

RAPID RESPONSE

Perianal fistulas can be severely debilitating; however, most dogs respond well to therapy if started in a timely fashion.

INSIGHTS IN DERMATOLOGY

Perianal Fistulas in Dogs

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Perianal fistulas, also known as anal furunculosis, can be severely debilitating in dogs. If not treated appropriately and in a timely manner, they can progress to irreversible changes to the rectum and anus, and in some cases, ultimately lead to euthanasia.

PATHOGENESIS

A variety of studies have sought to identify the exact pathogenesis of perianal fistulas, but they have not been successful. Because incidence is high among German shepherd dogs, a genetic link was suspected, but a genetic marker has not been identified to date.¹ Low tail carriage was also believed to be a predisposing factor, but that has also been disproven as other breeds are affected and tail amputation is not successful as a treatment.² More recently, research points to an immune-mediated pathogenesis.³⁻⁵

SIGNALMENT

As with most immune-mediated diseases, age of onset is usually young adult to middle-aged; most patients are 2 to 9 years of age.^{2,6,7} Although most cases are in German shepherd dogs, any breed can be affected. Other breeds in which the author has diagnosed this disease include but are not limited to Shih Tzu, Pembroke Welsh corgis, boxers, Labrador retrievers,

and mixed breed dogs. There has not been a consistent finding with regard to sex and spay/neuter status.^{2,6,7}

CLINICAL SIGNS

Clients most commonly report tenesmus, hematochezia, dyschezia, frequent small volumes of feces, perianal licking, and purulent discharge (**BOX 1**).^{2,6,7} A thorough examination of the rectum and anus will reveal mild (**FIGURE 1**) to severe (**FIGURE 2**) sinuses, draining tracts, and ulcerations surrounding the anus. These lesions do not usually communicate with the rectal lumen.

DIAGNOSIS

Differential diagnoses vary greatly, depending on the presenting clinical signs. If the only signs noted are perianal pruritus, then other differentials include allergic dermatitis (atopic dermatitis and adverse food reaction) and anal sac abscess. If the patient has tenesmus and hematochezia only (no draining tracts or visible fistulas), the primary differentials become gastrointestinal conditions (e.g., inflammatory bowel disease, intestinal parasites, rectal strictures). If concurrent diseases are not addressed, treatment of the perianal fistula will not resolve all clinical signs.



As mentioned previously, a thorough rectal examination should be performed to identify any other associated abnormalities in the region. Because of the pain and discomfort of this disease, some patients may require sedation before they can tolerate a full rectal examination. Probing the draining tracts with a cotton-tipped applicator or something similar can help determine the depth of the draining tracts. Clinical improvement can be monitored by measuring the depths of these tracts. Depending on disease severity and duration, rectal examination can reveal no abnormal findings internally or severe fibrosis. The fibrosis can be identified as thickening of the perianal region with the possibility of anal strictures. For all of these patients, thorough palpation and expression of the anal sacs should be performed, which help rule out an anal gland abscess and determine whether the perianal fistula(s) communicate with the anal sac. In addition, the draining tracts can be flushed by using a tomcat catheter and sterile saline to determine whether the tracts are communicating with each other or if there is involvement with the anal sac.

If the patient is a German shepherd, a perianal fistula is most often diagnosed on the basis of clinical presentation and physical examination alone. If the dog is another breed, other causes based on clinical signs should be ruled out first. For example, for a Shih Tzu with purulent anal discharge and intracellular cocci seen with cytology, the proper first step would be

BOX 1 Clinical Signs Associated with Perianal Fistula

- Tenesmus
- Hematochezia
- Constipation
- Mucopurulent discharge
- Coprophagia
- Anorexia
- Dyschezia
- Diarrhea
- Fecal incontinence
- Weight loss
- Lethargy

treating the infection to see if the draining tract resolves. Taking a biopsy sample of the draining tract can help detect other causes (e.g., cancer, allergies, foreign body) and obtain a definitive diagnosis. However, although biopsy is the best way to confirm a diagnosis, it is rarely performed due to the potential complications, similar to the complications of surgery discussed below.

TREATMENT AND MANAGEMENT

Timely diagnosis and institution of appropriate therapy are critical. Lack of or unsuccessful treatment for any length of time carries the potential for formation of



FIGURE 1. Mild case of perianal fistula with draining tract (black arrow), erosions (white arrows), and a pustule (yellow arrow).

