

# HELMINTH PARASITES INFESTING MIGRATORY QUAIL, COMMEN GREY QUAIL (*COTURNIX COTURNIX*)

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## SUMMARY

The intestines of 35 migratory quail, commen grey quails (*Coturnix coturnix*) were examined for identification of their helminth parasites. Three species of cestodes were collected, *Hymenolepis parvisaccata*, *Choanotaenia infundibulum* and *Raillietina Tetragona* from small intestine. Only one species of nematodes *Subulura differens* were collected from caecum.

The prevalence and average number of worm per bird were detected.

The morphological characteristic of the detected worm were described.

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## INTRODUCTION

Migratory birds are playing a major role in introducing new infections with pathogens to our local breeds during their presence in our country.

Quail are birds which visit Egypt, every autumn and still for a short period.

During their stay in Egypt, they can spread their own parasites to the surrounding native breed quails as well as other susceptible birds.

On reviewing literature, few contribution were found describing some Parasites of migratory and native breed quails, Otify (1989) described two tape worms (*Raillietina echinobothrida* and *Choanotaenia infundibulum*) from migratory and domesticated quail, also Koroglu and Tasan (1996) have recorded *Choanotaenia infundibulum*, *Fimbriaria Fasciolaris*, *Lyruterina nigropunctata*, *Raillietina echinobothrida*, *R. Tetragona*, *Heterakis gallinarum*, *Pseudaspidodera pavonis* and *Subulura differens* from quail.

Also previous investigators reported cestoda and Nematoda from babwhite quail (Moore and Simberloff 1990, Durette et al., 1993) and from

california quail (*Coliipepla californica*) Moore et al. (1989).

Continuous progress in drug production and control methods applied specially in Europ must be reflect also on level of infestation by different parasites even in migratory birds visit Egypt and originate from these countries. No recent survey was don on migratory quail visit Egypt after Otify (1989).

So this paper rexamin these migratory quail to clearly the helminth parasites infestation.

Therefore this work was initiated to give recent information on the helminth parasites of the common grey quail.

#### MATERIAL AND METHODS

Thirty Five Living migratory quail captured from Port Seid beach during September 1996 and September 1997. The bird kept a live and transfered to the labe of parasitology at Animal health Research Institute, Dokky, Giza.

After slaughtering of the collected birds, the intestine of each quail was divided into 4 portions. The content of each portion was separately evacuated in a jar and then opened. All available worms were collected. Both cestodes and nematodes were mounted according to the Techniques mentioned by Pritchard and Kase (1982). Then they were identified according to York and Mapleston (1926) Yamaguti (1935a), Wardle and McLeod (1952) Yamaguti (1959) Yamaguti(1961), Reid (1962) and Khalil et al

(1994).

#### RESULTS

The result displayed in Table (1) shows that 80% from the examined quails harbors different helminth infection.

Four mature parasites were extracted from the examined cases including 3 cestodes and one nematodes species. The most common cestodes detected was *Hymenolepis parvisaccata*, (42.85%) followed by *Choanotaenia infundibulum* (31.42%). One bird (2.85%) was found having *Raillietina Tetragona* and another bird 2.85% has *Subulura differens*.

The mean number of worm per each infected bird Table (2) varied from 1-3 worm/bird in case of *Hymenolepis parvisaccata* and *Choanotaenia infundibulum* with mean number of 1.86 and 2 respectively.

While only one *Raillietina tetragona* was found in one bird and 5 *Subulura differences* were found in another bird.

No mixed infection was detected between infested birds.

Three mature cestoda species and one nematoda species were detected in the examined infested cases.

According to, York and Maleston (1926) Yamaguti (1935) Yamaguti (1959) Wardle and McLeod (1952) Yamaguti (1961), Reid (1962)

Table (1) : Percentage of infestation of 35 Coturnix coturnix with different helminth parasites infesting migratory quail.

Type of extracted parasites	No of infected bird	% of infestation
1- Hymenolepis parvisaccata	15	42.85
2- Choanotaenia infundibulum	11	31.42
3- Raillietina tetragona	1	2.85%
4- Subulura differens	1	2.85%
Total	28	80%

Table (2) : Helminth burden of the examined birds.

Type of parasites	No. of infested birds	No. of collected specimen	No. of helmenth in the infested birds	No. of helmenth per bird
- Hymenolepis parvisaccata	15	28	1-3	1.86
- Choanotaenia infundibulum	11	22	1-3	2.0
- Raillietina tetragona	1	1	1	1
- Subulura differens	1	5	5	5

Soulsby 1982) and Khalil et al. (1994). The morphological characters and measurements of the detected worms belong to the following genera and species.

