



Obesity problems in pet pigs are common and can lead to difficulties in locomotion, all of which are exacerbated as animals age

Pet pig medicine

2. The sick pig

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THIS article describes the common conditions that may be encountered in pet pigs in practice and how they may be managed. While obesity and its associated problems are most frequently seen, as the population of pet pigs ages, a number of geriatric problems, such as locomotion difficulties and tumours, are becoming more commonplace. An article in the last issue (*In Practice*, March 2008, volume 30, pp 160-166) described how to handle and examine the pet pig, and highlighted the normal parameters for these animals.

FAILURE TO EAT

Pigs may fail to eat because they:

- Have a high temperature. Animals will feel hot, especially around the ears, and may be breathing rapidly with the mouth open. Respiration rates of over 40 breaths per minute indicate a heat-stressed pig;
- Do not like the food that is offered. Palatability can be assessed by tasting the food, which can highlight problems such as sour/mouldy ingredients;
- Have already eaten too much;
- Have been given insufficient water. This is a significant problem in the summer.

be due to severe arthritis, and increased snoring when sleeping.

Underweight

Pigs that live in poor conditions and receive an incorrect diet may become very underweight, which can lead to liver and kidney damage. As a general guide, an adult pet pig should eat the equivalent of 1 per cent of its body-weight each day (a normal adult diet should contain 16 per cent protein and 0.6 per cent lysine, and provide 13 MJ of energy). As they get older, pigs tend to have a reduced appetite and can lose significant amounts of weight.

WEIGHT PROBLEMS

While there is no normal bodyweight for pet pigs, animals should be maintained at a body condition score of 2 to 2.5 from nine months to eight years of age and at score of 2.5 to 3 thereafter (see Part 1).

Overweight

Obesity is the most common problem in pet pigs and, unfortunately, many owners do not appreciate that their pig is overweight. Pigs should be able to run faster than humans and be willing to walk around their exercise area, rooting for food for up to 60 per cent of the day. Pot-bellied pigs should have a defined waist and should not have a pot belly that rubs on the ground. It is not possible to feel the ribs or backbone of overweight pigs.

Obesity can cause sores on pressure points and can result in self-inflicted scratches and skin-fold infections. Overweight pigs have difficulty moving, which may

SKIN PROBLEMS

Flaky skin

The presence of a number of parasites can cause the skin to flake. Pigs can suffer from mange due to the mite *Sarcoptes scabiei* var *suis*, which presents as pruritus, often with a yellowish-brown deposit on the skin, particularly in and around the ears. The diagnosis is confirmed by examining a sample of wax scraped from inside the ear for mange mites under a microscope. Mange should be treated with two injections of ivermectin 14 days apart, and animals should be isolated until they are confirmed to be mange-free. Once treated, a pig will remain mange-free as long as it does not come into contact with an untreated animal.

The presence of lice (*Haematopinus suis*) can also cause flaky skin. *H suis* are 0.5 cm long, dark-coloured and move very fast on the hairy parts of a pig's skin. They may be difficult to see on a dark-skinned pig. Ivermectin may be used to treat affected animals.



Pig with mange resulting in scaly, itchy skin, which healed completely within three months of treatment



Flaky skin, possibly due to an essential fatty acid deficiency, that was not responsive to avermectin, but responded to washing and skin hygiene

Pet pigs may also become infested with ticks and fleas from other pets in a household or the environment. These are normally transient and an injection with avermectin will temporarily help to relieve the situation. Ticks may require manual removal.

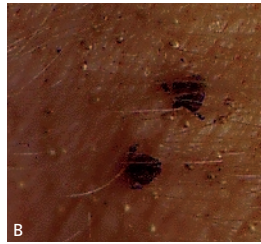
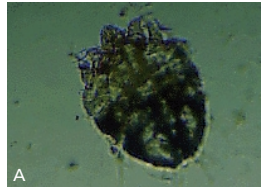
Flaky skin may also be due to a deficiency in essential fatty acids. This can be managed by rubbing baby oil or emulsifying soap into the skin. Occasional bathing, using lukewarm water and a mild shampoo, can be soothing and great fun for the pet pig. In addition, affected pigs may be given cod liver oil (10 ml/50 kg) or margarine spread on a slice of bread once every two weeks.

