

Diagnosis and treatment of suspected symmetrical peripheral gangrene in a Persian cat with feline infectious peritonitis

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ABSTRACT: Symmetrical Peripheral Gangrene (SPG) is a rare clinical condition characterized by ischemic damage to symmetrical extremity areas at two or more sites without the presence of larger vessel obstruction or vasculitis. This case report describes a male Persian cat diagnosed with Feline Infectious Peritonitis (FIP) based on serum biochemistry, which on the fourth day of FIP treatment, showed symptoms of left metatarsal edema, coldness, and pale yellowish skin discoloration. Based on clinical symptoms, the cat was diagnosed with suspected SPG. Treatment for the lesions included debridement, antibiotics, anti-inflammatory drugs, diuretics, wound care with nano-silver spray, and supportive vitamins. After treatment, the lesion showed significant improvement on day 14 with visible drying, although complete closure had not yet occurred.

Keywords:

symmetrical peripheral gangrene, feline infectious peritonitis, cat, skin

■ INTRODUCTION

Symmetrical Peripheral Gangrene (SPG) is a rare condition characterized by ischemic damage to symmetrical extremity areas without large vessel obstruction or vasculitis (Casey & Dickinson 2019). SPG should be considered when signs of coldness, pallor, cyanosis, or pain occur in an extremity as it can progress to acrocyanosis and gangrene (Foad et al. 2018). The infectious factors of SPG include *Pneumococcus*, *Staphylococcus aureus*, *Neisseria meningitidis*, *Streptococcus pyogenes*, *Klebsiella pneumoniae*, *Eschericia coli*, *Salmonella paratyphi*, *Proteus vulgaris*, *Proteus mirabilis*, *Pasteurella multocida*, *Pseudomonas*, *Enterococcus faecalis*, and *Mycobacterium tuberculosis*. Non-infectious factors include neoplasia, pulmonary embolism, pancreatitis, frostbite, and trauma (Foad et al. 2018). SPG is rare in cats. Predisposing factors for SPG in cats include bacterial or viral infections, impaired peripheral blood flow from severe hypotension, systemic sepsis, and vasopressor agents (Casey & Dickinson 2019).

Feline Infectious Peritonitis (FIP) affects multiple body systems and causes varied symptoms (Maharani et al. 2025). FIP affects organs including the liver, kidneys, pancreas, eyes, and the central nervous system (CNS) (Hartmann 2005). The combination of symmetrical peripheral gangrene and FIP in cats has not been previously reported. This case report examines the diagnosis and treatment of suspected SPG with FIP at the March Animal Clinic of Jakarta.

■ CASE

Anamnesis and Signalment: The patient was a 2-year-old unneutered male Persian cat, weighing 2.4 kg. According to the owner, the cat had diarrhea a week prior and had received

treatment at a previous clinic. However, there was a decrease in appetite and body weight. On the fourth day of FIP treatment, the left metatarsal became edematous, cold, and exhibited pale yellowish skin discoloration (Figure 1). **Laboratory Diagnostic:** FIP was diagnosed on the basis of serum biochemistry. Serum biochemistry and cytological examinations were performed. Skin cytology was conducted using fluid from the lesion, providing valuable information for identifying the bacterial pathogens responsible for the lesion. **Diagnosis:** The cat was diagnosed with FIP along with suspected SPG. **Treatment:** FIP antiviral (GS-441524), Enrophen® (15 mg), Clindamycin HCl (150 mg), prednisolone (5 mg), furosemide (40 mg), Qbac® spray, Nutramarin® (liver supplement), Ferro B®, and Nutracol® which is a supportive skin supplement.

■ RESULTS AND DISCUSSION

A blood profile analysis indicated the presence of anemia. Serum biochemistry showed a decrease in creatinine concentration (0.6 mg/dL, reference range 0.8-2.4 mg/dL), Blood Urea Nitrogen (BUN) (12 mg/dL, reference range 16-36 mg/dL), Alanine aminotransferase (ALT) (<10 U/L, reference range 12-130 U/L), and hyperglobulinemia (7.7 g/dL, reference range 2.8-5.1 g/dL) with an Albumin-Globulin ratio of 0.36. On the basis of these results, the cat was diagnosed with FIP and liver dysfunction.