A- *Hymenolepis parvisaccata* (Shepard, 1943).

B- *Choanotaenia infundibulum* (Block, 1799).

C- *Raillietina Tetragona* (Molin, 1858).

E- *Subulura* difference (Sonsino, 1890).

#### **A- *Hymenolepis parvisaccata* (Shepard, 1943).**

Twenty eight worms were collected from small intestine of 15 birds. These worms were extremely thin, thread like, measured 1.72-14.53 m.m in length, genital pores were located anterior to the lateral margin of proglottids. The scolex measured 100-170x150-200  $\mu$ m in diameter, sucker measured 70 x 85  $\mu$ m. Rostellum was armed with 16 hooks being 12-18  $\mu$ m long, it measured 30-60 x 70-130  $\mu$ m. The neck region measured 115-280  $\mu$ m in length.

Mature segments were broader than long, measuring 280  $\mu$ m in length, 490  $\mu$ m in breadth. The testes were three in number each one was triangular in shape and it coarsely lobed. It measured 50 x 110 - 75 x 123  $\mu$ m or vary was median in position it coarsely lobed and measured 160 x 175. The gravid segments were longer than broad it contains eggs, each measured 35 x 45  $\mu$ m.

#### **B- *Choanotaenia infundibulum* (Block, 1799).**

Twenty two worms were collected from the small

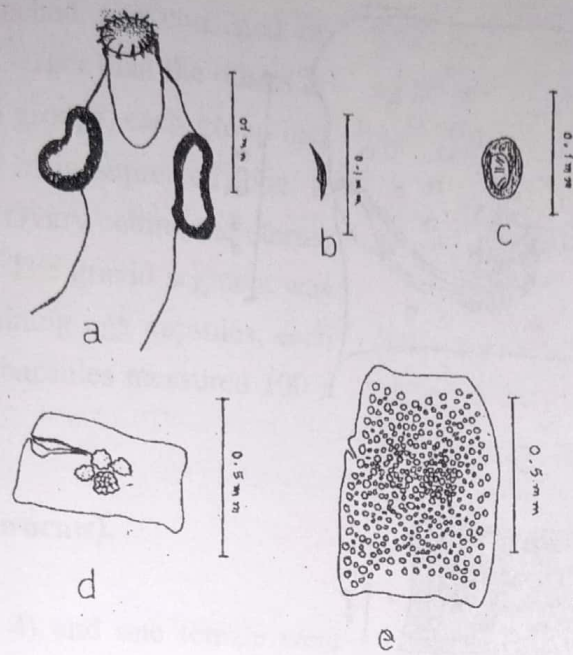
intestine of 11 birds. The total length ranged from 8.55-21.4 m.m. The dimensions of the scolex were 100-300 x 170-370  $\mu$ m. The scolex was occupied with four unarmed suckers. The suckers were 50-130 x 75-190  $\mu$ m in diameters. Rostellum bore a single row of hooks (20 hooks) each measured 15-30  $\mu$ m, neck was measured 100-200  $\mu$ m. The genital pores were irregularly alternated and opened near the anterior border of the segment.

The anterior segments were short while the mature segments were markedly wider posteriorly than anteriorly giving the characteristic bell-shaped appearance. It measured 180-430  $\mu$ m. The testes were 25-32 in number, distributed in posterior half of segment behind and at the side of the large yolk gland. The uterus was strongly lobed sac like. Gravid segments were longer than broader and easily ruptured with expulsion of egg capsules which each contain single egg. Egg measured 15.6  $\mu$ m with two distinctive filaments one at either pole Fig.(2).

#### **C- *Raillietina Tetragona* (Molin, 1858).**

The collected worm was one, without scolex it measured 10.6cm.

The mature segments were broader than long measuring 650 x 630  $\mu$ m. Genital pores were at the middle of lateral margin of proglottids. Testes were numerous rounded in shape, regularly distributed in the whole segment.



