

Common Diseases of Pet Pigs

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Introduction

This session will cover a variety of common disease conditions encountered in miniature pig practice. Some of these conditions are analogous to those of other small animals but some are quite unique to pigs. Remember, as discussed in a prior session pigs are considered “major species” food animals so medication use must conform to AMDUCA regulations (see the Introduction to Miniature Pig Practice section notes for more information on this).

Obesity

Obesity is most certainly one of the most common issues encountered in the mini pig population. Miniature pigs are quite easy to put weight on and even more difficult to remove excess weight from. In many cases the diet selected is to blame- it is not uncommon to find owners feeding hog grower or even dog food to their pig. Obesity can result in a variety of medical conditions. Fat blindness occurs when the facial fat becomes excessive to the point at which the brow droops over the eyes limiting or completely restricting vision. The incidence of intervertebral disc disease is subjectively higher in overweight patients. Much like a Dachshund, pigs have long backs and their large, obese bellies must put much strain on their spine and associates discs. Arthritis can also be exacerbated as overweight pigs have much more strain placed on their joints. Primary diet aside, mini pig owners are often guilty of feeding large amounts of treats (fruits, cheerios, veggies, dog biscuits, etc.) that add significant calories to the pig’s diet. If owners are feeding a recommended diet and the pig is still overweight be sure to question just how many treats the pig eats. Make sure owners include that fed by other family members and neighbors. In one case of an obese pig it was discovered that the neighbors were throwing watermelons over the fence for the pig to eat.

Dry Skin

In almost all cases dry, flaky skin (in non-pruritic pigs) seems to be more of an owner concern than a patient concern. Various resources recommend owners apply coconut and other types of oil to the pig. We have found this mostly results in a greasy pig. We have had some success with dietary omega fatty acid supplementation. Again, the pigs don’t seem to care about this nearly as much as their owners do.

Erythema Multiforme

More commonly known as “Dippity Pig Disease” this condition most frequently affects young pigs in the springtime, however it can be seen year round. The most common presentation is a pig that goes from completely fine to suddenly intermittently falling down (“dipping”) in the hindquarters often vocalizing as if painful in the process. Some pigs will also walk a few steps backwards before collapsing in the hind. Typically, the pig “dips”, vocalizes, then continues walking forward as if normal. In some cases red, weeping lesions are noted on the skin of the mid to caudal dorsum. It seems the pain of the condition causes the pig to “dip” as if trying to avoid a painful stimulus in the rump area. The exact underlying cause remains unknown though there have been theories including staph infections or a herpesvirus as the culprit. In

most cases treatment consists of keeping the pig in a quiet, stress-free area for 24 hours by which time signs have typically resolved. Some cases may take 2-3 days to resolve but these are rare in our experience. Pigs that are significantly painful may benefit from pain relief (typically an NSAID or tramadol). Those with weeping skin lesions are usually put on an appropriate antibiotic.

Erysipelothrix rhusiopathiae

E. rhusiopathiae, also known as diamond skin disease, is a gram-positive bacterium that colonizes the tonsil region. The organism is spread by carriers (often apparently healthy) through feces or respiratory/oral secretions. It can also be found in the soil in some regions. Clinical signs include high fever, going off feed, unwillingness to stand, lameness (often shifting leg), and skin lesions (areas of purple discoloration, erythema). Diamond-shaped skin lesions are a pathognomonic when found but are not always present. This organism is very sensitive to penicillin, ampicillin, and third-generation cephalosporins (but remember AMDUCA rules). We recommend treatment with injectable penicillin G procaine. If the owner is having trouble giving the injections we will switch to an oral antibiotic after the third day of injectable treatment. Fever can be controlled with NSAIDs like flunixin meglumine, carprofen, or ketoprofen. A vaccine is available and is routinely used in our practice. This disease does have some zoonotic potential.

Parasitism

Internal parasitism

In general we see very few GI parasites in (at least our) pet pig population. We recommend fecal ova and parasite testing bi-yearly. Less than 5-10% of these routine samples come back positive. By far, those that are positive contain *Ascaris suum* (a roundworm). As with most parasites those pigs that are positive have often come from sale barns or poorly managed breeding facilities. Infected pigs are usually asymptomatic. Treatment is easily accomplished with an avermectin or benzimidazole. Many breeders insist owners prophylactically treat with parasiticides, often monthly. We do NOT recommend this- overuse of parasiticides is an invitation for resistant parasites and just isn't necessary in most cases. Ingestion by a human can result in a transient infection so this does have some zoonotic potential.

