

A practical approach to simple procedures in pet pigs

As pet pigs become more popular in Ireland, vets are likely to encounter them on their routine callouts. In this article, researchers outline a practical approach to some simple procedures that can be done on farm, as well as sedation protocols, that will make these encounters safer and less stressful for vet, animal and owner

AUTHORS

Emmet Kelly, Laura Gómez Fernández, Joei Potter, Marijke Beltman

Pet pigs have become increasingly more popular in the last number of years, meaning that many large- and mixed-practice vets have, at least, been confronted with one or more during a routine call out.

Before we begin, it is important to state that only persons registered with the Department of Agriculture, Food and the Marine (DAFM) and issued with valid pig herd numbers can own or trade in pigs. If you have a new or current client who states that he/she wishes to own their own pigs, however few, it is vital that they contact the DAFM for appropriate advice in responsible and legal ownership. Many different types of pigs are now kept as pets, with an increased interest in small breeds such as the Vietnamese potbellied or the New Zealand Kunekune. However, crossbreeds of these, or more traditional breeds such as the Large White, exist and are kept as pets. There are a few key differences between smaller breeds than some of the traditional pigs and these are worth considering for the purpose of routine anaesthesia and surgery discussed herein; they are brachycephalic; they reach puberty earlier than traditional breeds (as early as four months of age); they may be more susceptible (Vietnamese potbellied) to inguinal hernias; they are significantly fatter, reducing airway size and making testicular palpation more difficult.

FEET PAIRING AND TUSKS

If some pet pigs do not have access to exercise areas with abrasive surfaces such as gravel or stones, and constantly



stand in soft or wet ground, hoof growth can become excessive. Some simple routine paring may be attempted without sedation on small, cooperative patients, but for more severe cases, most pigs will be required to be sedated. Most overgrown hooves can be managed with a sheep foot shear, lighter cattle toe clipper and a rasp. Toe and dew claw overgrowth are commonly encountered and easily rectified.

Pigs are classified as anterior elodonts, as their tusks, which hypsodont, are in a constant state of growth. This is especially true of entire boars, whose tusks will grow much quicker throughout life than sows or castrated males. These tusks may prove problematic as they can become quite sharp and may need trimming back once or twice a year. They can be safely trimmed with embryotomy wire, motor-driven cutting discs, and dental drills and it is recommended to trim back to 1cm from the gingiva. Arranging both tusk and feet trimming together will best utilise one light sedation (as suggested in Table 1) for the pig.

CASTRATION

Ideally, surgical castration should be performed from 10-14 days of age with intratesticular local anaesthetic and manual restraint. However, it is rarely conducted in pet pigs unless you are dealing with a responsible breeder who is preparing them for sale. This is simply done by making an incision over each testis in the cranioventral scrotum and then pulling them out from the scrotum while still in the vaginal tunic. The testis can then be pulled or torted until separated, and the incision is left open. Haemorrhage is minimal and ligations are not generally required.

If early castration is not carried out, it is, generally, recommended to leave pet piglets until they are four to six months of age, at which time they must be castrated under general anaesthesia. This can be done in lateral recumbency under total injectable anaesthesia in the field as described below. If performing them in the field with only injectable anaesthesia, analgesia and intratesticular local anaesthetic should be used in all of the procedures but it

is important to beware that the toxic dose of lidocaine in the pig is 5mg/kg and it is reached quite easily, especially when dealing with piglets of a small breeds.

▪ **Surgical procedure**

A 4–6cm incision is made on the ventral aspect of the scrotum and the testis pulled out while still in the vaginal tunic. Fat and soft tissue surrounding the spermatic cord are stripped away using a swab and the cord is checked for an inguinal hernia. The tunic and cord are then twisted continuously until all is tightly compressed to the level of the external inguinal ring; this is performed to push any herniated abdominal contents back into the abdomen. The cord is then clamped with a crushing emasculator or a clamp to make a crush bed and a circumferential ligature of a synthetic absorbable suture material (polyglactin) is tightened around the vaginal tunic and spermatic cord at this point. Using the emasculator/clamp again, the cord is compressed distal to the ligature and distal to the clamp the cord is cut using the scalpel. Once the clamp is released, the ligated stump can be assessed for bleeding. Skin closure again is not routine in the field setting where asepsis cannot be maintained, and it can delay the procedure. As a result, it is important to ensure that they are kept in dry, clean bedding thereafter. Administration of antibiotic cover and pain relief as per below (NSAIDs) are also required.

If you are suspicious of an inguinal hernia or there is concern about the potential for herniation (eg. older, larger, Vietnamese potbelly), then gaseous anaesthesia in a surgery suite at the practice is recommended as this will allow for replacement of herniation and/or closure of the external inguinal ring and skin in an aseptic environment. In this case, the castration will be performed in dorsal recumbency and the skin incision is made more cranio-ventrally so you will be as close as possible to the inguinal ring to aid in closure of it. The closure of this ring is complete with a synthetic absorbable suture in an absorbable cruciate or horizontal mattress. Again, a closed castration is preferred and done as described above.

SEDATION PROTOCOLS

Please note that even though the animal may be considered a pet, pigs are food-producing animals meaning that the European Commission (EU) N° 37/2010 regulations detailing drug use in food-producing species apply. The suggested sedation protocols are detailed in Table 1.

Table 1: Drugs and dosages for sedation protocols in pigs.

Protocol 1	Protocol 2
5mg/kg ketamine IM	5-10mg/kg ketamine IM
0.1-0.2mg/kg butorphanol IM	0.1-0.2mg/kg butorphanol IM
1-3mg/kg xylazine IM	50-100µg/kg detomidine IM

▪ **Pre-sedation**

Ideally the pig that will undergo sedation will have undergone some fasting: adults, 6-12 hours; paediatrics, one to three hours. They can have water available until sedation. If possible, the pig should be weighed prior to the procedure to ensure correct drug dose calculation.

▪ **Sedation, IV access, monitoring, recovery and analgesia**

Sedate the pig intramuscularly (IM) immediately caudal to the ear using a long 18-gauge, 1.5 inch needle with extension set to facilitate injection of the moving animal. After injection leave the pig undisturbed for at least 15 minutes. The sedation can be topped up with ketamine and/or an alpha-2 agonist (xylazine or detomidine) IM or intravenously (IV).

IV access is strongly recommended. To obtain this, use the marginal ear veins, note the central auricular vessels are normally arteries and should not be used for drug administration.

During the procedure the heart rate, respiratory rate, non-invasive blood pressure and rectal temperature of the pig should be closely monitored from the start of sedation until complete recovery^{1,4} and recovery should be in a warm, quiet area, without other pigs present.

Meloxicam (0.4mg/kg) or ketoprofen (3mg/kg) are licensed in pigs and should be administered IM¹ to provide analgesia. Common complications of (heavy) sedation in pigs are airway obstruction due to the brachycephalic nature of the pig, and malignant hyperthermia as well as delayed recovery due to sedative agents (note that reversal agents are NOT licensed for use in pigs).

EUTHANASIA

Euthanasia can be a stressful event for both owners and vets alike. A good IM sedative protocol (Table 1) will afford the vet time to place a catheter in the ear vein and complete the procedure with intravenous barbiturates. In miniature breeds, satisfactory venous access in the ear may not always be possible, and alternatives such as catheterisation of the lateral saphenous vein over the hock, medial saphenous vein on the inside of the thigh, cephalic vein, or the jugular vein may be required. These are can too be difficult to locate and often may need the use of ultrasound to assist in placement. Further reading is highly recommended to acquire a deeper knowledge about sedation, anaesthesia, and analgesia management in pigs.

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