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On a new species of *Moniezia* Blanchard, 1891 (Cestoda Anoplocephalidae) in *Capra hircus* from Jalgaon Dist. (M.S.) India

Sushil Jawale

Sant Dnyaneshwar Mahavidyalaya Soegaon,

Dist. Aurangabad (M.S.) India

sukalp.sush@gmail.com

Abstract :

The present communication deals with a new species of the genus Moniezia Blanchard, (1891) from the intestine of Capra hircus at Jamner, Jalgaon Dist. (M.S.) India. The new species Monieziajamnerensis Sp.Nov. is characterized by the presence of scolex squarish, large in size, mature proglottids 6 to 8 times broader than long, creaspdote with double set of reproductive organs, testes large in size, oval scattered all over the segment, 280-300 in numbers, cirrus pouch is oval, ovary large, inverted horse shoe shaped, vitelline gland large, irregular shape, post- ovarian.

Keywords: *Capra hircus, Jamner, Monieziajamnerensis*

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RESEARCH PAPER

Introduction

The genus Moniezia was established by Blanchard (1891). Skrjabin and Schulz (1937) divided this genus in to three subgenera as follows:

1] Inter proglottid glands grouped in rosettes ---------- *Moniezia*.

2] Inter proglottid glands arranged linearly---------- *Blanchariezia*.(Sometime absent)

3] Inter proglottid glands absent---------- *Baeriezia*.

The present worm agrees in all characters with subgenus *Blanchariezia*. Skrjabin and Schulz (1937) having two species as *M. (B.) benedeni* and *M. (B.) pallid*. Later on two more species were added by Shinde (1985) from the host *Ovisbharalas M. (B.) aurangabadensis* and *M.(B.) bharalae* at Aurangabad, M.S. India. Later on Patil (1997) added M. (B.) *warananagarensis* from *Caprahircus.* Nanware in (1999) erected M. (B.) *kalawati* from *Caprahircus* (*L.).*Kalse added (199) *M. (B.) murhari* from the same host, Pokale, (2004) added *M. (B.) caprai* from *Capra hircus(L.).* Pawar (2004) added *M (B)hindei* from *Capra hircus. M. (B) hircusaeis* added by Tat (2004). Later on Borde (2007) added *Moniezia (B) rajalaensis* from *Caprahircus(L.).* Padwal added one new species *Moniezia*(B) *govindae* in (2011). Lastly Barote added one new species *Moniezia (B) shegaonensis*(2013) and *Moniezia (B) shivajiraovae*(2014) The present communication, deals with the description of a newspecies, *Moniezia* (B) *jamnerensis* Sp.Nov. collected from the *Capra hircus* at Jamner District Jalgaon (M.S.) India.

Materialand Methods

Cestode parasites were collected from the intestine of *Capra hircus*at Jamner, District Jalgaon (M.S.) India during the period of June, 2018 to May, 2019. These cestodes preserved in hot 4% formalin and stained with Harris haematoxylin, passed through various alcoholic grades, cleared in xylene, mounted in D.P.X. and drawings are made with the aid of camera lucida. All measurements are given in millimeters. The identification is madewith the help of Systema Helminthum(1959).

Description

All the cestodes are consisting scolex, neck, immature,mature and gravid proglottids.The scolex is large in size, squarish in shape distinctly marked off from strobila and measures 1.11 (1.10-1.12) in length and 1.28 (1.20-1.36) in breadth. Suckers are large in size, oval in shape, four in numbers, arranged in two pairs, one pair in each half of the scolex and measures 0.41 (0.35-0.47) in length and 0.53 (0.51-0.55) in breadth. The neck is short wide, and measures 0.46(0.40-0.53) in length and 1.02(0.95-1.10) in width. The matureproglottids are 6-8 times broader than long with double set of reproductive organs and measures 1.69(1.61-1.77) in length and 8.56 (8.45-8.67) in width. The testes are large in size, oval in shape, 280-300 in numbers scattered all over the proglottids and measures 2.59(2.51 - 2.67) indiameter. The cirrus pouch is large in size, oval in shape, elongated, situated almost half of the proglottids and measures 1.26 (1.25-1.28) in length and 1.17 (1.16-1.19) in width. The cirrus is wide, short, curved, inside the cirrus pouch and measures 1.25 (1.23-1.26) in length and1.04 (1.03-1.05) in width. The ovary on each sides is large in size, inverted horse shoe shaped, ovarian follicles with numerous short, blunt round acini, measures 1.58(1.33-1.83) in length and 2.25(1.79-2.71) in width. Vagina posterior to cirrus pouch, thin tube and forms receptaculumseminis, is long tube reaches to the ootype which is oval. Vagina measures, 1.5 in diameters. Ootype is large, irregular in shape and measures0.2 in diameter. The vitelline gland irregular in shape, post ovarian, measures 0.3 in diameter.