Sunburn

Sunburn can be a serious problem in both light- and dark-skinned pigs. It can be avoided by providing shade and also water for animals to wallow in. Strong sunlight can cause overheating and lead to sunstroke. Treatment of sunburn involves cooling the pig with a water spray and coating its back with water-resistant sunscreen lotion (ideally, factor 30). In the summer, an area for wallowing should be provided, as pigs use mud to cover their skin,



Pig showing an allergic response to the detergent used to wash its blankets



(A) Mange mite (*Sarcoptes scabiei* var *suis*). (B) Lice on the skin of a pig. (C) Pig louse (*Haematopinus suis*)



Mud wallows are generally greatly appreciated by the pig, particularly when temperatures are above 18°C

which can help to protect against sunburn. However, some pet pigs loathe wallows.

A variety of plants can lead to photosensitivity problems and cause severe 'sunburn' if ingested.

Insect bites

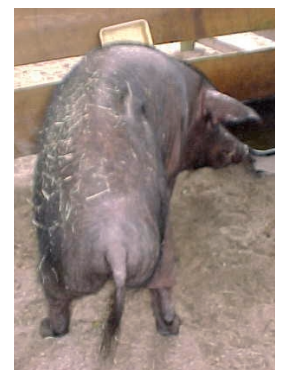
Biting flies and other insects can attack pigs, causing tender, raised lumps to appear on the skin. Washing the pig with a mild antiseptic solution will help to prevent the bites from becoming infected.

Allergies

Pigs may develop atopy. Typical allergies are associated with a contact agent (eg, soap powder or bedding). Affected pigs present with thickened, itchy skin, which does not respond to avermectin treatment. Removal of the allergen, if known, usually resolves the problem.



Severe skin sloughing due to photosensitisation



Alopecia in an elderly pig



Diamond-shaped lesions due to erysipelas on the back of a pet pig. Picture, Dr Kim Hun-Sup



Small skin tumour on the flank of a pig

Alopecia

Pigs have a genetic predisposition to hair loss. It is normal for them to lose their hair in the summer months and as they get older. Typically, the hair is lost along the back and over the rump.

Erysipelas

Erysipelothrix rhusiopathiae is present in the soil and exposure to this bacterium can cause sudden death in pigs. Erysipelas should be suspected if an animal suddenly becomes sick, has a high rectal temperature and walks stiffly. Characteristic diamond-shaped lesions may appear the following day in white areas or be felt on dark-skinned pigs. Erysipelas is responsive to penicillin or tylosin treatment. It is responsible for many arthritic conditions in this species and may also cause endocarditis. The owner should be made aware that this condition is zoonotic and should be advised to take appropriate precautions.

Skin tumours

A variety of skin tumours can occur in pigs. Small, fatty lumps on the skin are generally not significant, but black

pigs may develop melanomas, which may be significant and may require resection following biopsy.

'Dippity pig'

'Dippity pig' presents as an acute necrotising cellulitis of the skin, normally along the back. The condition commonly occurs in young pigs aged three to 10 months. There is no specific treatment for this condition, but bathing the animal with a medicated antiseptic shampoo and topical treatment with lidocaine gel smeared liberally over the affected area will provide temporary relief. An initial injection of lincomycin followed by oral lincomycin given for three days will assist skin healing, although the condition should self-heal within two to three days without any medication. The cause of 'dippity pig' is unclear.

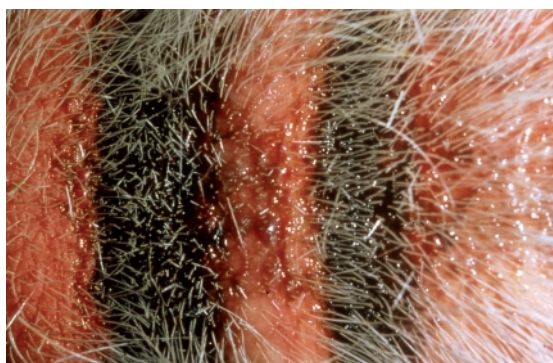
EYE PROBLEMS

Runny eyes may be due to inflammation of the lining of the snout, or irritation of the eye with bent or damaged eyelashes. In outdoor pigs, the condition may also be due to soil or sand in the eyes, but this can easily be rinsed out.

Many pigs that are overweight can be fat blind due to excess skin obscuring the eyes. This can cause serious eye damage due to entropion, particularly involving the upper eyelids, and should be considered as a welfare problem. Treatment may require surgery to remove the supraorbital fat pads.



