قســـــــم : طب الحيوان وأمراض الدواجن ـ كلية الطب البيطرى ـ جامعة أسيوط.
رئيس القســـم : أ.د / ابراهيم محمد حسن سكر.

اصابة الرومى بالميكوبلازما مليجريد س فى صعيد مصر

طـــى العبيدى * الرفاعى محمد الرفاعى ، عـــوض عبد الحافظ ، محسن الدمرداش، عادل سليمان

تم عزل الميكوبلازما مليجريد س من عينات الجيوب الأنفية والقصبة الهوائية للطيور المصابة بنسبة ٨ر١ ٪ و ٩ر٣ ٪ على التوالـــى .

- بفحص العينات المأخوذة من الطيور النافقة أوضحت أن الميكروب يوجد بنسبة عالية فى عينـــــات الأكياس الهوائية .
- تم العزل ايضا من البيض اللائح والأجنة الميتة .
- الفحص السيرولوجى لعينات المصل وصفار البيض والسوائل الجنينية أظهرت وجود أجســـام مناعيـــة لميكروب الميكوبلازما مليجريد س أمكن الكشف عنها باستخدام كلا من الاختبار المانع للنمو واختبـــار التـــلازن السريع.

* قســـــــم : الميكوبلازما ـ معهد بحوث صحة الحيوان ـ الجـــيزة .
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MYCOPLASMA MELEAGRIDIS INFECTION OF TURKEYS IN UPPER EGYPT

(With 4 Tables)

By

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SUMMARY

Mycoplasma meleagridis was isolated from samples of tracheal and sinuses swabs.

Examination of specimens collected from dead birds revealed that high percent of M. meleagridis was recovered from air-sacs.

The organism was also isolated from infertile - eggs and dead turkey - embryos.

Serological examinations of serum, egg-yolk and embryonic-fluids showed that antibodies of M. meleagridis were detected by both Growth-inhibition and slide - Agglutination tests.

INTRODUCTION

Diagnosis of Mycoplasmosis of turkeys could be based on clinical and pathological examinations combined with detection of organism as well as serological studies on sera and egg - yolk of affected birds.

Mycoplasma meleagridis is the most important mycoplasma species of turkeys that was isolated for the first time from day-old-poults suffering from air-sacculitis by ADLER, et al. (1958). PROKOFEVA, et al. (1963) described the method of preparation of ppLO antigen that is used in serum-plate-agg-lutination test, which was specific. YAMAMOTO and ORTMAYER (1967) recovered M. meleagridis from various organs of day-old poults and dead-embryos.

Beside the serolobical examination of sera, DEVOS, et al. (1968) used the egg-yolk agglutination test and compared it with the rapid serum-agg-lutination test. They also found that both tests gave identical results. The causative organism was recovered from the oviduct, vagina of adult females and phalus, semen of males by BALKIN (1979).

The problem was studied in Egypt by EL-EBEEDY (1973) who isolated M. meleagridis, from dead-in-shell embryos, day-old, 2 - 3 weeks-old poults and oviduct of laying turkey-hens as well as from cloaca of male turkeys and lower part of intestine. As high losses in turkeys were attributed by many investigators to M. meleagridis infections, so the present work was planned to cover the following items:

- Isolation, identification of M. meleagridis from living, dead-turkeys, infertile-eggs and dead-embryos.
- Detection of antibodies of M. meleagridis from egg-yolk, embryonic fluids sera of turkeys in the area of Upper Egypt, (Assiut and El Wadi El Gidid) where such study was not done before.

MATERIAL and METHODS

153 tracheal swabs and 54 sinus swabs were collected on Vained - Foie - broth, from turkeys of two-months up to more than one-year-old. Also 169 dead turkeys of different ages were subjected to P.M. examinations, samples from trachea, lungs and air-sacs were used for trials of isolation. In addition 57 infertil-eggs collected from incuators, and 160 dead-in-shell embryos of different ages were examined for detection of M. meleagridis (Assiut and El-Wadi El-Gidid provinces).