External parasitism

Mange

The absolute most common external parasite of pet pigs is mange. Pigs can get both sarcoptes and demodex but we most commonly (almost always) see sarcoptes. Many of the cases are in pigs less than 6 months that were recently brought home and have begun to itch. Pigs of any age can be affected; those with mange are extremely pruritic and lesions are usually most pronounced on the limbs. The pig scratches incessantly to the point where bleeding lesions are common. Left untreated the entire body can be affected and chronic cases have significantly thickened, irritated skin. The parasite can be identified via microscopic examination of a skin scraping. We routinely see positive skin scrapings in heavily infested animals but do occasionally not see them (if the pig's clinical signs fit sarcoptic mange we treat regardless of the skin scraping findings). Pigs are infected after contact with a carrier pig or through contact with bedding, etc. that has been exposed to a carrier. This parasite can be zoonotic as well and owners living with heavily infested pigs in contaminated

environments can also be affected. Owners should be made aware of the zoonotic potential. Since this is a species-specific organism affected humans are dead-end hosts. Typically we treat with an injectable avermectin (ivermectin or doramectin) at weekly intervals until the signs have resolved. Topical FDA-approved products are forbidden for off-label use in major food animal species so they should be avoided. It is imperative that owners clean the environment during the treatment period. If bedding, blankets, carpeting in pig-accessible areas, etc. are not decontaminated it will be very difficult to resolve the problem. We infrequently find the need to treat severe cases with anti-pruritic medications such as dexamethasone or prednisolone.

Ticks

We do see cases of tick infestations on pet pigs. The most reliable solution has proven to be treating them with fipronil spray during the season where problems present themselves.

Fleas

We have not had a case in which fleas have adversely affected a pet pig.

Lice

Hematopinus suis is a species-specific louse that can affect pigs. We do not generally see this parasite on pet pigs as much as in local small herds. They are large enough to be seen with the naked eye. Treatment is the same as used for mange.

Sun Sensitivity

This is most common in white-skinned pigs. All outdoor pigs should have a shady area available to get out of direct sunlight. Some pigs will lay out in the sun even if shade is available. If your pig is going to be spending an extended time exposed to sunlight (by their choice or yours) application of sunscreen is recommended.

Environmental Exposure

In keeping with the sun exposure theme pigs are susceptible to overheating. Pigs do not sweat and thus have less ability to dissipate heat than some other domestic species. On the other hand, hypothermia can also be an issue. Pigs that are down during the colder months (i.e. lateral on the cold ground) lose body temperature quickly. They have little insulation (i.e. hair) but a large amount of body fat. It seems as though once that thick fat layer is chilled they're very difficult to warm back up effectively. Treatment with warm blankets, passive warming devices (Bair Hugger, etc.), and warm intravenous fluids has provided the best chance for resuscitation in our experience.

Dehydration/Constipation

We frequently see "ADR" pigs that are not eating/drinking. In many cases owners report very firm feces or no feces at all. TPR of these animals often proves to be normal. Abdominal radiographs are used to rule out GI obstruction or gastric foreign bodies. Many times these cases occur during the colder months. Pigs don't seem to like drinking very cold water and those that are housed outside appear to decrease their water intake either because their water is very cold or even frozen. Digital rectal examination usually reveals many small, firm fecal balls. Most of these cases respond quite well to IV fluids +/- enema administration (DSS in water, mineral oil in water, or over-the-counter Fleet enemas). Pigs seem to love Gatorade (especially Fierce Melon flavor) as well as fruit juice and these can be used to increase fluid intake.

Diarrhea

This is most commonly a disorder of very young pigs. Causes include coccidiosis, E. coli, Salmonella. Salmonella is the most concerning in its zoonotic potential. Young pigs with diarrhea often require intensive treatment with IV fluids, glucose supplementation, temperature support, and antibiotic therapy. Recumbent baby pigs with diarrhea are very difficult cases which often require multiple days of hospitalization. Unfortunately owners generally elect to take these patients home once they start to look better (cost concerns) and we've found that at-home care isn't effective enough at that stage. Most very sick young pigs in this state have a poor to guarded (at best) prognosis without intensive therapy.

