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ADJUNCTIVE USE OF AUTOLOGOUS PLATELET-RICH PLASMA (PRP) IN THE MANAGEMENT OF A CHRONIC RUPTURED ABSCESS IN A DOMESTIC CAT (*FELIS CATUS*): A CASE REPORT

Muhammad Farid Rizal[1]*, Hilma Luthfia Sudarsyah[1], Hadrianus Lau[1], Dona Marie Leo[1], Reinier Melvern[2], Garini Maura Maharani Sunartoputri[2], Felicia Maharani[2], Zahra Meiylindha Putri[2], Raina Khalila Garinada[2], Salwa Nazhifah Kamila[2], Retina Yunani[3], Suseno Amien[4]

[1]Urban Animal Pet Care Clinic, Bandung, Indonesia
[2]Veterinary Student Program, Faculty of Medicine, Universitas Padjajaran
[3]Department of Clinical Pathology, Faculty of Veterinary Medicine, Universitas Wijaya Kusuma Surabaya, Surabaya, Indonesia
[4]Biotechnology Program, School of Postgraduate, Universitas Padjajaran, Bandung, Indonesia
Corresponding e-mail: faridrizal46@gmail.com

ORCID: 0000-0003-2649-1365 M.F.R.; 0009-0001-5296-2581 H.L.S.; 0009-0007-6450-9673 H.L.; 0009-0005-0583-4180 D.M.L.; 0009-0003-6258-8284 R.M.; 0009-0007-3544-0208 G.M.M.S.; 0009-0001-1538-5105 F.M.; 0009-0005-8429-859X Z.M.P.; 0009-0005-2185-3031 R.K.G.; 0009-0007-1671-1068 S.N.K.; 0009-0003-6125-5496 R.Y.; 0000-0001-8324-9247 S.A.

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ABSTRACT

Minor wounds can essentially heal on their own through the body's natural processes and basic care that maintains wound healing. However, wound healing will be impaired if the wound is deep, metabolic disorders such as diabetes, or an infected wound occur. The use of non-invasive regeneration therapies, such as platelet-rich plasma (PRP), is gaining popularity due to its ability to enhance wound healing. The purpose of this article is to describe the adjunctive use of autologous platelet-rich plasma (PRP) in the management of a chronic ruptured abscess in a domestic cat and to report the clinical outcome. Wound therapy involved applying 3 ml of platelet-rich plasma (PRP) to the wound three times (days 0, 6, and 10). The wound healed completely by day 45. This clinical case suggests that PRP may contribute to wound healing when used as an adjunctive therapy alongside standard medical management.

Key words: platelet-rich plasma (PRP), cat, chronic ruptured abscess.

Introduction

Abscesses in cats are a common soft-tissue infection, occurring most frequently in intact male cats that are aggressive or not yet neutered. They are usually caused by bite or scratch wounds sustained during fights, and less commonly by secondary infection of open wounds, post-surgical sites, injection sites, or in cats with compromised immune systems (Bilan *et al.*, 2025; Handoko *et al.*, 2025). Bite or scratch-related abscesses are typically associated with oral flora such as *Pasteurella multocida*, *Staphylococcus* spp., and anaerobic bacteria, including *Bacteroides* and *Fusobacterium*, which proliferate in the subcutaneous tissue and form encapsulated abscesses (Lloret *et al.*, 2013; Bilan e*t al.*, 2025). In certain cases, rupture of a chronic abscess can lead to local or systemic sepsis (Tulla *et al.*, 2020). Management generally involves debridement, drainage, and

systemic antibiotic therapy, and may benefit from supportive treatments such as PRP to support wound healing (Stegemann *et al.*, 2007; Farghali *et al.*, 2019).

This case report presents the first clinical application of this technique in small-animal practice in Indonesia: the use of autologous platelet-rich plasma (PRP) for the treatment of a ruptured chronic abscess in a domestic cat.

Clinical Case

A male cat named Bonet, 10 years of age, was presented for examination at Urban Animal Pet Care Clinic, Bandung, Indonesia.

Physical findings

Body weight 3.5 kg; Body temperature 39.4 °C. The cat had a ruptured abscess on the right cheek with central necrotic tissue, purulent material, and whitish-yellow debris indicating active infection. A large amount of purulent exudate was present. The wound surface appeared unclean and emitted a strong odor, with indistinct margins. Fibrinous tissue and debris were observed, consistent with an ongoing acute infection. The wound edges were irregular, and the surrounding area was edematous and moist—typical signs of severe local inflammation. No healthy granulation tissue was visible at the wound base, indicating that the healing process had not yet begun (Figure 1). Hematological results revealed marked leukocytosis dominated by band-cell neutrophilia and monocytosis, strongly suggesting an active systemic infection (Table 1).

