Anesthetic Protocol

Estimation pf pig weight: 500lbs

Premedication

Administering sedative drugs decreases excitement and causes relaxation to allow for the placement of indwelling catheters (for IV drug and fluid administration) or allow for intubation (for inhalation anesthesia).

The anticholinergics glycopyrrolate (0.004-0.01 mg/kg IM) or atropine (0.04 mg/kg IM) are used as a premedication to dry oral and respiratory secretions and for its vagolytic effects (i.e., ability to block vagal nerve stimulation and consequent bradycardia) during endotracheal intubation.

Drugs for Induction

IV drugs TKX (Telazol, Ketamine, Xylazine) provides rapid sedation for intubation and catheter placement.

**Duration lasts: 45-90 mins.

- Reconstitute 500mg Telazol powder with 250 mg Ketamine (100 mg/ml)/2.5mL and 250 mg Xylazine (100 mg/ml)/2.5mL
- Dose at 1 mL/75kg IV

Drug Calculation

- Weight of patient = 500lbs = 226.8 kg
- Drug dosage = 1mL/75kg = 0.013mL/kg = 13mg/kg
- Concentration of drug = 100mg/mL

For every kg of weight, if we administer 13mg of TKX,

[13mg/kg]*[226.8kg] = 2948.4mg

For every 1mL of TKX administered, 100mg of active content is included:-

([2948.4mg]/[100mg/mL]) = 29.484mL

Procedure

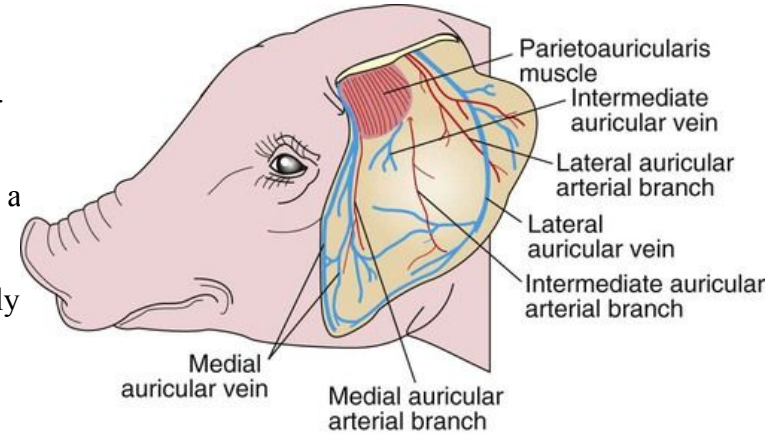
The sedated pig's ear veins are raised by applying pressure at the base of the ear.

Using a surgical swab the ear veins are visualised.

An 18 gauge needle (butterfly catheter) is inserted – Drawback is not performed a the ear vein normally collapses.

Injecting a very small amount of anaesthetic will indicate if the needle is properly placed.

Give slowly over 1 minute to reduce respiratory depression.

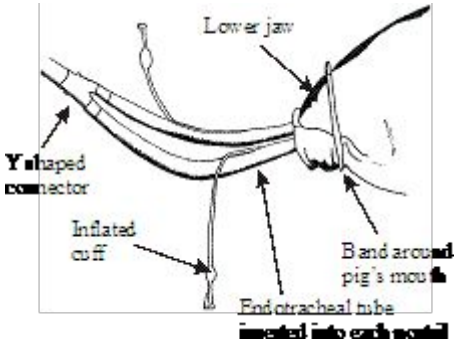


Maintenance

Maintenance refers to drugs administered to keep animals unconscious and allow for surgical (or other) procedures to be performed.

Inhalation anesthesia can be delivered via endotracheal intubation.

A 9-15mm endotracheal tube is appropriate for a pig estimated to be 500lbs.
Intubation of the pig complex as the larynx is anatomically difficult to visualise and locate.



Maintenance (continued)

Improper technique during intubation can result in significant trauma. Trauma can result in laryngeal rupture, laryngeal edema, or passage of the endotracheal tube in the subcutaneous space. The endotracheal tube should extend approximately from outside the mouth to the thoracic inlet. This can be a guide for how far the tube should be inserted upon intubation. Verify proper placement of the endotracheal tube by ausculting all lung fields for strong breath sounds. If no breath sounds are heard, back the tube out until sounds are heard in all lung fields. Once inserted with a twisting action past the nares, the cuff can be inflated and the mouth closed with tape. The pig will then breathe normally through the nose.

Use: Halothane, Nitrous Oxide, Isoflurane (2%) on a circle anaesthetic machine

Note that

**Some breeds – primarily Landrace, Pietrain, and Poland China– are susceptible to malignant hyperthermia (MH) with this gas anaesthesia protocol. MH is a hypermetabolic state of the skeletal muscle induced by volatile inhalational anesthetics, succinylcholine, and stress. Early signs of MH include decreases in pH and pO2, and increases in lactate, ETCO2, PCO2, potassium, and body temperature. If MH is suspected, discontinue anesthesia & administer oxygen. **Nitrous oxide may reduce the concentration of isoflurane required. It cannot be used as a sole anesthetic agent and must be delivered in a 1:1 or 2:1 mixture of nitrous oxide to oxygen combined with other inhalant anesthetics. Additionally, nitrous oxide is not absorbed by charcoal canisters and can only be used with vacuum scavenging anesthetic systems.Jaw tone is the most reliable indicator of anesthetic depth in swine and should be assessed throughout the procedure. Rigidity of the mandibular muscles indicate the anesthetic depth is light.Provide supplemental fluid support since the patient should be under anesthesia for longer than 30 minutes. Appropriate fluid rates range from 5-10 mls/kg/hour.

Experiment	No.	Trade name	Volume (mL)	Purpose	Vendor
A	1	5 % Glucose injection	500	DI	T
	2	Solulact (Lactate ringer sol.)	500	DI	T
	3	Isotonic sodium chloride sol.	500	DI	T
B	1	Otsuka normal saline	500	DI	O
	2	Hartman's sol. pH 8 (Lactate ringer sol.)	500	DI	N
	3	5 % Glucose injection (for animals)	500	DI	K
	4	7 % Sodium hydrogen carbonate sol. (for animals)	500	DI	K
	5	Otsuka normal saline	20	I	O
C	1	Otsuka normal saline	500	DI	O
	2	Midperiq	2,000	DF	T
	3	Isotonic sodium chloride sol.	100	DI	T
	4	Isotonic sodium chloride sol.	500	DI	T

Recovery

- Vomiting during recovery can occur and introduces risk for aspiration, and ventilation is decreased when a full stomach exerts pressure on the diaphragm
- Recovery from anaesthesia is usually calm, unless the pigs are in pain or disoriented.
- There is a postoperative condition in swine that resembles MH but is considered a distinct condition. It is characterized by critically elevated body temperature and hyperlactatemia greater than 2.5 mmol/L during the recovery period.