Platelet Estimates from Blood Smears in Dogs

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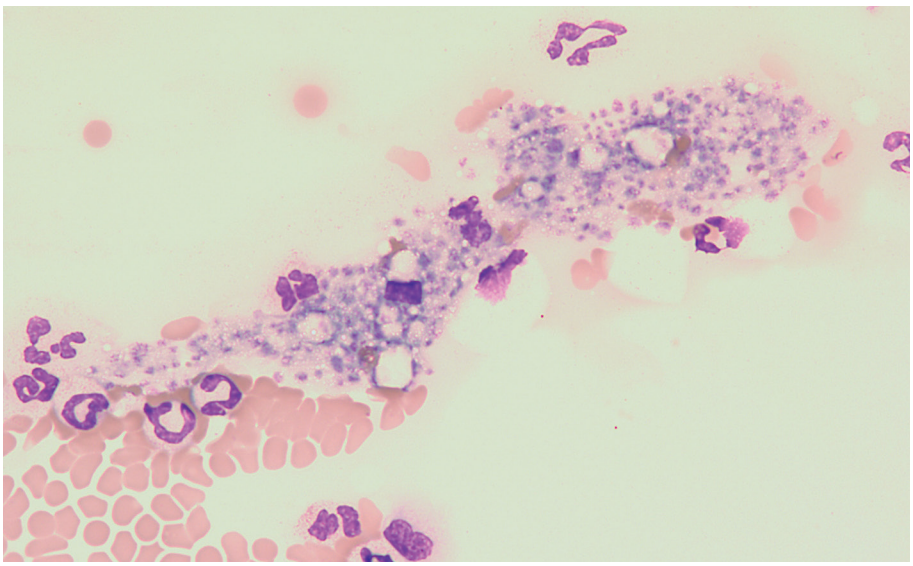
In the Literature

Paltrinieri S, Paciletti V, Zambarbieri J. Analytical variability of estimated platelet counts on canine blood smears. *Vet Clin Pathol.* 2018;47(2):197-204.

Clinicians should be mindful of platelet clumps, which can falsely decrease both automated platelet counts and platelet estimates.

FROM THE PAGE ...

Platelet estimates from peripheral blood smears are a vital component of a CBC. Automated cell counters do a sufficient job of counting platelets via various methodologies (primarily optical laser and impedance counting), but there are obstacles that limit the reliability of automated platelet counts, such as variation in platelet size and erroneous counting of cell debris, cell fragments, and microcytic RBCs. Platelet clumping can also present a significant challenge to automated platelet counts.



▲ **FIGURE** Platelet clump from a canine blood smear. Platelet clumps will interfere with the accurate assessment of automated platelet counts and estimates from a blood smear. *Wright-Giemsa stain; 500× total magnification*

In human medicine, studies have thoroughly evaluated platelet estimation of the blood smear with comparison to automated methods,[1,2] but these methods focused on the calculations used rather than the specifics of where to count in the smear. Many veterinary textbooks and review articles indicate platelets should be estimated at 100× oil immersion objective in the body of the smear but do not provide more detail or reference.[3,4]

In the present study, the precision of platelet estimates from canine blood smears was evaluated in different areas of the smears (ie, lateral edge, central monolayer, feathered edge) by different observers with varying degrees of clinical experience. Each observer evaluated the same 30 blood smears presented in the same type of anticoagulant. It was determined that high variability exists among observers. As historically recommended, the central monolayer appeared to be the best area to gain the greatest agreement among observers. However, as this study points out, greater efforts are needed to standardize platelet estimates, and clinicians should remember that these are estimates and not true platelet counts.

… TO YOUR PATIENTS

Key pearls to put into practice:

1. Clinicians should remember that platelet estimates are just estimates and are not adequately precise to be relied on alone when evaluating platelet mass.
2. Clinicians should be mindful of platelet clumps, which can falsely decrease both automated platelet counts and platelet estimates.

References

1. Nosanchuck JS, Chang J, Bennett JM. The analytic basis for the use of platelet estimates from peripheral blood smears. Laboratory and clinical applications. *Am J Clin Path*. 1978;69(4):383-387.
2. Malok M, Titchener EH, Bridgers C, Lee BY, Bamberg R. Comparison of two platelet count estimation methodologies for peripheral blood smears. *Clin Lab Sci*. 2007;20(3):154-160.
3. Barger AM. The complete blood cell count: a powerful diagnostic tool. *Vet Clin North Am Small Anim Pract*. 2003;33(6):1207-1222.
4. Stockham SL, Scott MA. Platelets. In: Stockham SL, Scott MA. *Fundamentals of Veterinary Clinical Pathology*. 2nd ed. Ames, IA: Wiley-Blackwell; 2008:223-258.

Research Note: **Dental Anomalies in Brachycephalic Cats**

This prospective, cross-sectional study of 50 pet Persian and exotic cats sought to determine the prevalence of dental anomalies in brachycephalic cats and the potential relationship of brachycephaly and oral disease. Results suggest that these breeds have unique oral and dental features that predisopose them to dental disease; 72% of the cats had malocclusions, 76% had numerical abnormalities (primarily hypodontia), 22% had tooth fractures, 88% had periodontal disease, and 70% had at least one resorptive lesion. Knowledge of predisposition to dental anomalies in feline brachycephalic breeds may help aid in early detection and treatment.

Source

Mestrinho LA, Louro JM, Gordo IS, et al. Oral and dental anomalies in purebred, brachycephalic Persian and Exotic cats. *J Am Vet Med Assoc*. 2018;253(1):66-72.

Research Note: **Honey for Treatment of Canine Pyoderma & Otitis Externa**

Honey has been used to treat a variety of wounds. The antibacterial effects of honey have been partly attributed to its hydrogen peroxide (H_2O_2) activity, but catalases present in tissue and chronic wounds can potentially render H_2O_2 inactive. In this study,* cultures of *Malassezia pachyderamtis* and methicillin-susceptible and methicillin-resistant *Staphylococcus pseudintermedius*—important components of otitis externa and canine pyoderma, respectively—were subjected to serial dilutions of a honey-based gel or honey alone. Synthesized honey, triclosan, and clotrimazole served as controls. Higher antibacterial activity of the honey-based gel as compared with honey alone was noted; further studies documenting in vivo effectiveness in the treatment of clinical canine pyoderma and otitis externa cases are needed.

*This study was funded by Triticum, Maastricht, The Netherlands.

Source

Oliveira AMP, Devesa JSP, Hill PB. In vitro efficacy of a honey-based gel against canine clinical isolates of *Staphylococcus pseudintermedius* and *Malassezia pachydermatis*. *Vet Dermatol*. 2018;29(3):180-e65.