Dental Disease

Dental disease is an often overlooked problem in pot-bellied pigs. Dental examination is not an easy task as pigs do not typically appreciate this. Holding a treat over the pig's nose is the easiest way to get them to open their mouth to facilitate a passive oral examination. We routinely see pigs that are only a few years old that have molars completely obscured by tartar. In older pigs (8+ years) we frequently see loose and missing teeth. We recommend dental scaling/polishing for pigs that have obvious tartar accumulation and find that this helps prevent severe dental disease later in life. Pigs do seem to accumulate tartar faster than their small animal counterparts. Tusk abscesses can form in males; these can be difficult to treat without surgical intervention (debriding of the abscess or extraction of the tusk, a very difficult task).

Respiratory disease

Lower Airway

Many of the pneumonia cases we see are in young pigs, especially those that were recently shipped or otherwise stressed. Owners usually report the piglet is suddenly not eating. On exam, high temperatures (>104F), increased lung sounds, varying levels of respiratory distress, and changes consistent with pneumonia on thoracic radiographs are noted. Common causative agents include Mycoplasma hyopneumoniae, Pasteurella multocida, and Actinobacillus pleuropneumoniae. Treatment with tulathromycin (Draxxin, Zoetis) has proven to be the most effective in our practice for most of these cases. One case in a young pig with severe lung consolidation and marked respiratory distress was treated with nebulized ceftiofur with excellent results. NSAID therapy usually returns normal appetite within a few hours.

Upper Airway

Epistaxis, sneezing, tearing, and deformity of the snout are characteristic atrophic rhinitis which is common in young production pigs. We do not see many cases in pot-bellied pigs. Causative agents include Pasteurella multocida and Bordetella bronchiseptica. Cephalosporins, oxytetracycline, and tylosin are reasonable choices for treatment. Vaccines are available.

"Penis stuck out"

Perhaps not the most eloquent medical description, but that's what you'll hear from owners. Young intact male pigs love to show off and will frequently extend their penis and keep it out for longer-than-expected periods of time (normal behavior). If the pig is young and intact and the penis appears moist and healthy this likely isn't a big concern. Pigs do sometimes get hair,

etc. wrapped around their penis. In these cases the penis often protrudes but also appears swollen, discolored, or otherwise abnormal. These cases require further evaluation (usually under anesthesia).

Trauma

Most trauma cases in our practice are related to dog attacks. Even pigs that have lived with the same dog for many years can experience this and we caution clients against keeping their pigs with their dogs unsupervised. Many cases involve attacks by dogs unknown to the pig. These dogs may get into the yard, the pig's enclosure, or encounter the pig while out on a walk. Dogs seem to go for the pig's ears most frequently and many pigs have had to have their ear or ears amputated post-dog attack. Wounds to the dorsal neck are also common. These are repaired similar to other species. Most areas of the pig's skin are far too thick to use skin staples so monofilament suture on a sturdy reverse cutting needle is used. The second most common form of trauma is secondary to falls. Pigs fall down steps, jump off beds, etc. Fractures aren't common, but those that do occur usually need to be repaired primarily (plates, pins, etc.) as stubby pig legs are difficult to stabilize externally. Most limping pigs we see post-trauma have unremarkable radiographs and their signs resolve after a few days of NSAIDs and rest.

Arthritis

Arthritis is a common finding in older pigs. The presentation is similar to that in other small animal species. Pigs may be reluctant to get up, move around, or exercise as usual. Some with carpal arthritis will walk on their knees. Those with affected hindlimbs may walk with them further forward than normal. Arthritis is far more common in overweight pigs and those that are overweight should be dieted. Aside from weight loss, our first-line treatment is polysulfated glucosaminoglycan (Adequan, Novartis) dosed at 1ml per 50lbs body weight IM twice weekly for four weeks then once monthly. If the pig is not significantly improved after the first month of treatment NSAIDs, usually carprofen, are employed. Tramadol and gabapentin can also be used if needed. Pigs do not appreciate the taste of tramadol and are a bit more difficult to medicate than the average dog.