Table 1: Hematological examination of a male cat named Bonet

Parameter	Results	References	Information
WBC (K/µL)	50.10 K/µL	2.87 – 17.02	Meningkat
NEU (%)	* 89.6 %	-	-
LYM (%)	* 7.0 %	-	-
MONO (%)	* 2.4 %	-	-
EOS (%)	0.8 %	-	-
BASO (%)	* 0.2 %	-	-
NEU (K/µL)	* 44.88 K/µL	2.30 – 10.29	Elevated
LYM (K/µL)	* 3.52 K/µL	0.92 – 6.88	Normal
MONO (K/µL)	* 1.20 K/µL	0.05 – 0.67	Elevated
EOS (K/µL)	0.39 K/µL	0.17 – 1.57	Normal
BASO (K/µL)	*0.11 K/µL	0.01 – 0.26	Normal
RBC (M/µL)	7.44 M/µL	6.54 – 12.20	Normal
HGB (g/dL)	10.8 g/dL	9.8 – 16.2	Normal
HCT (%)	38.2 %	30.3 – 52.3	Normal
MCV (fL)	51.3 fL	35.9 – 53.1	Normal
MCH (pg)	14.5 pg	11.8 – 17.3	Normal
MCHC (g/dL)	28.3 g/dL	28.1 – 35.8	Normal
RDW (%)	23.7 %	15.0 – 27.0	Normal
PLT (K/µL)	188 K/µL	151 - 600	Normal
MPV (fL)	16.9 fL	11.4 – 21.6	Normal
PCT (%)	0.32 %	0.17 – 0.86	Normal

Serum biochemistry showed azotemia, evidenced by elevated blood urea nitrogen (BUN) and creatinine levels, along with increased alanine aminotransferase (ALT) and hyperglobulinemia (Table 2). Therefore, the cat was administered a subcutaneous injection of long-acting enrofloxacin (Enroflox® 20% L.A.) to reduce the infectious burden associated with the marked leukocytosis.

Table 2: Biochemical examination of a male cat named Bonet

Parameter	Results	References	Information
ALB (g/dL)	2.9 g/dL	2.3 – 3.9	Normal
TP (g/dL)	9.4 g/dL	5.7 – 8.9	Elevated
GLOB (g/dL)	6.5 g/dL	2.8 – 5.1	Elevated
GLU (mg/dL)	152 mg/dL	71 – 159	Normal
BUN (mg/dL)	108 mg/dL	16 – 36	Elevated
ALT (U/L)	253 U/L	12 – 130	Elevated
ALP (U/L)	21 U/L	10 – 90	Normal
BUN/CREA	21	-	-
ALB/GLOB	0.4	-	-
CREA	5.1 mg/dL	0.8 - 2.4	Elevated

Materials and Methods

Approximately 22 mL of venous blood was aseptically collected from the cephalic vein using yellow-top tubes containing anticoagulant citrate dextrose solution-A (ACD-A). Platelet-rich plasma (PRP) was prepared following a modified protocol based on Aminkov (2021). The blood sample underwent three sequential centrifugation steps. The first centrifugation was performed at 1500 rpm for 10 minutes to separate erythrocytes from plasma fractions. The plasma layer was subsequently collected and centrifuged (80-2 Corona, Indonesia) at 3000 rpm for 10 minutes to separate platelet-rich plasma (PRP) from platelet-poor plasma (PPP). A final centrifugation at 3000 rpm for 5 minutes was performed to further concentrate the platelet fraction. The PRP obtained was not activated prior to application and was administered topically and through infiltration around the wound margins immediately after preparation.

Results

First Application

For the first application, we infiltrated the wound edges and base with 3 mL of autologous PRP (Figure 1).

Figure 1: (A) Wound before treatment (Day 0), Wound after debridement and PRP application (Day 0)

Figure 2: (A) Wound width after debridement (Day 0), (B) Wound length after debridement (Day 0)

Second application

During the second PRP application, the wound width had decreased compared to day 0. Pink granulation tissue began to form at the wound base, and purulent exudate had decreased, indicating

that the infection was coming under control. The wound's width was reduced by 2.6 mm, and its length decreased by 0.8 mm.

Figure 3: (A) Wound width after second application of PRP (Day 6), (B) Wound length after second application of PRP (Day 6)

Third application

During the third PRP application, there was a significant reduction in both the length and width of the wound. The granulation tissue appeared more mature, the wound surface looked brighter, and early re-epithelialization was visible along the wound edges. The wound was clean and free of purulent exudate, indicating that the remodeling phase was ongoing. The wound width had decreased by 4.6 mm and the length by 30.3 mm.

Figure 4: (A) Wound width after third application of PRP (Day 10), (B) Wound length after third application of PRP (Day 10)

33 days after application

The wound showed substantial reduction in size, with granulation tissue almost completely covering the wound base and re-epithelialization extending progressively from the edges toward the center. The wound width had decreased by 19.1 mm and the length by 18.2 mm.

