THE HEALING PROCESS OF SKIN LESIONS IN A CAPTIVE AMAZONIAN MANATEE (*Trichechus inunguis*) CALF: A CASE REPORT.

O PROCESSO DE CICATRIZAÇÃO DE LESÕES DE PELE EM UM FILHOTE CATIVO DE PEIXE-BOI AMAZÔNICO (*Trichechus inunguis*): RELATO DE CASO.

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KEY WORDS:

Animal health;
Captivity handling;
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ABSTRACT

The present work describes the clinical procedures performed in an Amazonian manatee male calf under the care of the Amazonian Aquatic Mammals Research Group, of the Mamirauá Institute for Sustainable Development, Amazonas, Brazil and housed in a wooden floating pen, in the Amanã Lake, Amanã Sustainable Development Reserve, Amazonas, Brazil. During handling procedures, skin lesions on the upper side of the calf's nostrils, chin and near its left eye were observed. Due to the fact that some medicine effectiveness are hampered by aquatic mammals habitat, a new medicine was developed by mixing some veterinary medicine and herbal products, which was applied during bottle feeding. After twenty days of treatment the wounds were completely healed. The use of such medicine made up with Amazon natural products, adapted to the aquatic environment on which this manatee calf has been kept, can provide important alternative and crucial information to a better treatment, especially with animals in danger of extinction.

PALAVRAS-CHAVE:

Saúde animal;
Manejo em cativeiro;
Mamíferos aquáticos ameaçados;
Peixe-boi amazônico;
Trichechus inunguis.

RESUMO

O presente trabalho descreve os procedimentos clínicos realizados em um filhote de peixe-boi amazônico macho sob os cuidados do Grupo de Pesquisa de Mamíferos Aquáticos Amazônicos, do Instituto de Desenvolvimento Sustentável Mamirauá, Amazonas, Brasil e mantido em um cativeiro de madeira flutuante, no Lago Amanã, Reserva de Desenvolvimento Sustentável Amanã, Amazonas, Brasil. Durante procedimentos de manejo, foram observadas lesões de pele na parte superior das narinas, queixo e próximo ao olho esquerdo do filhote. Devido ao fato de que a eficácia de alguns medicamentos é dificultada pelo hábitat dos aquáticos mamíferos, um novo medicamento foi desenvolvido através da mistura de alguns medicamentos veterinários e produtos à base de plantas, que foi aplicado durante o fornecimento da mamadeira. Após 20 dias de tratamento as feridas estavam completamente curadas. O uso de tal medicamento composto com produtos naturais da Amazônia, adaptado para o ambiente aquático em que este o filhote de peixe-boi foi mantido, pode fornecer importantes informações alternativas e cruciais para um melhor tratamento, especialmente com animais em perigo de extinção.

INTRODUCTION

The Amazonian manatee (*Trichechus inunguis*) is a sirenian species living in the Amazon basin freshwater habitats. The South America largest freshwater mammals and the smallest of world's living sirenians feed exclusively on water plants (JEFFERSON et al., 1993; FOLKENS; REEVES, 2002). The species favors the aquatic vegetation floating on the surface of the water such as floating grasses and water hyacinth, a unique feeding habit among the sirenians (ROSAS, 1994). This species has been hunted by man for several years and although hunting is now prohibited, this activity is still freely practiced (VERGARA-PARENTE, 2005). In the Amazon area fishermen use harpoons to catch the animals and bring them to the bank or use wooden plugs to block the nostrils and suffocate them. Some native people from the area say hunters first focus their effort on the young. Once these are captured their mothers remain in close proximity, allowing hunters to take advantage of the situation.

Amazonian manatee females give birth to one calf during the rainy season, when the rivers begin flooding, ensuring a calmer place for reproduction and a plentiful supply of food. When the water level drops both Amazonian manatee females and their calves abandon the várzea lakes for the river channels and deeper lakes and during this migration they become more susceptible to human action and hunting (BANNERMAN, 2001).

Amazonian manatee rescues have been performed for several years by institutions such as Instituto Nacional de Pesquisas da Amazônia – INPA and Instituto de Desenvolvimento Sustentável Mamirauá - IDSM. Once the animal is removed from the wild, it is housed in an appropriate setting where it is fed with aquatic plants and milk formula. Once the calves reach ideal weight and size they are to be released and monitored (D'AFFONSECA; VERGARA-PARENTE, 2007).