Isolation and identification of M. meleagridis:

Samples were inoculated on V.F. broth and agar incubated for 3-days at 37°C in moist candle jar with low oxygen

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tension. For recovery of M. meleagridis colonies, the culturing technique described by SABRY (1968) was carried out. The suspected colonies were subjected to further identification biochemically " SABRY (1968), ERNO & STIPKOVITIS (1973) " and serologically " CLYDE (1964) and KROGSGARRD - JENSEN (1972) ".

Detection of M. meleagridis antibodies in serum samples:

480 serum samples collected from different ages of turkeys were subjected to slide agglutination - test and Growth - Inhibition - test, recomended by ADLER & YAMAMOTO (1956) and CLYDE (1964) respectively.

The antigensused in this study were obtained from Wellcome Foundation Ltd. Langley Court, Beckenham, Kent, England.

Detection of M. meleagridis antibodies in egg-yolk and embryonic - fluids:

57 yolk sasmples collected from fresh eggs and 160 samples of embryonic - fluids were examined for detection of M. meleagridis antibodies after BENJAMIN & HITCHNER (1978).

RESULTS

The examined living birds showed decrease of body gain, swelling of infra-orbital sinuses, nasal discharges and lacrimation. Some cases revealed hard breathing, rales and abnormal sounds especially among those of young ages. The most common P.M. lesions observed on dead birds were tracheitis, pneumonia and air - saculitis especially in poults, while the old birds showed sinusitis, tracheitis, pneumonia, air - sacculitis and fibrinous perihepatitis, pericarditis and salpingitis.

Results of M. meleagridis recovery from living, dead-turkeys, infertile - eggs and dead-embryos were illustrated in Tables I, and II while those of antibodies detection from sera, egg - yolk and embryonic - fluids were tabulated in Tables III and IV respectively.

Table (I): M. meleagridis recovery from living and dead turkeys

Sp Specimens	No. of samples	M. meleagridis	
		No.	%
Tracheal swabs.	153	6	3.9
Sinuses swabs.	54	1	1.8
Sinus exudate	169	3	1.7
Trachear	169	12	7.1
Lungs	169	4	2.4
Air - sacs	169	14	8.2

Table (II): M. meleagridis isolation from infertil-eggs and dead-embryos

Specimens	No. of Samples	M. meleagridis	
		No.	%
Infertil - eggs	57	3	5.3
Yolk of dead-embryos *	115	8	6.9
Trachea, lungs, Air-sacs of dead-embryos	160	14	8.7

* The remainder 45 yolk samples were unfit for isolation trials.

Table (III): M. meleagridis antibodies detected in turkey-sera

Age of examined turkeys	No. of samples	Positive cases	
		S.A.T.	G.I.T.*
One-two months.	230	12	23
Four-six months	160	3	16
More than one year.	90	8	9

* S.A.T. Slide agglutination test.
G.I.T. Growth inhibition test.

Table (IV): Serological examination of egg-yolk and embryonic-fluids

Specimens	No. of samples	Positive cases to S.A.T.	
		No.	%
Egg-yolk	57	18	31.6
Embryonic-fluids	160	21	13.1

DISCUSSION

Mycoplasmosis of turkeys constitute an important economic problem causing high loses allover the world. The clinical signs and P.M. picture described by the authers in the present study were closely similasr to those of FREY, et al. (1968) and YAMAMOTO (1978), who found that air-sacculitis was the prominent feature of M. meleagridis infections of turkeys.

Examination of living birds indicated that a relaticely high percentage (3.9) of M. meleagridis was isolated from tracheal swabs in comparison with sinuses swabs (1.8°1.). Specimens from dead turkeys subjected to trials for isolation of M. meleagridis revealed that the highest incidence (8.2°1.) was recovered from air-sacs. followed by trachea, lungs and sinus-exudate in decreasing manner "7.1, 2.4 and 1.7°1." respectively. This result agreed with those of FREY, et al. (1968) and YAMAMOTO (1978) who conculoded that air-sacculitis was associated with M. meleagridis infections of turkeys. The recovery of M. meleagridis from infertile-eggs and dead-embryos suggested that the causative organism is transmitted through eggs. The same results were also recorded by YAMAMOTO, et al. (1966).

