Non-Neoplastic Anal Sac Disease: How to Help Patients Who Scoot, Lick, Leak, or Smell

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Non-neoplastic anal sac conditions are commonly seen in small animal practice. These proceedings will help the general practitioner update their knowledge and approach to these cases.

Definitions

Anal sacs are paired cutaneous invaginations that are located between the smooth internal and striated external anal sphincter muscles at the anal-cutaneous junction. They are modified adnexal skin structures lined by keratinized, stratified epithelium. These structures serve as reservoirs for tubular apocrine glands opening into the epithelium's keratinized portion. Most of these glands are apocrine in the dog, but some sebaceous glands are also in the ductal region. You will recall that apocrine glands are a type of exocrine gland that bleb and release their material through a duct.

Often the term "anal glands" is used to refer to these structures. This is technically incorrect, and the term "anal sacs" is preferred. The anal sac *contains* glands.

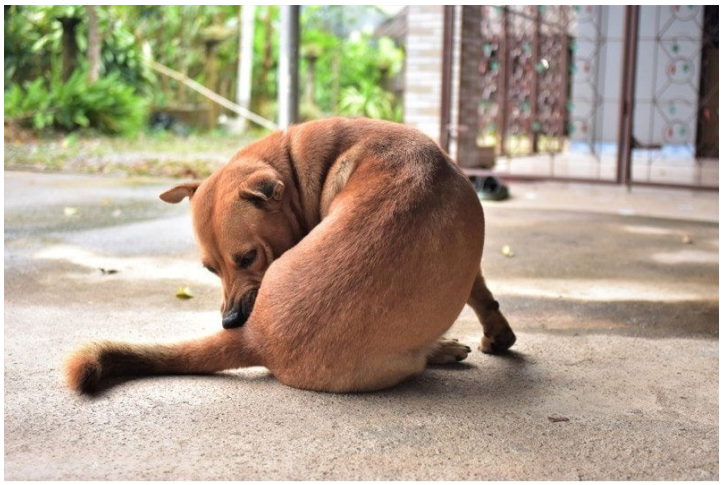
The contents of the anal sac will typically be a mixture of secretions of both apocrine and sebaceous glands, desquamated epithelial cells, and bacteria. Consistency and color will vary significantly between individuals. All variations in color, consistency, and smell are considered variations of normal and should not be exclusively used to make a diagnosis of an anal gland disorder.

Cats, luckily, appear to have a more even distribution of sebaceous and apocrine glands within their anal sacs. They also have a more lateral location of their ductal opening. Together, these two findings could explain why there appears to be a lower incidence of feline anal sac disease and inflammation.

The anal sac duct is located near the inner cutaneous zone of the anus on the lateral anal margin. If considering a clock face, the anal sac ducts would be located around the 4 o'clock and 8 o'clock time points.

Pathophysiology

Non-neoplastic anal sac disease represents a continuum of conditions affecting the anal sacs. The differentiation between impaction, sacculitis, and abscessation is not clearly defined. Anal sac impaction refers to an overfilling of the anal sac whereby there is retention of anal sac contents. Inflammation is variably found, and pain and discomfort are likely. Anal sacculitis refers to inflammation of the anal sac and ductal lining. Abscessation occurs when the walls of the anal sac are compromised due to secondary infection, leading to localized cellulitis and/or draining tracts. It is estimated that between 4.4 to 15.7% of patients seeking primary veterinary care present with non-neoplastic anal sac disorders depending on the study referenced.



The pathophysiology of non-neoplastic anal sac disease is poorly understood. Many factors can influence normal anal sac function, including changes in stool consistency, decrease in activity level, dietary fiber levels change, pudendal nerve dysfunction, external anal sphincter dysfunction, obese body condition development, inflammatory bowel diseases, endoparasitism, foreign body, atopic and seborrheic conditions.

What is most important to understand about non-neoplastic anal sac conditions is that they are nearly always secondary to an underlying condition. Only occasionally are these conditions idiopathic.

Making the Diagnosis and Differentials

It is important for the small animal practitioner to be able to recognize the clinical signs associated with non-neoplastic anal sac disease. Often, these clinical signs are associated with or caused by the pain/irritation from distention of the anal sacs and/or irritation secondary to inflammation and/or infection.