Received: 01-03-2025 | Revised: 30-03-2025 | Accepted: 04-04-2025

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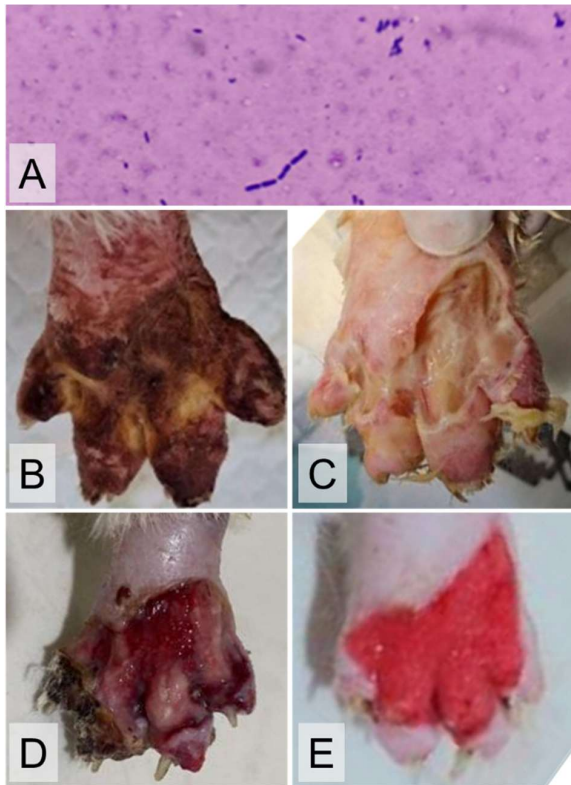


Figure 1 (A) Cytological examination of fluid from the lesion base. Magnification 40x. Red arrow: short rod-shaped bacteria. (B) Metatarsal to digit shows edema, with skin in the lesion area appearing black and yellowing between digits; (C) Lesion post-debridement to remove necrotic tissue and fluid; (D) lesion on day 7; and (E) lesion on day 14 showing improvement after therapy.

The cat in this report had several predisposing factors, including bacterial infections (Figure 1A) and FIP, which may have contributed to the suspected development of SPG. According to Avila and Rissi (2020), FIP can induce various tissue alterations, such as mixed inflammatory infiltrates, vasculitis, fibrin leakage, and edema fluid into surrounding tissues.

A Persian cat presented with a primary lesion on the left metatarsal. Previously, Breshears *et al.* (2007) reported SPG in a foal presenting with clinical signs of ischemic necrosis in the distal limbs. However, this phenomenon is rare in small animals. The only suspected case of SPG in a cat was described by Casey and Dickinson (2019), who reported the clinical signs of swelling, edema, cold touch, and skin discoloration on the pad of the right forelimb. The lesion in this case was similar to that in a previous report, consisting of symmetric skin necrosis and sloughing of the paws (Figure 1B). Based on the clinical findings and anatomic location of the lesion in this case, a differential diagnosis of SPG was suspected.

Fine-needle aspiration can be used to evaluate lesions suspected to be SPG, with histopathology as a definitive diagnostic tool (Casey & Dickinson 2019). However, the absence of histopathological evidence in this case limits diagnostic confirmation. Cutaneous vasculitis and Raynaud's gangrene were considered as differential diagnoses but were deemed

unlikely — vasculitis due to the absence of pinnal lesions and recurrence (Nichols *et al.* 2001), and Raynaud's gangrene due to its typical association with diabetes, vascular or nerve damage, and drug/toxin exposure (Choi & Henkin 2021).

According to Casey and Dickinson (2019), the key to managing SPG involves identifying and addressing the underlying causes, discontinuing vasopressor administration, wound care, surgical debridement, and/or amputation of the affected digits or limbs. In this case, the surgical debridement was effective in promoting the accelerated growth of new tissue (Figure 1D & 1E), complemented by aseptic wound care, which included daily wet-to-dry dressing changes and the application of Qbac® nano silver spray on the wound three times daily. Additionally, pharmacological intervention is necessary to support the wound-healing process. The treatment consisted of a combination of two antibiotics to prevent bacterial growth, anti-inflammatory drugs to reduce inflammation, diuretics to reduce fluid accumulation in the lesion, and other supportive supplements.

CONCLUSION

Based on the clinical signs and diagnostic findings, the cat was diagnosed with FIP and suspected SPG. Treatment consisted of a combination of two antibiotics, anti-inflammatory drugs, diuretics, antiviral medication, surgical debridement, wound care, and other supportive supplements. The lesion in the left metatarsal showed improvement after 14 days of therapy, although complete closure had not yet occurred.

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