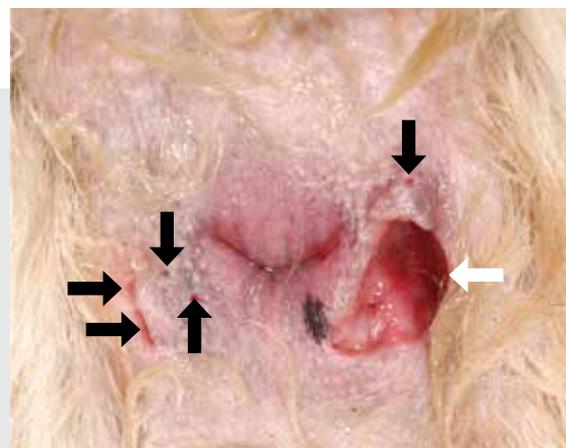


FIGURE 2. Severe case of a perianal fistula with several draining tracts (black arrows) and a large sinus (white arrow).

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anal stricture and large, deep fissures, which can decrease the patient's quality of life. Unfortunately, this progression can lead to a more debilitating clinical situation and result in subsequent euthanasia.

A wide variety of treatments for perianal fistulas have been performed. Treatments covered in this article fall under the general categories of surgery, immunosuppressive therapy, and other therapy.

Surgery

Dating back to the 1940s through 1970s, perianal fistulas were initially believed to be exclusively a surgical disease.² Surgery usually included resection of all diseased tissue with or without removal of the anal sacs. This procedure could involve anywhere from a focal area of resection all the way up to a 360-degree resection with anoplasty.⁸ When a perianal fistula was believed to be associated with low tail carriage, amputation of the tail was also described as a treatment⁹ but is no longer recommended. The use of laser for surgical excision has been described, as has cryotherapy to ablate the diseased tissue.^{10,11} Typically, patients are given a stool softener postoperatively to lessen the pressure during bowel movements and to allow the area to heal. More recently, several studies have described the use of surgery after the effectiveness of immunosuppressive therapies has plateaued.^{12,13}

A common problem with surgery as the sole therapy is the lack of resolution and high incidence of recurrence.⁸ Surgical complications are also a significant problem and include wound dehiscence, flatulence, fecal incontinence, diarrhea, tenesmus, constipation, and rectal strictures. Study results vary, but surgery has been reported as unsuccessful for 6% to 21% of dogs, resulting in some being relinquished or euthanized.^{2,8}

Immunosuppressive Therapy

A wide variety of immunosuppressive therapies, as either monotherapy or a combination of therapies, have been used to treat perianal fistulas (TABLE 1).^{7,12-14} Most patients will need long-term immunosuppressive treatment to keep the disease in remission. Therefore, side effects from the medication should be evaluated periodically.

Glucocorticoids

Immunosuppressive doses of prednisone (2 to 4 mg/kg PO q24h) have been described as effective, with 33.3% of patients achieving complete remission, 33.3% showing improved clinical signs, and 33.3% showing no improvement.¹⁴ A benefit of prednisone therapy is its quick onset of action compared with other immunosuppressive therapies; the problem with prednisone therapy is long-term side effects.

Azathioprine

This drug, in combination with metronidazole, has been reported to effectively decrease the size of the perianal fistula before surgical removal of residual disease. Among reported cases, azathioprine was continued for 2 to 6 weeks after surgery.¹² Another study showed that monotherapy with azathioprine led to complete remission in just over half of the dogs receiving it.³ However, azathioprine can lead to significant side effects (e.g., severe myelosuppression, hepatotoxicity, pancreatitis), which need to be considered when using this drug.³

TABLE 1 Systemic Immunosuppressive Agents Used to Treat Perianal Fistula

DRUG	DOSAGE
Prednisone	2-4 mg/kg PO q24h
Cyclosporine	5-20 mg/kg PO q24h; divided dose can be given q12h
Azathioprine	2 mg/kg PO q24h or 50 mg/dog PO q24h



Cyclosporine

Cyclosporine is one of the drugs the author uses most often for this disease. Several studies have reported significant improvement of perianal fistulas treated with cyclosporine (96% to 100%).^{4,6,13,15} The dosages used in studies are variable, ranging from 4 mg/kg PO q24h to 10 mg/kg PO q12h initially, which may account for some of the reported failures at the low end of the dose range.^{7,11-13} The author typically aims for the immunosuppressive dose of 7 mg/kg q24h. The cost of cyclosporine is a limiting factor that can be reduced if given with ketoconazole. The typical combination dosages the author uses are cyclosporine at 3.5 mg/kg q24h and ketoconazole at 5 mg/kg q24h, each with a meal. Before altering drug doses, some veterinarians evaluate trough levels of cyclosporine or molecular assays to evaluate the level of immunosuppression. Although this topic is debatable, the author believes it is a viable option when appropriate doses of cyclosporine have been given but clinical effectiveness is lacking. Cyclosporine is generally well tolerated and the incidence of side effects is low, especially when the drug is given with a meal or frozen before administration. The most common side effect by far is gastrointestinal upset.