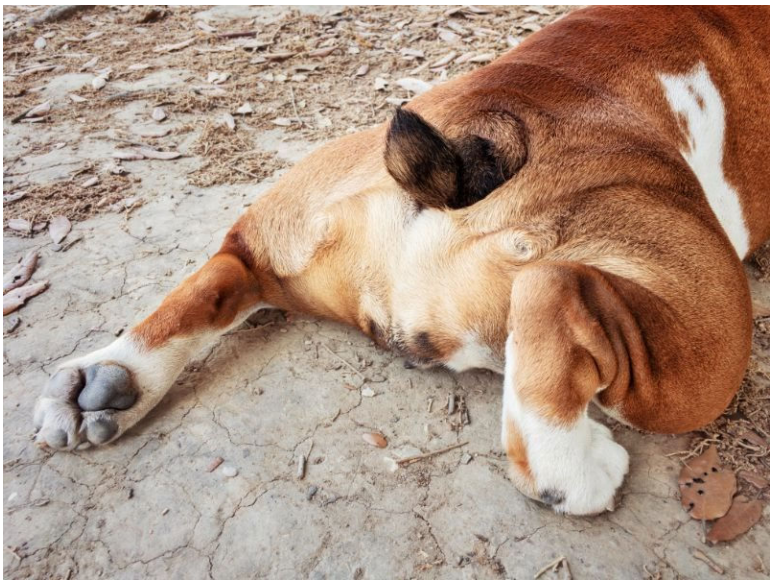
The signalment of your patient is not necessarily going to help you determine if your patient has non-neoplastic anal sac disease. It is possible that there is some breed predisposition toward German Shepherds, Labrador Retrievers, brachycephalic dogs, and several small-breed dogs. Overweight dogs are not necessarily predisposed. And middle-aged dogs tend to be over-represented.

Common clinical signs seen by the clinician and/or described by pet owners of dogs (or cats) with non-neoplastic anal sac disease include scooting, discomfort when sitting down, licking or biting the perianal region, tail base involvement, tail chasing, tenesmus, perianal discharge, redness of the tail area, discoloration of the anus, lichenification of the anus, salivary staining of the tail area, moist dermatitis of the perianal region or tail base, using their back to rub against objects.

Interestingly, dogs who do *not* have anal sac disease will likely *not* have a history of anal gland expression. If this is noted in your patient's history, it is important to consider that non-neoplastic anal sac disease could be at play. Anal sac expression typically relieves dogs of their clinical signs from anal sac disease for only three weeks. It is very common to hear this story in general practice. It is suggested that practitioners should pay greater attention to these patients to offer them a more effective long-term solution for their non-neoplastic anal sac disease over routine expression.

The value of cytology for diagnosis of non-neoplastic anal sac disease has been reviewed in various peer-reviewed studies. At this time, it is agreed upon that there are no clinically statistically significant cytological differences between normal dogs and those with non-neoplastic anal sac disease. Therefore, cytology is an ineffective tool for diagnosing impaction and/or sacculitis. For abscessation, the nature of secondary infection is often mixed given the location, and therefore, the value of cytology in helping guide antimicrobial selection is limited. Similarly, a culture of the anal sac contents is largely unnecessary except in cases of abscessation with secondarily infected cellulitis. No differences were noted in Pappalardo et al. (2002) in bacterial species isolated between normal dogs and dogs with pyoderma.

Dogs with non-neoplastic anal sac disease will often have a comorbidity that makes them more likely to develop sacculitis, impaction, and/or abscessation. The most common comorbidity associated with non-neoplastic anal sac disease is atopic disease (canine atopic dermatitis, adverse food reaction, etc). Perianal pruritus was seen in 52% of dogs with canine atopic dermatitis and 50% with adverse food reactions (Maina, 2014). Similarly, the frequency of perianal pruritus in dogs with atopic disease is higher than in dogs with any other diagnosis (Maina, 2014).



Your physical examination should include a thorough evaluation of the perianal region for alopecia, erythema, excoriation, lichenification, and hyperpigmentation.

When observed, anal sac disease should be described as a separate clinical entity that deserves a specific intervention clinically, depending on the severity of clinical signs and disease. This will help ensure that the patient is treated appropriately for *all* of their clinical problems associated with their allergy.