**(above) Pig with 'dippity pig'.
(below) Close-up of the lesion.**
Pictures, Dr K. Smith



Pig with normal vision

LOCOMOTOR PROBLEMS



Fat blind, overweight pig



Pigs should be encouraged to look for their food



Overgrown lateral claw that has turned inwards. The supernumerary digits are also misshapen



Overgrown feet are a serious welfare problem in pet pigs



Feet should be regularly checked and pared. This can generally be accomplished in the conscious but cooperative patient, with the help of the owner. Rose trimmers and a Dremel sanding head can be used to reshape the foot



Pig with arthritis of the front left elbow, which was confirmed by radiography. Note the pig's reluctance to place any weight on its front feet. This case responded well to a strict diet and exercise regimen, combined with periodic anti-inflammatory treatments



(left) Pens with clean, dry straw but no abrasive surface are not ideal for maintaining the feet in good condition. (right) Pens should include a gravel exercise area that will help to wear the feet naturally



Possible medical treatment regimens

- Pain killers such as ibuprofen at a dose of 10 mg/kg bodyweight, two or three times a day may be useful to control the clinical signs of arthritis
- Other non-steroidal pain relief may be provided using:
 - Etodolac (10 to 15 mg/kg orally once a day)
 - Carprofen (2.2 mg/kg orally once a day)
 - Meloxicam (0.1 to 0.2 mg/kg orally once a day)
- Combined administration of glucosamine/chondroitin sulphate at an initial dose of 12 mg/kg glucosamine and 3.8 mg/kg chondroitin sulphate once daily for four weeks should be considered to aid joint function. This should be reduced to a maintenance dose of 4 mg/kg glucosamine and 1.3 mg/kg chondroitin sulphate per day for long-term support

NB Ibuprofen and etodolac are not licensed for use in pigs and should only be used under the prescribing cascade.

are given a small patch of pasture, they will have easily available natural food, so feeding should be limited only to 'treats' to prevent overeating.

Feet

Overgrown feet must be trimmed to prevent serious welfare problems. To maintain good feet, pigs should be encouraged to exercise regularly on gravel or concrete. Any breeding animal should have excellent feet conformation. Examination procedures practised by commercial pig breeding companies should be adopted (see further information).

Joints

Arthritis is not uncommon in older pigs and is made worse by wet, cold and unbedded concrete floors. Pigs with affected joints should be provided with dry, warm and comfortable bedding. Erysipelas is a major cause of chronic arthritis in the pig (see earlier). In pigs less than three years of age, falls can result in fractures along the growth plates.

NEUROLOGICAL PROBLEMS

Pigs can become injured during falls or fights with other pigs or pets. In a group situation, riding associated with the onset of oestrus is responsible for a number of injuries involving the back and spinal cord. A review of the pig's behaviour and locomotion, combined with a normal neurological work-up, is required to reach a diagnosis.

Meningitis

Meningitis is rare, but has been described in a few pet pigs. The condition is associated with *Streptococcus suis* type II, which is zoonotic. This organism is common on the tonsils of most pigs and may become bacteraemic and localise in the meninges if animals become stressed. Treatment with ceftiofur (3 mg/kg) will result in a swift resolution if the condition is caught early.

Behaviour

Entire male pigs can become aggressive and are not suitable as pets for children. In addition, they can exhibit other unacceptable behaviours, such as mounting, and can be malodorous. Entire females may also exhibit some aggressive behaviour, which is usually associ-

ated with the oestrous cycle. However, this can often be resolved by neutering.

Pigs can be very protective over their property and it is normal for them to snap and push at other pigs and humans, so owners should be warned to take care, particularly with children. In one internet survey of 222 pigs, 142 (64 per cent) 'snapped at, charged or had bitten a person' at some time, but only 68 (31 per cent) exhibited these behaviours frequently (Tynes and others 2005).

DIGESTIVE PROBLEMS

Diarrhoea

Diarrhoea can be a serious problem in young pigs and is often associated with *Escherichia coli*. In growing and adult pigs, diarrhoea occurs as a result of overfeeding or eating poor-quality feed (eg, mouldy feed).