**Fig. (1) :** *Hymenolepis parvisaccata*

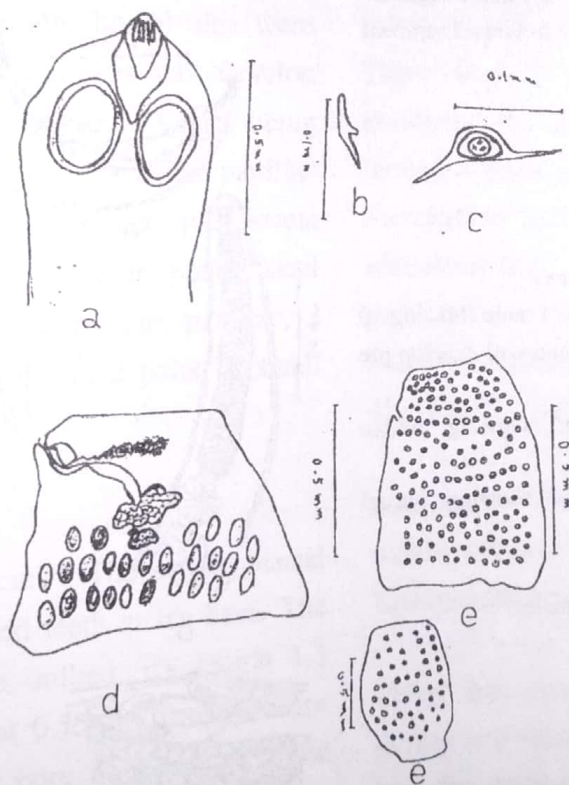
A- Scolex

b- Rostelum hook

d- Mature segment

c- Egg

e- Gravid segment



**Fig. (2) :** *Choanotaenia infundibulum*

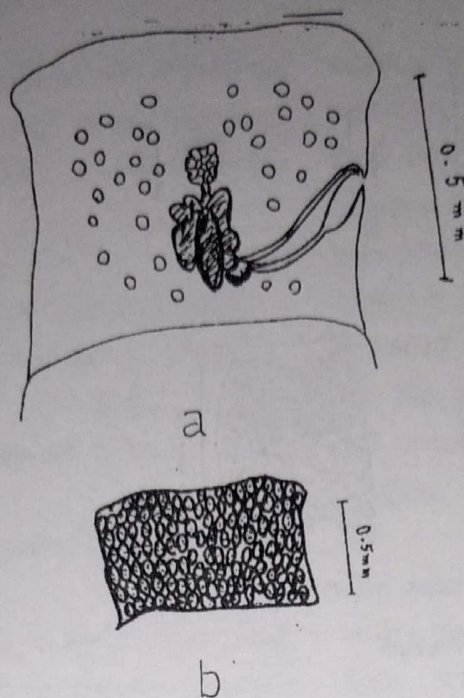
a- Scolex

c- Egg

e- Gravid segment

b- Rostulum hook

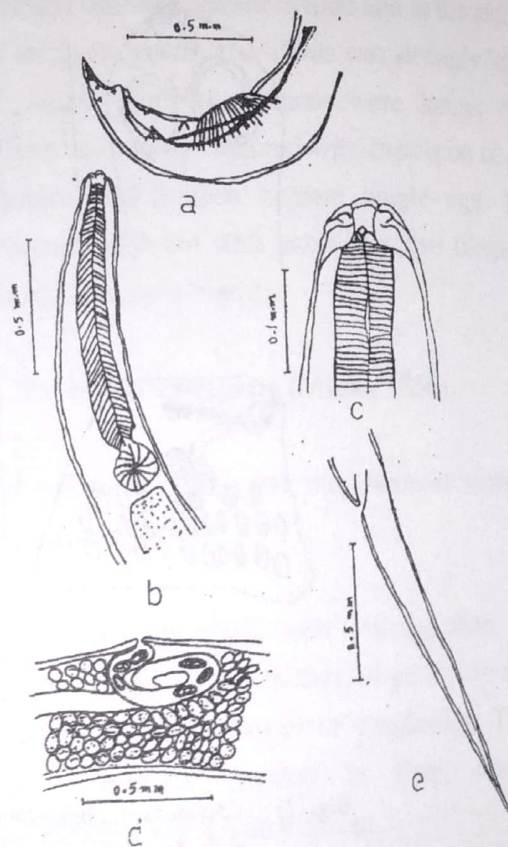
d- Mature segment



**Fig. (3) :** *Raillietina tetragona*  
 a- Mature segment  
 b- Gravid segment

**Fig. (4) :** *Subulura differens*

- a- Posterior end of male showing 10 caudal papillae and will develop pre cloacal sucker
- b- Anterior end showing double bulb oesophagus
- c- Anterior end showing buccal capsule
- d- Vulva
- e- Tail end in female



Uterus was strongly branched and consisted of seven lobes one lobe was larger than the others & separated uterus into two groups, each group had 3 lobes smaller than the main separated lobe. It measured 250 x 130  $\mu$ m. Ovary behind the uterus, it measured 70 x 50  $\mu$ m. The gravid segment was broader than long, containing egg capsules, each with nine eggs, the egg capsules measured 100 x 50  $\mu$ m. Fig.(3).