Differential diagnoses for non-neoplastic anal sac disease include but are not limited to, vulvar dermatitis, vaginitis, urinary tract infection, flea allergy dermatitis, perianal tumor, perianal fistulae, tail fold pyoderma/intertrigo, endoparasitism, perianal hernia, perianal gland hyperplasia, rectal foreign body, stricture, prolapse, trauma, etc. It is essential to rule out vulvar and/or urinary disorders in female dogs who are exhibiting typical clinical signs of anal sac disease (scooting, etc).

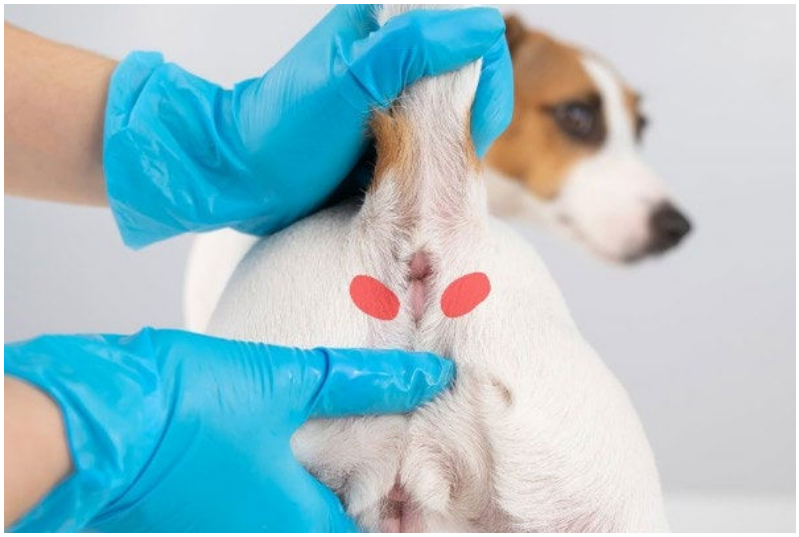
Perianal fistulae are an important differential for anal sac abscess/impaction/sacculitis, particularly when draining tracts are noted. You will recall that perianal fistulae development occurs due to an immune-mediated process directed at the perianal tissue. This leads to chronic, multifocal fistulae development within the anal tissue, which often extends to the perianal skin. A key distinction is the involvement of the actual anal tissue, not just the skin of the perineum. However, anal sac rupture, cellulitis, and draining tract can mimic the clinical signs associated with perianal fistulae. Being aware that breed predisposition is often seen, about 80% of cases are seen in German Shepherd dogs that are young to middle-aged. However, this should not be the sole determinant for this diagnosis as you could see a case of sacculitis in a young German Shepherd that is not true perianal fistulae. A fistulogram or CT scan may help determine whether or not a draining tract is associated with the anal sac or some other perineal location. Regardless, both diseases are associated with inflammation. It can be challenging and complicated to

determine if the clinical signs seen are being caused by inflammation from a defective anal sac that is chronically inflamed or a formal disease process that is leading to fistulae and furunculosis. Care should be taken to avoid a swift diagnosis in these more complex cases. Referral to a dermatologist for care is recommended.

Treatment Options

Several treatment options are described, but most offer minimal, lasting improvement unless the underlying disease is well-controlled. It is important always to bear this in mind when proceeding with your treatment plan for non-neoplastic anal sac disease (i.e., treat the allergies, too!).

Anal gland expression can be helpful. However, it is important to remember that this often will not provide lasting resolution of clinical signs. Most dogs will have remission of their clinical signs for up to three to four weeks, and then the cycle starts again. We should be open-minded to other treatment options for these patients.



Dietary fiber can help bulk stool, which could help improve glandular emptying during defection. There are commercially available supplements available which claim to help dogs with anal sac disease by providing an anti-inflammatory dose of omega-3 fatty acids and fiber.

A diagnostic diet trial could be indicated for some patients if adverse food reaction is suspected as the underlying primary cause of your patient's clinical signs. Remember that the diagnostic diet trial is the only diagnostic test to determine what percentage of your patient's allergic disease is caused by food. Serology, hair, and saliva tests for food allergens are inaccurate and should not be utilized.

Anal sac lavage and infusion is an effective treatment option for dogs with non-neoplastic anal sac disease. This procedure helps to reduce inflammation and secondary infection within the anal sac, thereby preventing recurrence of the clinical signs associated with non-neoplastic anal sac disease. Ideally, this is performed as a sedated procedure. However, some clinicians successfully perform this procedure without sedation in standing dogs.