Serological examination of serum samples collected from turkeys of different ages revealed that the Grewth-Inhibition test was more reliable and sensitive in detecting M. meleagridis antibodies. Our results were similar with the work of OGRA & BOHL (1970) and EL-EBEEDY (1973). Detection of antibodies in egg-yolk and embryonic-fluids indicated that high level of positive cases were recorded, especially among yolk samples (31.6°1.), this may be attributed to high titres of maternal antibodies secreated through eggs. some-what similar findings were recorded by DEVOS, et al. (1968) who found that both egg-yolk-agglutination test and rapid-serum-agglutination-test gave identical results.

The present study proved that M. meleagridis is widely spreaded in the area of Upper - Egypt and both Growth Inhibition test of serum samples and egg-yolk-agglutination-test of fresh eggs are dependable means for detection of M. meleagridis antibodies.

REFERENCES

Adler, H.E.; Fabricant, J.; Yamamoto, R. and Bery, J. (1958): Symposium of chronic respiratory disease of poultry. 1- Isolation and identification of ppLO of avian origin. Am. J. Vet. Res. 19, (71), 440-447.

Adler, H.E. & Yamamoto, R. (1956): Pathogenic and non-pathogenic ppLO in infectious sinusitis of turkeys. Am. J. Vet. Res. 18, (69). 655-656.

Belkin, V.A. (1979): Mycoplasma from the genital system of turkeys. Moscow, USSR, No. 14, 31-32.

Benjamin, L. & Hitchner, S.B. (1978): Infections Bursal disease emulsified vaccine: Effect upon Neutralizing-Antibody level in dam and subsequent protection of the progeny. Avian Dis. 23, (2), 466-478.

Clyde, W.A. (1964): Identification of mycoplasma species based on growth-inhibition-test by specific antisera. J. immunol. 92, 958-965.

Devos, A.; Dcvriesc, L. and Viaene, N. (1968): Experimental infection of M. gallisepticum in broiler chicks. Vlaams diergeneask. Tijdschr, 38, 113-125.

El-Ebeedy, A.A. (1973): Some studies on avian mycoplasmasis in Egypt. Thesis. Cairo Univ., Fac. of Vet. Med.

Erno, H. & Stipkovitis, L. (1973): Bovine mycoplasma, culture and biochemical studies. Acta. Vet. Scand., 14, 436-449.

Frey. M.L.; Anderson, D.P. and Hanson, R.P. (1968): Air-sacculitis relation to M. gallisepticum free turkeys. Avian Dis. 12, 963-966.

Krogsgaard-Jensen (1972): Mycoplasma: Growth-precipitation-test as serodiagnostic method. Appl. Microbial 23.553.

Ogra, M.S. & Bohl, E.H. (1970): Growth-inhibition-test for identifying M. meleagridis and its antibodies. Avian Dis. 14, 364-373.

Prokofeva, M.T.; Gurova, E.I. and Kiprich, V.V. (1963): ppLO antigen for diagnosis of avian mycoplasmasis by the rapid-serum-agglutination-test. Veterinariya, Moscow, 40, (12), 60-63.

Sabry, M.Z. (1968): Characterization and classification of avian mycoplasma. Thesis, Cornell Univ., U.S.A.

Yamamoto, R. (1978): M. meleagridis in genital tract of turkey hens and its role in egg-transmission. Diseases of Poultry, M.S. Hofstad, 7th Ed. pp. 250-260. Iowa, State Univ. Press. Ames.

Yamamoto, R.; Bigland, C.H. and Peterson, I.L. (1966): Egg-transmission of M. meleagridis. Poultry Sci. 45, 1145-1157.

Yamamoto, R.; and Ortmayer, H.B. (1967): Hatcher and intra-flock transmission of M. meleagridis. Avian Dis., 11, 288-295.