METHODOLOGY

An Amazonian manatee was rescued and kept under the care of the Aquatic Mammals Research Group, of Mamirauá Institute for Sustainable Development - MISD, Amazonas, Brazil, The young male was housed in a wooden pool, in the Amanã Lake, Amanã Sustainable Development Reserve, Amazonas, Brazil, being offered four times a day a bottle containing a formula composed of soy powdered milk, canola oil and a multi-vitamin complex.

During the behavior monitoring routine, it was possible to observe the calf constantly playing with the pool wooden walls, and also biting nails and nuts that keep the wood parts together. These caused several skin scratches, which tend to be superficial. However, during two different occasions of the calf's handling procedures, several lesions were observed on the animal's chin and on the upper side of its nostrils. These were likely accidentally caused by rubbing against the pool's corners (Figure 1).

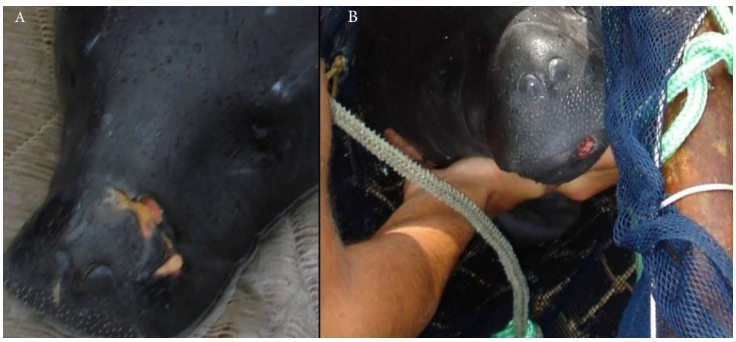

Figure 1 - Amazon manatee calf skin lesions locates on the upper side of its nostrils (A), on its chin and near its left eyes (B).

Since we were dealing with an aquatic mammal, it was necessary to use a kind of medicine which could remain as long as possible on the animal's skin. Therefore, a "mixed ointment" was developed. The ointment initially contained two components: Pearson Ointment, composed of zinc oxide, pine oil, caulim and xilol (Pearson Unguent®, Eurofarma Laboratórios Ltda, Rio de Janeiro, Brazil) and a veterinary medicine composed of alantoine, clorexidine, zinc oxide and citronella (Alantol® - VETNIL®, Vetnil Indústria e Companhia de Produtos Veterinários Ltda, São Paulo, Brazil). Later, andiroba (*Carapa guianensis*) oil was added to the formula, since this plant is widely used in Amazonas and well-known worldwide due to its cicatrization properties (SHANLEY, 2005). The calf medication was easy to carry out, since the application of the paste was performed during bottle-feeding, four times per day, with a three-hour interval. While the calf was eating, the person offering the bottle gently applied a generous amount of the ointment, enough to remain in the area even when the calf submerged after the procedure (Figure 2).

Figure 2 - The appearance after the paste was applied on the calf's skin lesions (A and B).

RESULTS AND DISCUSSION

A fast healing process was verified, with wounds completely healed twenty days after the treatment began (Figure 3). The same medicine has been used on every superficial and deep skin wound produced during the treatment and inherent to the calf's plays. Effective action of the medication was noticed in all instances.

Figure 3 - The lesion areas (A and B), three weeks after the beginning of treatment.

Although alternative medicine is preferred for most people, it is criticized by several researchers (RIJNBERK; RAMEY, 2007). The development of new alternatives and different kinds of treatments is fundamental, especially for people who do not have financial conditions to afford modern medical consultancy (TEKLEHAYMANOT; GIDAY, 2007). This idea can be applied either for human or veterinary studies. In the present study we used several substances, each with particular and complementary characteristics. Andiroba is a multiple-use tree, widely used as a repellent, to reduce inflammation and assist in the cicatrization process (SHANLEY, 2005). Zinc oxide is used in several medications, absorbing toxins and reducing the inflammation process, and clorexidine is an excellent antibacterial substance routinely used in domestic animals. Alantoine, an active substance contained in barbatimão's bark, assist in the cicatrization process; and citronella is an excellent repellent.

