sphincter). Porcine collagen has been proposed to hasten granulation and epithelialisation of open wounds, but this has not been subjected to rigorous experimental evaluation.

A-Cell Vet sheets and powder are manufactured by A-Cell and are available around the world (http://www.acell.com/vetdistributorinfo.html). "The ACell Vet™ product is a naturally occurring biologic scaffold that fundamentally alters the wound healing response by providing a favorable environment for cell growth at the site of damaged, weakened or missing tissue. Now even in the most difficult cases, repairing damaged or lost tissue can be accomplished easily and with predictable results.

The ACell Vet™ product fundamentally changes healing by triggering abundant new blood vessel formation and recruiting numerous cell types to the wound site. These cells, including mononuclear cells, have the potential to differentiate, organize and develop into numerous types of site specific tissues. During the healing process, the ACell Vet™ scaffold is gradually degraded and resorbed leaving only new tissue where scar tissue would be the typical healing response.

The ACell Vet™ products are available in powder, sheet and disc form, for optimal application for specific procedures. This bioscaffold can be used for the remodeling of damaged tissue in large and small animals, equine, avian, as well as exotics. Consider ACell Vet™ materials for any surgical procedure where tissue restoration and enhanced healing are desired. Typical applications for the ACell Vet™ product include:

- Tendon & Ligament Injuries
- Urinary Incontinence
- Hoof and Hoof Wall Injuries
- De-gloving Injuries
- Corneal Ulcers
- Dental Extractions
- Full & Partial Thickness Wounds
Burns
Post Surgical Skin Closures
Lick Granulomas

Palate Obturators

The nasal septal button is produced by Boston Medical (http://www.bosmed.com). It is designed for non-surgical closure of septal perforations. The device is constructed using soft silicone and can be trimmed at the time of placement. Studies have shown that use of a nasal septal button increases nasal respiration while decreasing symptoms of nasal perforations which include epistaxis and crusting. The button features two 3.2 cm diameter flanges connected by a central 7mm diameter post.

It has been used for obturation of chronic oronasal fistulae in dogs and cats and is an effective first or last line of treatment in many of these patients.

Skin Stretching Devices

Skin stretching is taken for granted during surgery and is employed routinely during closure of virtually any wound that has resulted in full-thickness skin loss. Many different types of skin stretching device have been described, some of these are home-made and some are available commercially. Commercially-available devices include the following:


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Figure 6: Sure closure device in place

Figure 2: Schematic drawing of the Wisebands wound closure device. 1. A semicircular polypropylene band; 2. the "in port" at the base of the device; 3. exit catch; 4. rotating knob. Rotating the knob (4) on the device applies controlled load to the band (2), causing gradual traction and tension on the tissue. The band exits from the device through an exit port on the top of the device.
**Bostrom et al, 2006.**

Wound Management in a Rabbit

![Diagram of wound management in a rabbit](image)

Figure 1. A. Tissue glue and some suture material is used to place adhesive pads around the edges of a full-thickness, open wound in a male, neutered, domestic Polish Dwarf Rabbit. B. Wet bandages are placed over the wound and held in place with elastic cables which are Velcroed to the pads around the wound edges to provide moderate tension and stretch the skin. C. The elastic cables are shortened every day during bandage changes to provide gradually increasing tension as the skin stretches. D. After 3 days of skin stretching and open wound management, the wound was closed with 4-0 PDS in a simple continuous subcuticular pattern and a skin-tension relieving, horizontal mattress pattern.

**References**

