

Successful treatment of babesiosis in a horse

Sakha, M.^{1*}

¹Faculty of Specialized Veterinary Sciences, Sciences and Research Branch Islamic Azad University, Tehran-Iran.

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Abstract: Babesiosis is the only intraerythrocytic parasitic disease that affects horses. Signs include fever, depression, anorexia, weakness, ataxia, lacrimation, mucoid nasal discharge, icterus and hemoglobinuria. Death may occur within 48 hours or chronic cases may persist for months. In May 2001, a three year old cross-bred mare was referred to the veterinary teaching hospital of Kerman university, with anorexia and depression for five days and jaundice in conjunctiva. Hematological examination revealed a PCV of 40. In the blood smear, *Babesia equi* was observed and typified. Treatment was performed by Imizol (4mg/kg, im) for three days. The animal got better and vital signs were normal after completion of the treatment. The mucous membrane was completely normal and the appetite was normal as well.

Key words: babesiosis, horse, Imizol, icterus.

Introduction

Babesiosis is a tick-borne intraerythrocytic disease of domestic and wild mammals and man caused by protozoan parasites of the genus *babesia*. The disease in horses is caused by *Babesia cabali* (large *babesia*) and *Babesia equi* (small *Babesia*). Equine Babesiosis is widely distributed throughout the tropics and subtropics and to a lesser extent in temperate regions. All equids are susceptible and older animals are more severely affected. The disease is a major problem in transition of horses among countries (1, 2, 6, 13, 7, 8). Once they gain access to the host, *Babesia* species multiply and develop within erythrocytes. Many parasitized erythrocytes are removed via the macrophages; however, intravascular hemolysis can occur. Definitive diagnosis of babesiosis relies upon the demonstration of parasitized erythrocytes on Giemsa-stained blood smears or by positive serology.

Case Report

A three year old cross-bred mare (kord-Arabian) was referred to the veterinary teaching hospital of

Kerman university, with anorexia and depression for five days and jaundice in conjunctiva. There was no history of treatment and the diet was alfalfa hay, straw and barely. On physical examination, the temperature was 38.8 °C, the respiratory rate was 12 p/min and the pulse rate of 46 bpm. There was no abnormality in any other organs except jaundice in mucous membranes and some ulcers in the skin, specially in the forelimbs and a mild colic. Hematological examination revealed a PCV of 40%, WBC of 9000 u/L (55% neutrophils, 24% lymphocytes, 18% monocytes and 3% eosinophils. In the blood smear, *Babesia equi* was observed and typified. After final diagnosis, treatment was performed by Imizol (4mg/kg, IM, sid) for three days. Additional treatments were catosal (phosphorus) 10 ml for three days, vitamin B12 and two liters of paraffin for the relief of colic. After three days of treatment, the animal gradually got better and vital signs were normal. The hematological values were within normal limits and no *babesia* was found in the RBC. The mucous membranes were completely normal and the appetite was normal. One week later, the animal was completely recovered.

* Corresponding author's email: msakha@sc.iaau.ac.ir, Tel: 0262- 3268298, Fax: 0262-3268298



Discussion

All equids are susceptible to both *Babesia cabali* and *Babesia equi* that cause babesiosis in the animal. Older animals are more severely affected than young animals, once infected, survivors remain chronic carriers (4,15).

Clinical features of the disease following an incubation period of five to twenty-eight days are fever (39-42c), hemolytic anemia, jaundice, hemoglobinuria and death. Generalized signs of depression, anorexia, incoordination, lacrimation, mucous nasal discharge, swelling of eyelids and frequent lying down are also seen. *Babesia equi* is considered the most pathogenic of the two species and *Babesia cabali* causes a more persistent fever and anemia (3, 5, 11, 12, 15).

Clinically, jaundice with hemoglobinuria and fever is suggestive, but confirmation by examination of blood smears or by transmission experiments is essential. A necropsy which shows splenomegaly, jaundice, hemoglobinuria, swollen dark kidneys, liver and myocardial echymosis, while highly suggestive, should also be confirmed by laboratory examination (3, 5, 11, 12).

In the present case, depression, fever, anorexia and jaundice were the most apparent clinical signs and the presence of *babesia* (*B. equi*) in the blood smear was also confirmed. The drug of choice for eliminating the carrier state of infected animals is Imidocarb.

Imidocarb at the level of 2.2 mg/kg given two times at a 24-hours interval is effective against *B. cabali*, a 4 mg/kg amount given four times at a 72-hours intervals effective for *B. equi*. The higher doses of Imidocarb often produce transient side effects in horses similar to the signs seen in colic (9, 10, 11, 14, 15).

Babesia equi is much more resistant and imidocarb therapy is only 50% to 60% effective in eliminating the infection, particularly of eastern European origin. Imidocarb may cause colic, hypersalivation, diarrhea and death.

In the present case, the treatment dose of 4 mg/kg for three days at 24 hours interval was considered. The animal was completely recovered after a week

and no side effects of the drug were seen.