Piglets should be weaned at five to eight weeks to encourage the normal development of gut flora. If diarrhoea is present in all piglets in a litter, rehydration and supportive therapy should be considered, which may include treatment with ceftiofur (3 mg/kg) or enrofloxacin (2.5 mg/kg). A rectal swab should be submitted to a diagnostic or practice laboratory for further examination; in particular, samples from animals under six weeks of age should be evaluated for the presence of *E coli* and *Salmonella* species. Note the use of enrofloxacin in pigs is illegal in some countries must not be used in pet pigs in these regions.

Teeth problems

A number of facial conformation problems can exist with overshot and undershot jaws. Poor alignment results in deformation and uneven wear of teeth. Pigs on pasture will often chew stones, which can damage their molar teeth. Only pigs with a normal facial conformation should be used for breeding.

Tusks, particularly in boars, continue to grow throughout a pig's life, and most animals (particularly mature boars) keep their tusks extremely sharp. Routine examination and trimming of tusks will therefore be required.

Careful examination of a pig's mouth often demonstrates a range of dental problems (eg, tartar build-up,



Tusks can be large and extremely sharp, and may require trimming from time to time



Routine dental treatment should be carried out to remove plaque and tartar

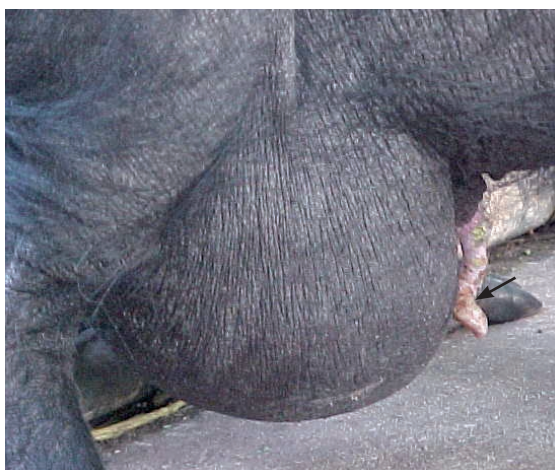
plaque, gingivitis, exposed roots, loose teeth and root abscesses). If anaesthesia is required for any reason, it is good practice to examine the pig's mouth as well and carry out any dental surgery/treatment, as required.

RESPIRATORY PROBLEMS

Pneumonia/bronchitis/septic pleurisy

Pigs that are subjected to cold draughts or rapid changes in environmental temperature, or allowed to sleep on damp, wet or cold floors can succumb to respiratory problems. Affected animals will have a high temperature. Tulathromycin (2.5 mg/kg) or ceftiofur (1 mg/kg) may be useful as a primary course of treatment.

If the pig presents with septic pleurisy, check the pig's feet and teeth for possible initial infection sites.



Pig with a large hernia. This pig also has paraphimosis (arrow)



Boar with bilateral cryptorchidism, which is rare

REPRODUCTIVE PROBLEMS

Scrotal hernia

The Vietnamese pot-bellied pig appears to be more susceptible to scrotal hernias than other breeds. This is a significant problem when castrating the male pig. Many scrotal hernias can be difficult to see and may only become apparent once the procedure has started. Other hernias can be very large and are difficult to repair.

Other male reproductive problems include cryptorchidism, which can be unilateral or bilateral, but the latter is rare.

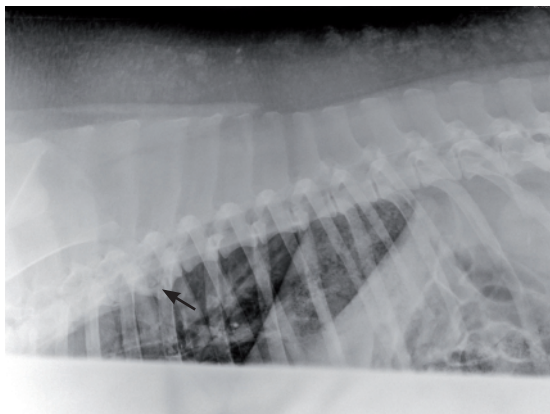
Owners who do not want to breed from their pet sows should have the animal neutered at between four to six months of age. If possible, boars should be castrated at seven days of age; otherwise, the procedure should be carried out under anaesthesia at four to six months of age.

