

James Cook University Animal Ethics Committee

Aseptic Technique for Survival Animal Surgery Procedure

Intent

This procedure describes aseptic surgical technique and so outlines the measures the AEC expects investigators to take in order to minimise the chance of infections in animals undergoing surgical or other invasive techniques. The use of aseptic technique for animal survival surgery is prescribed in the *Australian code for the care and use of animals for scientific purposes* Sections 3.3.7 and 3.3.16.

Scope

This procedure applies to:

- < Investigators conducting surgical and other invasive procedures on animals
- < The AEC when assessing retrospective amendments to projects

All investigators planning to conduct survival surgery on animals must have undertaken the surgical training program, of which this procedure is a part, before AEC approval can be granted to start work.

Definitions

Antiseptic	means a chemical agent that can be applied to living skin to inhibit the growth of microbial agents. Antiseptics can either kill microbial agents or stop their growth, however application of an antiseptic to an object does not make it sterile. Eg iodine, ethanol, hydrogen peroxide, F10
Asepsis	means state with an absence of microbial (bacterial, fungal, viral) contamination.

Aseptic techniques

Procedure

1. Preparation of the instruments

1.1 Sterile instruments and consumables must be used for all animal survival surgeries.

1.2 When autoclaving, autoclave indicator tape must be used to ensure process has led to sterility. Consumables should not be used after their expiry date.

1.2 When carrying out several procedures in a row or batched surgery, instruments can be sterilised in a hot bead steriliser in between animals as long as they are cleaned of blood and tissue beforehand and a new scalpel blade is used for each animal.

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3. Prepare the procedure room for your specific procedure

3.1 Invasive procedures that have the propensity for the development of infection must always be conducted in an appropriate facility that will minimise the risk of contamination or infection of the surgical site.

All surgical procedures must take place in the designated procedure rooms and areas of those rooms. These areas must be cleaned thoroughly with disinfectant before and after use. Air flow should be such that it minimises the risk of dust and air-borne contamination of the surgical area, while allowing for adequate ventilation for effective removal or dispersal of anaesthetic gases.

The room should be uncluttered with no storage of excess equipment or consumables that may be difficult to

been sprayed with ethanol. Lab gloves are often not even clean and may contain residues, such as latex dust that are irritants when in contact with exposed tissue.

Once the surgeon has scrubbed up and is wearing sterile gloves, they must take care not to touch anything other than sterile surgical instruments/drapes/swabs or the aseptically prepared surgical site of the animal. Contact with anything non-sterile would require rescrubbing and re-gloving.

Towels (fabric or paper towelling) can be sterilised by autoclaving them with the instruments or drapes, so they are ready for the surgeon when the pack is opened.

6. Preparation for surgery

6.1 Before surgery can start the animal needs to be prepared, instruments readied and animal draped.

Either the surgical pack and consumables can be prepared before the surgeon is scrubbed and gloved, or an assistant can open the outer wrapping of instrument packs, sutures, and scalpel blades.

Care needs to be taken when unwrapping the pack to prevent contamination of the contents. The outside of the pack is considered dirty and the inside sterile, so the pack should be opened either before scrubbing takes place or if after, by an assistant.

The surgeon drapes the animal taking care not to touch any non-sterile surface. Using a drape prevents sterilised items touching the animal's fur causing it to become contaminated. When using a paper, plastic or rubber drape, a suitable-sized hole can be cut to access the surgical site. The sterile field can be extended by using an additional paper or cloth drape. The drapes depth and physiological signs to be monitored. If the surgery is to be batched, a fresh sterile set of drapes must be used for every animal.

7. Aseptic surgical technique

7.1 Aseptic surgical principles must be used during surgery.

Once the animal and surgeon are prepared, the surgical area and the equipment can be approximately divided into:

- < Sterile
gown the surgeon is wearing, the top side of the drapes and the instruments and the top side of the drape on which they are placed.
- < Dirty including the rest of the animal, the underside of the drapes, anaesthetic and monitoring equipment, lights, note paper and pens, the surgeons face or other parts of the body (including the gown if this is not sterile at the beginning).

The principles of aseptic surgical technique can be summarised as: nothing sterile can touch anything that is dirty from the start until the last suture has been placed. If something sterile touches something dirty, then it is considered dirty and must be disposed of, cleaned and resterilised, or replaced. This means that if the surgeon touches their face, then the surgeon must then re-glove or else they will not be able to continue surgery.

8. Surgical techniques that reduce infection and complications

8.1 Correct surgical technique must be used.

Other special techniques that

Other Resources

1. Correct handling of surgical instruments slideshow:
<https://www.slideshare.net/ahmadfsulong/handling-of-surgical-instruments>

References

1. Principles of Rodent Surgery for the New Surgeon. Pritchett Corning, K.R., Mulder, G.B., Luo, Y., White, W.J., J. Vis. Exp. (47), e2586, doi:10.3791/2586 (2011).
<https://www.jove.com/video/2586/principles-of-rodent-surgery-for-the-new-surgeon>
Procedures with Care: <http://www.procedureswithcare.org.uk/?s=surgery> (training videos on aseptic and surgical technique)
2. Aseptic technique in Rodent Surgery: Why Should I Pay Attention? Mendenhall V, Baran S, Johnson E, Perret-Gentil M. <https://www.alnmag.com/article/2010/03/aseptic-technique-rodent-surgery-why-should-i-pay-attention>

Administration

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