

# Smallpox in turkeys

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**Abstract.** The article describes epidemiological diseases of animals, in particular smallpox of birds. The disease of turkeys, such as turkey pox, its spread, transmission, signs and treatments are revealed. In our country, animals are mostly bred in rural areas. The quality and ecological purity of their products is better than that of products grown in specialized farms and poultry farms. Since, in rural areas, local and traditional methods are used to treat livestock and poultry. Although the level of exposure to chemicals is high, it is not always recommended to use them, in rural areas much attention is paid to ensuring environmental cleanliness of products. Therefore, in our scientific observations, research and experiments, we also used environmentally friendly methods that are widely used by the rural population, and our results satisfied us from a practical and scientific point of view. We have conducted scientific studies of smallpox in birds – one of the epidemiological diseases that occur in poultry in the autumn-spring period. Experiments were conducted on turkeys and their turkeys, in particular chicken. During the experiment and scientific research, the speed of the spread of the disease, its individuality, resistance to chemical and natural agents were observed. In the treatment of smallpox of birds, in addition to chemicals, crushed fresh leaves and stems of plantain lanceolata (*Plantago lanceolata*), shepherd's bags (*Capsella bursa-pastoris*), alfalfa plants (*Medicago sativa*) were widely used. The use of green plant masses positively affected the appetite of turkeys, satisfying their need for vitamins C, K, and antioxidants.

## 1 Introduction

Seasonal epidemiological diseases occur among animals. One of these diseases is smallpox. Smallpox is one of the most dangerous diseases that can occur in any poultry. It can affect not only chickens and geese, but also turkeys, especially turkeys. This disease develops because of a virus such as RNA, which can live for a long time. The virus does not die even at a temperature of +360 C -150 C. Therefore, if smallpox appears in turkeys, then they are placed separately from healthy birds. Turkeys are the most sensitive domestic birds to the smallpox virus. They can get sick from a bird that has already picked up the disease. And for this, the turkey must be in contact with a sick pet. Also, the virus can enter the body through feed, water and much more. Insects that can bite a bird (bird louse) are also carriers of infection [1-6].

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## 2 Methods

When the disease enters the body, it immediately damages the mucous membrane and only then the skin, the goiter also becomes inflamed. The incubation period is one and a half months. A turkey can get sick at any time of the year. But most often smallpox affects pets in the fall, when the body is weakened.

Turkeys have the disease in the same way as other domestic birds. As already mentioned, when the virus enters the body, it affects the mucous membrane, and then the skin. Because of this, smallpox foci of different sizes appear. In order for infections to get into the blood and other internal organs, it takes only a day. Smallpox in turkeys' spreads very quickly throughout the body and affects all vital organs [7-9].



**Fig. 1.** A two-month-old turkey infected with smallpox. Ulcers on the beak and soft tissue around the eye.

When the virus enters the body, small lymphoid formations appear on the skin. Since the infection spreads through the mucous membrane, it can be noticed that it becomes difficult for the bird to breathe. Even if there are no visible lymphoid formations on the skin, this does not exclude smallpox.

The causative agent of smallpox is a virus. It is highly resistant. Even in a clean room, where favorable conditions for poultry are created, according to literature data, there is information that the virus is active for 158 days. Getting on the plumage of turkeys, the duration of its activity increases to 182 days. In the air, outdoors, the virus has been active for 2 years [4].

The pathogen dies after 2 days at a temperature of  $-190\text{ C}$ . When boiling, his activity disappears. Some chemicals destroy the virus. They are recommended to be used for total disinfection of the poultry house: acetic acid, 1% solution; sulema, 1% solution; formalin, 0.5% solution; carbolic acid, 3%; sulfuric acid, 2.5%; caustic potassium, caustic sodium, 2% solution.

### 3 Results and discussion

In our research, we studied smallpox in turkeys for 2-3 months and chickens for 3-4 months, smallpox in poultry or diphtheria is a contagious viral disease, observed mainly in poultry aged 4-12 months, which is manifested by the development of smallpox exanthema on the untrimmed areas of the scalp, legs, on the crest, earrings, lobes, around the beak and nasal openings, on the mandible and eyelids or diphteroid lesions of the mucous membranes of the oral cavity, upper respiratory tract and conjunctiva. We observed more in turkeys on the beak, around the eye, in the conjunctiva, on the shoulder joint, and also on the knee joint. Chickens infected from turkeys also often had ulcers on the beak, around the beak, and conjunctiva [2].