Equipment needed will include:

- gloves
- lubricant
- 20g short IV catheters and/or a Tom Cat catheter (3.5 French x 5.5")
- syringes with sterile saline x 2
- syringe with 3mL of commercially available steroid/antibiotic/antifungal ointment.\

1. The patient is placed in lateral recumbency. The dorsal duct should be worked on for ease of manipulation. The sac is first manually identified, and its contents are emptied. You can describe the contents and/or decide if you would like to perform cytology and/or culture (personal preference, not clinically necessary for treatment at this time).
2. The anal sac duct is identified, and a lubricated catheter tip is gently threaded into the ductal opening. This often requires gentle pressure, wiggles, forward motion, and patience. The author suggests envisioning the anatomy to help ensure the catheter follows the duct path. Never force the catheter tip through the duct. This could lead to accidental ductal rupture and further complications for your patient.
3. Next, you will attach a 3-6mL syringe with sterile saline to your catheter tip and gently pulse/flush the anal sac.
4. After this is clear, attach a 3-mL syringe with your antibiotic/steroid/antifungal ointment (Claro, Mometamax, etc) and gently infuse this into the sac. Most sacs will take about 1-2 mL total.
5. Stop infusion when the medication runs out of the duct into the anus. You can then gently appreciate the anal sac to be full.
6. Flip the patient and repeat! It is recommended to do both sides, even if one side has been problematic historically.

Troubleshooting notes:

- If the patient is defecating, let them! Do not try to thread your catheter while they are defecating.
- Sedation really helps – if they are only lightly sedated, and resisting this, consider deeper sedation to help reduce anal tone and sphincter reactivity.
- This is a procedure that requires patience! If you aren't getting one side, flip the patient and try the other.

This procedure can be repeated as needed. In some cases, it should be repeated in two weeks. (But, to date, this is not something the author has had to do in her practice.)

Home care is minimal; some leakage is expected for 24 to 48 hours. But, most dogs are far more comfortable nearly immediately following the procedure. A reduction in clinical signs should be appreciated at home within one to two days.

The majority of non-neoplastic anal sac cases are not secondarily infected. This is an *inflammatory* problem. We should not routinely prescribe antibiotics for these cases unless there is evidence of abscessation. If you feel compelled to treat secondary infection, using an aerobic culture to guide your selection is best. However, the local treatment by infusion has improved the resolution of these cases and helped us achieve our antimicrobial stewardship goals.

Surgical intervention can be considered after infusion, and medical management for relevant comorbidities can be utilized. Before this, surgical intervention could be premature and unnecessary.

Conclusions

With improved knowledge and commitment, we can improve the lives of our patients who are suffering from non-neoplastic anal sac disease. Infusion procedures should be considered in cases where clinical signs are chronic. It is important to work up the comorbidity of allergic disease, frequently seen in these patients.

References

- Pappalardo, E, et al (2002). Macroscopic, cytological, and bacteriological evaluation of anal sac content in normal dogs and in dogs with selected dermatological diseases. VetDerm 2002. 13: 315-322.
- James, Danielle, et al (2010). Comparison of anal sac cytological findings and behavior in clinically normal dogs and those affected with anal sac disease. VetDerm 2010. 22: 80-87.
- Maina, E, et al (2014). Perianal pruritus in dogs with skin disease. VetDerm 2014. 25: 204-e52.
- Stetina, Kacie, et al (2015). Owner assessment of pruritus and gastrointestinal signs in apparently healthy dogs with no history of cutaneous or noncutaneous disease. VetDerm 2015. 26: 246-e54.
- Lundberg, Annette, et al. (2022). Local treatment for canine anal sacculitis: A retrospective study of 33 dogs. VetDerm 2022. 33: 426-434.
- Hvitman-Graflund, Katinka, et al (2023). A retrospective study of treatment, outcome, recurrence and concurrent diseases in 190 dogs with anal sacculitis. VetDerm 2023. 34: 576-585.
- O'Neill, Dan, et al. (2020). Non-neoplastic anal sac disorders in UK dogs: epidemiology and management aspects of a research-neglected syndrome. VetRecord 2