Tacrolimus

This topical formulation is used quite often for cases of perianal fistula. Tacrolimus at 0.1% concentration can be applied topically to the perianal region once daily. An initial study showed complete remission in 5 of 10 (50%) patients and partial response in 4 of 10 (40%) patients; only 1 patient did not respond at all.⁷ A larger study showed complete remission over 16 weeks in 15 of 19 (79%) patients and marked improvement in the remaining 4 patients when used in combination with prednisone, a novel protein diet, and a short course of metronidazole.⁵ When tacrolimus is administered alone, complete remission has been reported for only 50% of patients.⁷ Because it is applied topically, this drug has the advantage of avoiding systemic immunosuppression. It is the author's clinical opinion, based on experience and these studies, that tacrolimus is best when used as an adjunctive therapy rather than monotherapy or used as monotherapy for mild cases. A generic formulation has recently become available, which decreases the cost of the medication.

Other Therapies

Alternative therapies addressing wound healing have

become popular as treatment options for perianal fistulas.

One of the first evaluated therapies was intralesional injection of human embryonic stem cell–derived mesenchymal stem/stromal cells. This therapy was effective in 6 dogs after a single injection, but within 6 months, lesions recurred in 3 dogs.¹⁶

Platelet-rich plasma monotherapy administered as intralesional injections in 1 dog resulted in complete remission and no recurrence after 1 year.¹⁷

More recently, the use of fluorescent light energy has been evaluated. This therapy requires weekly treatment to help decrease inflammation and increase wound healing.¹⁸ The recent commercialization of fluorescent light energy has made it more readily available to veterinarians. The author has used this treatment modality for several cases of perianal fistulas and noted both significant improvement of clinical signs and complete remission.

Treatment for Secondary Infection

Secondary infections can accompany perianal fistulas and should be addressed appropriately with either systemic or topical (chlorhexidine) medication. Routine hygienic care of the perianal area can be beneficial (e.g., antiseptic baths 2 to 3 times weekly, if not every day, depending on lesion severity).

Treatment for Concurrent Food Allergies

A link between perianal fistulas and adverse food reactions has been identified. In one study, 18.8% of dogs with perianal fistula also had food allergies.¹⁹ Whether there is a direct correlation of these diseases or the dogs just happened to have 2 concurrent diseases is unknown. Regardless, use of a novel protein diet or hydrolyzed diet has been beneficial for some patients.

RECOVERY

Depending on the therapy instituted, most patients will start to show clinical improvement within a few weeks. The fistulas may not be completely healed over, but other clinical signs should improve within that time. Due to the presumed immune-mediated nature of this disease, most dogs will require some sort of long-term therapy to keep the perianal fistula in remission.

CONCLUSIONS

Perianal fistulas can be a severely debilitating disease, but most dogs respond well to therapy if started in a timely fashion. If the disease is severe, more aggressive initial therapy is recommended, including combination therapies. The author's current recommendation for

treatment, when disease is mild, is starting tacrolimus therapy once daily or performing fluorescent light energy therapy weekly with the option of starting cyclosporine as well. When the disease is moderate to severe, cyclosporine will likely be the most beneficial therapy, with the option of starting prednisone as well. If improvement reaches a plateau, additional therapies are indicated. However, if anal sacs are involved, then surgery may be necessary. **TVP**

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Dr. Pieper received his veterinary medical degree from Iowa State University in 2009. He completed a dermatology residency at the University of Illinois and became a diplomate of the American College of Veterinary Dermatology in 2015. Dr. Pieper also completed his master's degree in 2016 at the University of Illinois and is currently an assistant professor for dermatology at Iowa State University. His areas of interest in veterinary dermatology include otitis, resistant bacterial infections, dermatophytosis, dermatohistopathology, platelet-rich plasma, CO₂ laser, and dermoscopy.

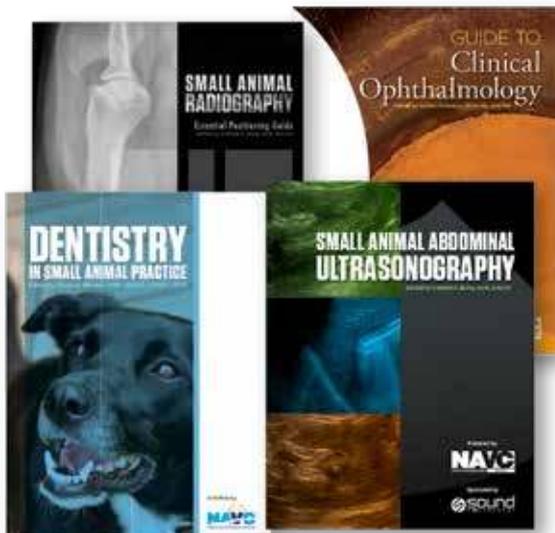


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