Although industrial medicines were used to develop the ointment, they were selected due to the fact that their composition contained as much natural products as possible, since herbal usage for humans and animals are current in deserted regions (BALICK; COX, 1996) such as the Amazon.

Therefore, scientific tests need to be performed on the medicinal properties of alternative therapies, and publicized for veterinary specialists to corroborate their effects. The use of alternative therapies for animals' and humans' well-being remains largely unstudied (ALVES; ROSA, 2007). Studies about most species of aquatic and terrestrial mammals are scarce, so the documentation of any information involving new alternatives of treatment should be reported and replicated for further application and possible validation (NJOROGE; BUSSMANNB, 2006).

The use of the medication here presented, adapted to the aquatic environment on which this manatee calf has been kept, can provide important information about which way to follow to provide better treatment. Wound care and its healing can be complicated by the aquatic environment and substances such ointments, which make possible longer medication endurance on aquatic mammals' skin, can be an alternative to supply a faster and efficient healing of skin lesions, be it superficial or not. The Amazonian manatee is considered as species "vulnerable" to extinction by the IUCN (IUCN, 2009) and in cases of orphaned calves under rehabilitation, such care efficiency can be crucial for their survival.

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REFERENCES

ALVES, R. R. N.; ROSA, I. M. L. Biodiversity, traditional medicine and public health: where do they meet? **Journal of Ethnobiology and Ethnomedicine**, v. 3, p. 14, 2007.

BALICK, M.; COX, P. A. Ethnobotanical research and traditional health care in developing countries. In: **Non-wood Forest Products – 11. Medicinal plants for conservation and health care***;* FAO - Food and Agriculture Organization of the United Nations. Disponível em: http://www.fao.org/docrep/W7261e/w7261e00.htm, 163 p., 1998.

BANNERMAN, M. (Ed.). **Mamirauá: a guide to the natural history of the Amazon flooded forest.** Tefé: IDSM, 2001. 176 p.

D'AFFONSECA, J. A.; VERGARA-PARENTE, J. E. Sirenia (Peixe-boi-da-amazônia, Peixe-boi-marinho) In: CUBAS, J. C. R.; CATÃO-DIAS, J. L. (Ed.). **Tratado de animais selvagens – Medicina veterinária.** São Paulo: Roca. p. 201-214, 2007.

JEFFERSON, T. A.; LEATHERWOOD, S.; WEBBER, M. A. **FAO species identification guide. Marine mammals of the world**. Itália: UNEP – FAO. 1993. 320 p.

International Union for Conservation of Nature (IUCN). **2010 IUCN red list of threatened species.** *Disponível em:* http://www.iucnredlist.org.

NJOROGE, G. N.; BUSSMANNB, R. W. Herbal usage and informant consensus in ethnoveterinary management of cattle diseases among the Kikuyus (Central Kenya). **Journal of Ethnopharmacology**, v. 108, p. 332–339, 2006.

POWELL, J. A. Sirenians. In: FOLKENS, P. A.; REEVES, R. R. (Ed.). **National Audubon Society guide to marine mammals of the world.** New York: Chanticleer Press, Inc. p. 474-492, 2002.

RIJNBERK A.; RAMEY, D. W. The End of Veterinary Homeopathy. **Australian Veterinary Journal**, v. 85, p. 513–516, 2007.

ROSAS, F. C. W. Biology, conservation and status of the Amazonian manatee *Trichechus inunguis*. **Mammal Review**, v. 24, n. 2, p. 49-59, 1994.

SHANLEY, P. Andiroba (*Carapa guianensis)*. In: SHANLEY, P.; MEDINA, G. (Ed.). **Frutíferas e Plantas Úteis na Vida Amazônica**. Belém: CIFOR, Imazon. p. 41-51, 2005.

TEKLEHAYMANOT, T.; GIDAY, M. Ethnobotanical study of medicinal plants used by people in Zegie Peninsula, Northwestern Ethiopia. **Journal of Ethnobiology and Ethnomedicine**, v. 3, p. 12, 2007.

VERGARA-PARENTE, J. E. Parte I - Resgate, reabilitação e soltura: Sirênios. In: VERGARA-PARENTE, J. E. (Ed.). **Protocolo de conduta para encalhes de mamíferos aquáticos.** Recife: IBAMA. p. 83-97, 2005.

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