References

1. Avarzed, A., De Waal, D. T., Igarashi, I., Saito, A., Oyamada, T., Toyoda, Y., Suzuki, N. (1997) Prevalence of equine piroplasmiasis in central Mongolia. *Onderstepoort J. Vet. Res.* 64: 141-145.
2. Bruning, A. (1996) Equine piroplasmiasis, an update on diagnosis, treatment and prevention. *Br. Vet. J.* 152: 139-151.
3. De Waal, D. T. (1992) Equine piroplasmiasis: A review, *Br. Vet. J.* 148: 6-14
4. Haillet, N. Q., Lafi, S. Q., al-Darraj, A. M., Ani, F. K. (1997) Equine babesiosis associated with strenuous exercise: clinical and pathological studies in Jordan. *Vet. Parasitol.* 69: 1-8.
5. Henry, M. M. (1992) Hemolytic anemia. In Robinson, N. E. *Current Therapy in Equine Medicine*, 3rd Ed., pp: 495-501. W. B. Saunders, New York.
6. Heuchart, C. M., Jr de Giulli, V., de Athaide, D. F., Bose, R., Friedhoff, K. T. (1999) Seroepidemiologic studies on *Babesia equi* and *Babesia caballi* infections in Brazil. *Vet. Parasitol.* 85: 1-11.
7. Holman, P. J., Hietala, S. K., Kayashima, L. R., Olson, D., Waghela, S. D., Wagner, G. G. (1997) Case Report: field acquired subclinical *Babesia equi* infection confirmed by in vitro culture. *J. Clin. Microbiol.* 35: 474-476.
8. Knowels, D. Jr. (1996) Equine Babesiosis: A problem in the international movement of horses. *Br. Vet. J.* 152: 123-126.
9. Knowels, D. P. (1992) Babesiosis in Robinson, N. E., *Current Therapy in Equine Medicine*, 3rd Ed., pp: 758-759. W. B. Saunders, New York.
10. Kuttler, K. L., Zaugg, J. L., Gibson, C. A. (1987) Imidocarb and parvaquon in the treatment of piroplasmiasis (*Babesia equi*) in equids. *Am. J. Vet. Res.* 48: 1613-1616
11. Radostits, O. M., Blood, D. C., Gay, C. C. (2000) *Veterinary Medicine*, 9th Ed., Bailliere Tindall.
12. Soulsby, E. J. L. (1982) *Helminths, Arthropods and Protozoa of Domesticated Animals*, 7th Ed. pp: 719-723 Bailliere Tindall, London.



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13. Yin, H., Lu, W., Luo, J. (1997) Babesiosis in China. Trop. Anim. Health Pro. 29 (suppl.) 11-
 14. Zaugg, J. L., Lane, V. M. (1989) Evaluations of buparvaquone as a treatment for equine babesiosis (*Babesia equi*). Am. J. Vet. Res. 50: 782-785.
 15. Zaugg, J. L. (1996) Babesiosis. In Smith, B. P. Large Animal Internal medicine, 2nd Ed., pp. 1217-1219. Mosby. St. Louis.



درمان موفقیت آمیز با بزیوز در یک راس اسب

مهدی سخا^{۱*}

^۱ گروه علوم در مانگاهی، دانشکده تخصصی دامپزشکی دانشگاه آزاد اسلامی واحد علوم تحقیقات تهران، تهران - ایران.

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در تاریخ اردیبهشت ۱۳۸۰ یک مادبان دوخون کرد - عرب ار جاعی به در مانگاه دانشکده دامپزشکی دانشکده دامپزشکی دانشگاه شهید باهنر کرمان مورد معاینه قرار گرفت. شکایت اسبدار مبتنی بر کاهش اشتها و افسردگی به مدت ۵ روز و وجود زردی در مخاط چشم بود. هیچ درمانی برای حیوان انجام نشده و جیره غذایی حیوان شامل یونجه و مقداری کاه جو بود. در معاینه بالینی درجه حرارت و ضربان قلب حیوان بالاتر از حد طبیعی ثبت شد و زردی در تمام مخاطات مشاهده گردید. همچنین تعدادی زخم‌های پوستی نیز خصوصاً در دست‌های حیوان مشاهده شد. در گسترش خون محیطی وجود تک یاخته با بزی یا قطعی شد و با مطالعه مرفولوژیک گونه آن با بزی یا اکوئی تشخیص داده شد. درمان با استفاده از ترکیب ایمی زول (۴ میلی گرم بر کیلوگرم) به مدت ۳ روز و درمان‌های کمکی فسفر و ویتامین ب ۱۲ و پارافین انجام گرفت. حیوان بعد از درمان به تدریج وضعیت بهتری بخود گرفت و علایم حیاتی و آزمایش‌های خونی بعد از یک هفته کاملاً به حالت طبیعی برگشت. با بررسی منابع در کل درمان موارد حاد بیماری عاقبت خوبی ندارند و این موارد به خوبی با نزدیکتر کردن فاصله بین درمان‌ها بدون بروز هیچگونه اثرات جانبی به درمان جواب داد.

واژه‌های کلیدی: با بزیوز، اسب، ایمینرول، تیرمان.