Figure 5: (A) Wound Width after 33 days application of PRP, (B) Wound length after 33 days application of PRP

45 days after application

The wound surface appeared nearly restored, with dry and stable tissue. The wound had closed almost completely, leaving minimal scarring, and re-epithelialization was complete. The skin surface was intact, with no visible inflammation, and the wound area remained dry and stable. These findings suggest that PRP may support the transition from the chronic inflammatory phase to the proliferative and remodeling phases when used alongside standard wound management. The wound width had decreased by 8.8 mm, and the length by 8 mm.

Figure 6: (A) Wound width after 45 days application of PRP, (B) Wound length after 45 days application of PRP

Discussion

The use of autologous Platelet-Rich Plasma (PRP) in small-animal wound management has been associated with improved wound healing. An experimental study by Jee *et al.* (2016) in dogs reported that intralesional PRP injections accelerate the key phases of wound repair, including granulation tissue formation, angiogenesis, re-epithelialization, and collagen deposition. These effects became evident between day 7 and 14 after application, during which the PRP-treated group demonstrated wound closure faster than the control group. In the present case, following debridement and PRP application, the chronic abscess wound showed a similar response, characterized by the development of healthy granulation tissue and a rapid decrease in wound size.

Beyond its regenerative properties, PRP is also recognized for its potential antimicrobial activity. Everts *et al.* (2022) noted that PRP can inhibit the growth of certain microorganisms, offering an added benefit in chronic abscesses, which commonly involve secondary bacterial infection. This is relevant to the current case, in which purulent exudate and a strong odor indicated active infection. PRP may have contributed to tissue regeneration and may potentially support local microbial control, although the concurrent administration of long-acting enrofloxacin makes it difficult to determine the individual contribution of PRP to the clinical outcome.

Other research indicates that platelet concentrates, including Platelet-Rich Fibrin (PRF), can be used successfully in cats. Changrani-Rastogi *et al.* (2023) reported that PRF accelerated wound contraction and improved granulation tissue quality within two weeks compared with standard care. Although PRF differs structurally from PRP, its growth-factor–mediated mechanisms are similar. The success of PRF in that study supports the present findings, where PRP facilitated healthy tissue development in a complex abscess wound.

Angelou *et al.* (2022) demonstrated that local autologous PRP injections in full-thickness wounds of laboratory cats significantly shortened healing time compared with controls. Specifically, the time to complete closure with granulation tissue was reduced, the percentage of total healing was higher, and tissue perfusion—measured by laser Doppler flowmetry—was improved in the PRP group throughout the 0–25-day observation period. Histologic scores such as collagen production and angiogenesis were also higher in the PRP group, although some parameters (e.g., epithelialization) did not differ significantly at all time points.

A review by Perego *et al.* (2022) examined PRP applications across various animal species, both companion and livestock. They found that PRP has therapeutic potential for accelerating wound healing, controlling infection, and reducing inflammation. However, outcomes vary with the PRP preparation method, platelet count, presence of leukocytes or red blood cells, and mode of application (topical, injectable, single, or repeated). These studies highlight that PRP's biological profile including growth-factor concentration and modulation of metalloproteinases is key to clinical success.

Iacopetti *et al.* (2020) also demonstrated clear benefits of repeated topical PRP in healing large subacute wounds of different etiologies in small animals. They reported that multiple PRP applications accelerated the proliferative and remodeling phases, reduced wound size, and improved new-tissue quality compared with standard therapy or controls. These findings align with laboratory cat studies showing that PRP enhances wound contraction and overall healing efficiency, even though its effect on epithelialization can vary depending on study design and observation period.

Nevertheless, the success of PRP therapy is strongly influenced by patient condition, application method, and treatment frequency. Jee et al. (2016) observed that repeated PRP administration (on days 0, 2, and 4) produced optimal results in dogs. In chronic feline abscesses, scheduled applications likewise improved outcomes. Supportive factors such as infection control, adequate nutrition, and overall supportive care remain essential to maximize PRP effectiveness. Therefore, while this case demonstrated positive clinical outcomes, further comparative studies with larger populations are needed to establish standardized PRP protocols for chronic abscesses in cats.

A limitation of this case report is that bacterial culture and antimicrobial susceptibility testing were not performed despite the presence of purulent exudate and malodor suggestive of active bacterial infection. Therefore, the bacterial etiology could not be confirmed microbiologically, and the antimicrobial contribution of PRP could not be directly evaluated. In addition, the concurrent administration of long-acting enrofloxacin makes it difficult to determine the specific contribution of PRP to the observed clinical improvement.

As a single-case report without a control group, this study cannot establish a causal relationship between PRP application and accelerated wound healing. Further controlled clinical studies with larger populations are required to evaluate the efficacy of PRP in feline abscess management.

Conclusion

In conclusion, the adjunctive use of autologous platelet-rich plasma (PRP) was associated with progressive wound healing in this case of chronic ruptured abscess in a domestic cat. PRP may support granulation tissue formation and re-epithelialization when combined with standard wound management and systemic antibiotic therapy. However, controlled studies are needed to determine its specific therapeutic effects and to establish standardized clinical protocols.

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