#### *Subulura differens* : (5 worms).

Four adult males (Fig. 4) and one female were collected. The length of collected male ranged from 6.7-13.65 m.m. The width of body at oesophagus were 0.28-0.35 m.m the posterior end of the body was bent ventrally. The tail end was 0.22-0.26 m.m in length, lateral alae were present. The precloacal sucker was well developed sucker. The spicules were of equal length being 0.87 - 1.26 m.m. Ten pairs of caudal papillae were found. One pair of large size, pre-cloacal sucker papillae, one pair of large post-cloacal sucker papillae, 3 pairs of pre anal papillae, 2 pairs of post anal papillae and 3 pairs of small papillae at root of the tail.

#### Adult female.

One measured 9.46 m.m. The small buccal capsule has three rounded teeth at its base. The oesophagus was double bulbed, its length 1.3 m.m. The nerve ring at 0.7 m.m. from anterior end, and the excretory pore at 0.3 m.m. The vulva at 4.08 m.m from the anterior end (slightly anterior). The width of body at vulvar region was

0.26 m.m. The uterus was filled with embryonated egg. anus at 1.16 m.m from the tail end. Eggs were measured 30 x 55  $\mu$ m.

## DISCUSSION

The similarity in the morphological characters of different helminth species between that isolated previously from migratory birds and that recorded in domesticated bird as mentioned by Otify (1989) indicated that this migratory quail can play a role in transmission of infection to the other domesticated birds. The present study recorded three cestodes species *Hymenolepis parvisaccata*, *Choanotaenia infundibulum* and *Raillietina tetragona* which their percentages were 42.85%, 31.42% and 2.85% respectively. The nematodes *Subulura differens* with infection rate was 2.85%. This rate of infection differs from those mentioned by Koroglu and Tasan (1996) they recorded *Choanotaenia infundibulum*, *Fimbriaria fasciolaris*, *Lyruterina nigropunctata*, *Raillietina ehinobothrida*, *R. Tetragona*, *Heterakis gallinarum*, *Pseudaspidodera pavonis* and *Subulura differens* with infestation rates 39%, 1%, 4%, 1%, 2%, 1%, 2% and 1% respectively.

Also the prevalence of helminth infestation (80%) was higher than that recorded by Otify (1989) and Koroglu and Tasan (1996).

Thirty five examined migratory quail in Egypt during two successive outbreaks, the isolated species had the same characters of that infected other hosts fowl, Turkey, guinea fowl, domestic pigeon

and duck (Wardle and McLeod (1952), Reid (1962) and Khalil et al (1994). This clear up the role of migratory quail as a source of infection to the other domestic fowl. The study recorded two other worms *Hymenolepis parvisaccata* and *Subulura differens* did not described previously in migratory quail in Egypt.

*Hymenolepis parvisaccata* worms reported from the present study resembles in it's morphological character and it's measurements that of was recorded from pintail duck (Wordle and Mcleod 1952).

*Choanotaenia infundibulum* worms recorded from the present study agree with that recorded by Reid (1962) and Khalil et al (1994).

*Raillietina tetragona* mature segment and gravid segment recorded in the present study agree with that recorded by Yamaguti (1935 a) Reid (1962) and Soulsby (1982).

*Subulura differens* worms reported from the present study resemble in its general character and its measure to that discribed by Yamaguti (1961).

*Subulura differens* worm recorded in the present study differes from that recorded by El-Assaly (1983) and Ibrahim (1997). They recorded *subulur suctoria*, the male of *Subulur suctoria* had eleven pairs of caudal papillae and unequall spicules. While the present specimens male had ten paires of caudal papillae and equal spicules,

and the measurement of female worm and eggs of the present material smaller than *subulur suctoria*.

It is worth to mention that only adult helminths were reported in this study. This idicates that the quails were already infested during their visit to Egypt.

This study confirms the role of migratory quail in transmitting helminth parasites to the endogenous birds in Egypt.

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