

A CASE REPORT OF FOWL CHOLERA DISEASE IN NORTH OF IRAN

BY:

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History:

The occurrence of fowl cholera is reported in domestic fowls in many parts of the world.

According to the annual reports of the Razi Institute the outbreaks of the disease with mortalities have been reported and confirmed by bacterial isolation at the Razi Institute in the years 1973, 1974, 1975 and 1977. In the years 1981-1983 some outbreaks of fowl cholera with more or less mortalities have been reported from Guilan and Mazandaran provinces in the northern part of Iran. In the field investigations a mortality rate of about 70% have been discovered among ducks, geese, chickens and turkeys of Sarestil area which is near the city of Astara.

Materials and methods

Bacteriological examination:

Bacterial isolation was carried out from the heart blood and the liver of the fowls after death, using ordinary media. Table 1 shows biological and biochemical properties and carbohydrate fermentation of **Pasteurella multocida** isolated strains. In Table 2 sensitivity of the strain to antibiotics and sulphamides is shown by the disk method.

Pathogenicity:

Four adult mice, two rabbits and two chickens were respectively inoculated subcutaneously 0.2, 0.5, and 1 ml of a 24 h. old pure culture of **Pasteurella multocida** field strain. The inocula contained approximately 3×10^9 viable organisms/ml. All experimental animals died 24 h. post inoculation and pure **Pas. multocida** was isolated from their heart blood and livers.

Incidence:

According to earlier reports of the Veterinary Organization, experts in the north of Iran the fowl cholera has been found in the years 1973-1974 with mortalities among the fowls. The climatic conditions of a high humidity and a heavy rainfall are suitable for the incidence of fowl cholera along the Caspian sea. Occurrence curve of the disease usually initiates from spring and rises during the summer, reaching the peak in the months of August and

September, then gradually declining with the approach of the cold seasons. In the most of epidemics acute and subacute forms have been reported.

Carriers:

During the past years, suspicious mortalities have been observed among wild birds around the seaside in the north of Iran. It is possible that these unknown mortalities have been due to fowl cholera disease. More investigations are necessary to prove the role of the wild birds as carriers of the fowl cholera disease. Faddoul, G.p., Fellows, W., Baird, J., have reported the disease in the wild birds(1).

Vaccination in infected flocks:

About 3000 chickens, ducks, geese and turkeys were experimentally vaccinated by a killed aluminum hydroxide vaccine which had already been prepared at the Razi Institute from a local strain. The killed vaccine was used in the infected area near the city of Astara. Vaccinal dose contained 10^{10} organisms per ml and was administered by the intramuscular route. Second vaccination was done 21 days later. Final results indicated that except for five percent mortalities at the beginning of the vaccination, the vaccinated flocks, with one or two doses of the vaccine, resisted the disease completely and the mortalities were contained.

Results

During the past ten years the fowl cholera has been one of the most important bacterial diseases of birds in the north of Iran. The bacterial examination of the isolated organisms confirmed the presence of **Pasteurella multocida** which was pathogenic for sensitive laboratory animals. Table 1 and 2 show the results of bacterial examinations. Capsular and somatic typing performed by Malaysian workers showed the organisms to be **Pas.multocida** type A1*. The disease could be prevented by a killed aluminum hydroxide vaccine.

Discussion

Official figures show that the fowl population is about eight millions in Guilan and Mazandaran provinces where they are mostly kept under the traditional system e. i. each farmer keeps his own small flock. Under such a system the control of the fowl cholera disease, which causes heavy mortalities, is not easy. Although prevention and treatment with antibiotics is effective but access to the drugs is not easily possible and sometimes is not economical for the farmers.

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Since the main source of the infection is the water, it seems that, apart from regular mass vaccination, the observance of the animal health regulations can diminish the incidence of the disease and conserve a part of the protein source.

References

- 1 – Fuddoul, G.P., Fellows, W., and Baird, J. 1967. Pasteurellosis in wild birds in Massachusetts. Avian diseases, 11:413-18.

Table 1 – Biological and biochemical properties and carbohydrate fermentation of **Pasteurella multocida** isolated from fowls.

Shape	Rod	Dulcitol	–
Capsulation	+	Inositol	–
Gram staining	–	Adonitol	–
Bipolar staining	+	Galactose	+
Growth on Macconkey agar	–	Starch	–
Gelatin hydrolysis	–	Mannose	+
Urease activity	–	Glycerol	–
Indole production	+	Rhamnose	–
H ₂ S	–	Arabinose	+
Catalase activity	+	Inulin	+
Nitrate reduction	+	Trehalose	–
Nitrite reduction	+	Raffinose	+
Glucose	+	Fructose	+
Lactose	–	Maltose	–
Mannitol	+	Xylose	+
Sucrose	+	Dextrin	–
Salicin	–		

Table 2 – Sensitivity of **Pasteurella multocida** isolated from fowls to antimicrobial agents.

antimicrobial agents	Sensitivity
Trimethoprim & Sulphamethoxazole	++++
Erythromycin	++++
Tetracycline	++++
Neomycin	+++
Terramycin	+++
Acid nalidixique	++++
Furadoine	++++
Garramycin	++++
Cephalotine	++++
Doxycycline	++++
Chloramphenicol	++
Cephaloxine	++++
Streptomycin	++
Oxacilline	–