IVDD

Obese pigs that cannot stand on their hindlimbs are highly suspicious for paralysis related to intervertebral disc disease. Evaluation of these patients is similar to dogs with this condition. Typically these overweight pigs are sedentary and owners don't realize there is a problem until they are completely unable to rise. Arthritis should be ruled out as a cause. Treatment with steroids and rest is usually unrewarding at this juncture. Those without superficial or deep pain have a grave prognosis. Finding a surgeon willing and able to perform surgical correction is difficult enough, but the post-surgical rehabilitation process in these patients is equally as difficult. We have not had an owner in our practice willing to pursue surgical intervention to date.

Seizures

Seizures are most common in young pigs (>12 months of age) and often do not have an identifiable cause. In very young pigs these can be secondary to hypoglycemia. The frequency of seizure episodes is very variable; some pigs have one seizure and don't ever

have another and others are frequent enough to require treatment. If seizures occur more than once every two weeks treatment with phenobarbital may be necessary. If there is concern for seizures of extended duration rectal valium can be provided to clients at the discretion of the veterinarian. In an adult pig with no past seizure history salt toxicity should be ruled out.

Salt Toxicity

Pigs are the species most sensitive to this condition. Contrary to the name this condition results most frequently from extended periods of water restriction versus increased salt intake. Neurological signs such as seizures, blindness, deafness, unresponsiveness, and lateral recumbency/paddling result. Serum sodium concentrations $>160\text{mEq/dL}$ are diagnostic. A serum sodium less than that of the CSF is most diagnostic but in reality this is not likely to be measured. **Gradual** rehydration is the staple of treatment. If the animal is able to drink this can be done orally but unlimited free-access to water is problematic. Intravenous fluid use must also be tempered. Some sources suggest starting with slightly hypertonic IV fluids and gradually stepping down to isotonic fluid. Rapid rehydration can result in significant (and deadly) cerebral edema. Mannitol, dexamethasone, and DMSO have been employed to help animals with cerebral edema. Severe cases have a poor prognosis even with treatment.

Psychogenic polydipsia

This condition usually presents in young pigs. Pigs drink excessive amounts of water, sometimes to the point where you can actually see their abdominal profile enlarging. Owners usually say the pig eats a little, drinks, eats a little, drinks. Pigs seem obsessed with drinking and will finish as much water as is placed in front of them. We don't typically recommend restricting water- this can lead to salt toxicity- and pigs don't seem to be adversely affected by drinking so much. We do often recommend the water and food bowls be separated. When they're in different rooms the pig generally doesn't go to the effort to run back and forth to eat then drink repeatedly. Urinary issues (UTI, urinary stones, cystitis, kidney dysfunction, etc.) should be ruled out. If there isn't an underlying cause most young pigs outgrow this behavior.

Leptospirosis

Pigs can become infected with various strains though exposure to the urine of affected animals. The typical canine and cattle strains can affect pigs transiently but do not typically result in clinical disease. This is a major pathogen in swine production herds as abortion is a consequence of chronic infection. Acute infection can result in fever, lethargy, and depression. This is an important zoonotic pathogen. This is not a common pathogen in the mini pig patients seen at our practice. A vaccine is available.

Urinary Stones

Urolithiasis is not an uncommon finding in pigs. Yearly urinalysis is recommended to address these cases before they become a problem. In a 2013 retrospective study of pot-bellied pig stones submitted to the urolith lab at UC Davis the majority of the stones analyzed were found to be struvite-type stones. Predisposing factors likely include diet and seems to be less frequent in pot bellies eating commercial mini-pig diets. Many cases were seen concurrent with urinary tract infections. Males are overrepresented, but this is likely due to the fact that female pigs can remain asymptomatic as they can pass larger uroliths that would cause a male

to obstruct. If an obstruction is suspected this is an emergency. Surgical intervention is described in the Anesthesia and Surgery section of these notes.

Urinary Tract Infection

Primary urinary tract infections are not particularly common. The majority we see are secondary to urolithiasis. It is important to obtain a urinalysis and ideally a culture as well. Treating with antibiotics without ensuring the patient does not also have urinary stones will be temporarily helpful at best.

References

- 1) The Merck Veterinary Manual, Eleventh Edition (2016).
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- 3) Chigerwe, Munashe, Ryoji Shiraki, Erik C. Olstad, John A. Angelos, Annette L. Ruby, and Jodi L. Westropp. "Mineral Composition of Urinary Calculi from Potbellied Pigs with Urolithiasis: 50 Cases (1982–2012)." *Journal of the American Veterinary Medical Association* 243.3 (2013): 389-93.