GERIATRIC PROBLEMS

As pigs get older, they tend to suffer from a range of conditions that are often seen in older more traditional pets, and similar treatment regimens should be adopted. Locomotor problems associated with progressive arthritis are frequently seen. In such cases, weight loss should be encouraged to relieve ageing joints. Weight loss has also been found to be helpful in a number of pet pigs with diabetes. Tumours are becoming more commonly

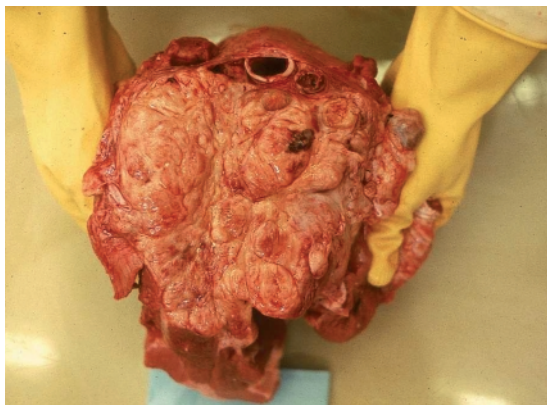


(above) Entire 10-year-old Vietnamese pot-bellied pig that presented with sudden-onset hindleg paresis. The animal was not eating, had great difficulty walking and was dragging its hindlegs. Clinical examination revealed no tone in the major muscle masses of either hindleg, although it was able to perceive reflexes and deep pain. Hyperflexion was present in both hindlegs, but was better in the right. Anal tone was normal, with the pig able to pass faeces and urinate, and the tail was functioning. The animal progressively adopted a lateral recumbent posture and was reluctant to sit up. (below) Radiological examination revealed a fracture of T5 (arrow), which, on postmortem examination, was found to be associated with an osteolytic lymphosarcoma. Pictures, Dr L. Nelson





Large ovarian tumour removed from a pet pig.
Picture, Dr S. Adsett



Tumour of the thyroid



(left) Pig with a large leiomyoma before surgery. (right) The tumour being removed. Pictures, Dr K. Mozzachio

seen in older pigs, especially in the reproductive tract. Leiomyoma of the uterus is frequently seen and must be suspected in any entire female pig over six weeks of age that presents with a distended abdomen. Surgery can be dramatic, but generally highly rewarding. In all older patients, dentition should be reviewed as loose teeth and oral diseases are common causes of poor appetite and loss of condition.

MISCELLANEOUS DISEASES

Porcine circovirus type 2

Pet pigs are frequently found to be positive for porcine circovirus type 2 (PCV-2). However, postweaning multisystemic wasting syndrome (PMWS) has not been described in pet pigs.

Zoonotic diseases

While there are a number of zoonotic diseases transmissible between pigs and humans (see box, above right), infection in humans is rare. There are also various bacteria (eg, *Brachyspira pilosicoli*) that can affect both humans and pigs, although a direct link has yet to be demonstrated.

Notifiable diseases

Some diseases can have extremely serious consequences, both in terms of an individual pig's health and the economics of the local pig industry. These include foot-and-mouth disease, classical swine fever, African swine fever, Aujeszky's disease (pseudorabies) and brucellosis.

If any of these diseases is suspected, practitioners should inform the local Divisional Veterinary Manager

Zoonotic diseases and pathogens

- | | |
|--|-------------------------------------|
| ■ Anthrax | ■ Nipah disease |
| ■ Brucellosis | ■ Pasteurellosis |
| ■ <i>Campylobacter jejuni</i> | ■ Rabies |
| ■ Chagas' disease (<i>Trypanosoma cruzi</i>) | ■ Ringworm |
| ■ <i>Chlamydia</i> species | ■ Salmonellosis |
| ■ <i>Clostridium perfringens</i> type A | ■ <i>Streptococcus suis</i> type II |
| ■ Erysipelas | ■ Swine influenza |
| ■ <i>Escherichia coli</i> | ■ <i>Taenia solium</i> |
| ■ Hepatitis E virus | ■ Toxoplasmosis |
| ■ Japanese B encephalitis | ■ <i>Trichinella spiralis</i> |
| ■ Louping ill | ■ Tuberculosis |
| ■ Leptospirosis | ■ Vesicular disease |
| | ■ <i>Yersinia enterocolitica</i> |

and check with local government veterinarians whether any particular tests are necessary before allowing clients to transport their pet pigs.

Further information

- www.defra.gov.uk/animalh/id-move/registering.htm
- www.portec.com.au
- www.merckvetmanual.com

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Further reading

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