Long-term practice of animal vaccination against dermatophytosis

M. G. Manoyan, V.V.Sokolov, T.Y. Bukanova and A. N. Panin

Federal State Institution "The All-Russian State Center for Quality of Veterinary Drugs and Feeds" (FSI "VGNKI") Moscow, Russia

Current approaches to control the animal dermatophytosis are based mainly on the using of chemotherapeutic drugs while the immunogenic medicines (vaccines, immunomodulators) have dropped out of sight.

Here we describe the Russian experience and prospects for the use of immunogenic medicines against dermatophytosis. The era of immunization against dermatophytosis was discovered by successful vaccine LTF-130 against cattle trichophytosis elaborated in USSR in 1960 yy by A.Kh. Sarkisov and co-workers.

Currently the vaccines in Russia are the primary means for both treatment and prevention of dermatophytosis while the chemotherapeutic drugs are used mainly as the auxiliary external means.

Nowadays a variety of the vaccines intended for various animal species are elaborated and introduced to the clinical practice in Russia: LTF-130 against trichophytosis in cattle, Microderm against dermatophytosis in small animals (cats, dogs, rodents, fur animals) and horses. Those vaccines contain alive highly-immunogenic fungal strains which are attenuated and safe. The full-value fungal cells provoke intense immune response which is both protective and healing.

Also developed and introduced into veterinary practice inactivated vaccines against dermatophytosis animals, such as Vakderm and Polivak. The strategic significance of the vaccines is that they allow to conduct mass preventive immunization which reduces the incidence of dermatophytosis both in animals and mediately in humans.

The responsible animal-owners prefer to prevent the infection rather than pay money for costly treatment.

The proper administration of the vaccines is the key factor in defending humans against zoonotic dermatophytosis. Moreover the vaccines are well-proved means for the therapy providing the effective treatment without time-taking and expensive procedures.

The clinical efficiency of the mentioned vaccines is well-established and approved by the practical usage for over 40 years. All the officially allowed vaccines are monitored by governmental regulators for compliance with the quality and safety standards. A number of researches focused on vaccination and immunogenesis were published in domestic Russian issues but their international impact seems to be negligible.

We resume the vaccines possesses the great potential and abilities for prevention and treatment of animal dermatophytosis and reducing the disease incidence in humans.

Vaccination: troubleshooting

Dermatophytic affection after prophylactic vaccination

- Animals with subclinical dermatophytosis and during are predisposed.
- Vaccination with therapeutic dosage should be administered

Local reactions: scaling, crusts, oedema

- Usually they will resolve spontaneously with no specific treatment

No response to therapeutic vaccination

- Not dermatophytosis? Confirm the diagnosis in the Lab
- Associated infection? Bacterial? Ectoparasites?
- Compromised immune status? Allergies? Athopy?
- Vaccine shelf life and storage conditions?

Vaccines as a tool for control of dermatophytosis in crowding animal keeping

- As it was demonstrated in cattle, horses and fur animals, vaccines are useful tools for control of dermatophytosis then purposeful programs are implemented.
- This experience can be transferred to pet shelters, catteries, kennels etc.
- The complex measures for recovery should be performed:

Prejudices about the vaccines

Strategy for complex control of dermatophytosis

- **Purpose:** to track the mycological story and to confirm the current mycological status of the animal
- **Providing:** by the veterinarian and laboratory mycologist
- **Main measures:** to combine the preventive vaccination, monitoring of latent fungal carriage, therapy and decontamination under the joint umbrella
- **Benefits for animal:** mycological well-being
- **Benefits for owner:** assurance that his animal is mycologically safe
- **Regulating mission:** VMC should be treated as admission pass for:
 - Animal retail
 - Animal shows
 - International transporting etc.
- **Goals:** to interrupt the transmission of dermatophytes and to prevent infection and carriage both in animals and humans

Rationale of the vaccine application

CONCLUSION

The vaccines possesses the great potential and abilities for both prevention and treatment of dermatophytosis in pets and farm animals.

- The vaccines demonstrate a number of advantages in comparison with systemic antifungals such as safety, usability and economical benefits.
- Immunoprophylaxis represents an extremely important tool for control of both animal and mediately human dermatophytosis.
- The commercial availability of the vaccines as well as awareness in the field of vaccination should be improved

We believe that international collaboration of veterinary mycologists can improve dramatically our experience in the field of combating fungal diseases.

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