Chickens were smeared with a 5% solution of iodine, fucortsin, lugol was sprayed into the beak, isolated from sick turkeys, also watered with baitril, this remedy was mixed into food. The sick bird is sluggish, then becomes depressed, appetite is lowered or absent, feathers are ruffled. On our observations, this did not manifest itself, although the bird was losing weight, but its appetite did not disappear before the lethal consequences. Turkeys that were 2 months old before the disease weighed 420-450 grams, after infection they began to lose weight sharply, but their appetite did not disappear and they ate to death with appetite.



**Fig. 2.** Ulcers on the knee joint of turkeys.

To improve the conductivity of the viral disease, sour milk and cottage cheese were additionally given into the feed, where fine herbs interfered. In rural areas, kefir, sour milk and cottage cheese is an environmentally friendly product, since every family that has cattle cooks it in a traditional environmentally friendly way. The disease progressed in turkeys whose chicken coop was close to the water, that is, their place was wet. These are good conditions for the reproduction and spread of the virus.



**Fig. 3.** Turkey calves have ulcers. (a)- Ulcer on the shoulder joint of turkeys; (b)- Smallpox ulcers on the conjunctiva, beak and nasal skin area.

Chickens and turkeys were treated 2 times a day every day, washed with a 3% solution of hydrogen peroxide, the mucous membrane, after removing diptheroid overlays from it, was lubricated daily with a mixture consisting of a 10% solution of iodine and 90% glycerin. The inclusion of biovit in the diet, as well as furazolidone, allows you to reduce the waste of poultry and accelerate its recovery. Also, water was changed every day and baitril was added there. The treatment lasted for two whole months, the loss was 40% [2].

## 4 Conclusion

In the course of our scientific research, we observed the progressive development and spread of viral smallpox in young turkeys. Also, the prevalence of the disease was different depending on the place of residence of turkeys. In rural conditions, the viral disease developed rapidly in birds living near aricks, near a pond and cool shaded areas, while in birds in sunny and dry aviaries, the spread of the disease was slower. the removal of birds from cages to pasture on a vast territory also increased their resistance to diseases.

In addition, the addition of medicinal plants to food led to overcoming the disease, increasing immunity, resistance to viruses. Every day we alternated once a day with green leaves and stems of medicinal plants like plantain lanceolate (*Plantago lanceolata*), shepherd's bag (*Capsella bursa-pastoris*) and alfalfa (*Medicago sativa*). Plantain leaves contain a rich complex of active substances, including aucubin glycoside with the widest spectrum of action. This substance has a beneficial effect on the gastrointestinal tract, has antimicrobial, antiseptic, antiviral, antispasmodic, anti-inflammatory and sedative properties.

Therefore, crushed and finely chopped leaves of the plant normalized the work of the stomach and intestines and effectively affected the disease. Along with the glycoside aucubin, plantain leaves are rich in trace elements such as calcium and magnesium, contain flavonoids and saponins, bitter and tannins, vitamins K and U, carotene and pectin, ascorbic, citric and oleanolic acids. Therefore, plantain leaves are used to increase gastric secretion), shepherd's bag (*Capsella bursa-pastoris*). The mucus in the composition of the plant protects the respiratory tract, dilutes sputum and relieves the inflammatory process. Also, the shepherd's bag reduces the likelihood of sepsis and infection, acts as an antibiotic and antiseptic. Accelerates tissue regeneration in eczema and other dermatological diseases [1].

It has an astringent effect, slows down intestinal peristalsis. Alfalfa seed (*Medicago sativa*) was also often used in the treatment of smallpox in turkeys. Alfalfa contains a large amount of chlorophyll, which helps to cleanse (detoxify) the entire body. Also, this plant contains a lot of vitamins in its composition; minerals — iron, zinc, potassium, calcium; acids — citric, malic, ascorbic, fumaric, oxalic. These are the substances that insulate the body and increase immunity in chickens and turkeys. Using natural remedies not only for people, but also for animals in rural areas, cities and in specialized pasture farms, we can achieve the production of clean ecological products not only in rural areas, but also in all farms.

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