Discussion

The genus *Moniezia* was erected by Blanchard in (1891). Theworm under discussion is having the scolex squarish, mature proglottids 6-8 times broader than long, testes medium in size, oval scattered all over the segment, 84-95 in numbers, cirrus pouch oval, ovary compact, rounded, vitelline gland post ovarian. The present worm differs from *Moniezia(B)benedeni*(1937),which is having numerous proglottids broader than long, posterior proglottids fleshy, testes 500 in numbers, arranged in two groups, cirrus pouch short and wide, vas deferens with 2-3 coils, ovary compact, in the centre of the segments, eggs well developed, inter proglottidal glands liner and close to the posterior margin of the segments, arranged transversely and reported from the Calves and Lambs. The present cestode differs from *Moniezia(B) pallida* (1926),which is having the uterus external, dorsal and ventrally over excretory canals, the interproglottidal glands varying in

size and reported from the host horse in South Africa. The present parasite differs from *Moniezia (B) aurangabadensis* (1985) which is having thescolex quadrangular, testes small, 1100-1200 in numbers, vasdeferens coiled, cirrus pouch cylindrical, oval with some rounded acini, gravid proglottids broader than long, uterus reticulate, inter proglottidal glands 12-15 in numbers and reported from *Ovisbharal*(*L*.)

The present tapeworm differs from *Moniezia (B) bharalae* (1985) which is having testesrounded,190-200 in numbers, vas deferensshort, elongated, fusiform, genital pores bilateral, sub marginal, ovary compact, inter proglottidal glands arranged in two rows, small in size, 38-44 in number and reported from *Ovisbharal (L.)*Thepresent form differs from *Moniezia (B) warnanagarensis*,(1997) which is having scolex large, testes 300-320 in number, distributed throughout the proglottids, in single field, ovary indistinctly lobed with 13-15 short, blunt acini, transversely elongated, inter proglottidal glands, 56 in numbers, oval, medium in size, cirrus pouch medium,oval, transversely elongated, slightly obliquely placed and extend beyond longitudinal excretory canal. The present cestode differs from *Moniezia (B) kalawati* (1999) which is having squarishscolex, oval shaped cirrus pouch, testes small, oval distributed through out the segment, 172 in number, ovary medium, short, blunt acini, and 54 inter proglottidal glands in the inter segmental region, medium, oval either single or paired, irregularly arranged in the central width of the segments and leaving space on each lateral side.

The present tapeworm differs from *Moniezia (B) murhari* (1997) in having the scolexsquarish, testes 405-415 in number, cirrus pouch elongated in the anterior region of the segments, ovary inverted horse shoe shaped, indistinctly bilobed each with numerous short, blunt, round, acini and inter proglottidal glands 63 in numbers. The present parasites differs from *Moniezia (B) caprai* (2004) which is having the scolex is medium, squarish, with large four suckers, without rostellum, testes oval in shape, 255-260 in numbers, cirrus pouch is medium in size and ovary medium in size, kidney shaped. The present worm differs from *Moniezia (B) shindei* (2004) in having scolex large, mature segments craspedote, testes 190-200 (195) in number, scattered all over segment and ovary a single mass, large, oval, cirrus pouch oval, elongated, in centre of the segment and vitelline gland large, oval, internal to ovary. The present cestode differs from *Moniezia (B)hircusae*(2004) which is having scolex large, mature segments big, craspedote, testes 168 in number, medium, small, scattered in a single field, ovary large, oval, a single mass,

in anterior half of the segment, inter proglottidal glands 14-15 in number, large, oval andcirrus pouch in anterior 1/3rdregion of the segment.

The present cestode differs from *Moniezia (B) rajalaensis*(2007) in having scolex large, globular, mature proglottids Squarish, Broaderthan long, testes 250-260 in numbers, medium, scattered throughout proglottids, ovary large, horse shoe shaped, inter proglottidal glands31-32 in number, large, oval and cirrus pouch oval.

The presentcestode differs from earlier described *Moniezia (B) govindae* (2011) inhaving scolex large, globular, matureproglottids big, craspedote, testes 100-140 in numbers, medium, scattered throughout proglottids, ovary large, compact, nut shaped, inter proglottidal glands 40-42 in number, large, oval and cirrus pouch elongated.

The present cestode differs from earlier described *Moniezia (B) shegaonensis* (2013) in having scolex globular, elongated, mature proglottids 4 to 5 times broader than long, Inter proglottidal glands 20-25 in number, testes small in size, rounded scattered posterior to segment, 100-105 in numbers, cirrus pouch oval, ovary compact, rounded, vitelline gland post ovarian.

The present cestode differ from earlier described *Moniezia (B) shivajiraovae* (2014) in having scolexsquarish, large, mature proglottids 6 to 8 times broader than long, creaspdote with double set of reproductive organs, testes medium in size, oval scattered all over the segment, 84-95 in numbers, cirrus pouch oval, ovary compact, rounded, vitelline gland post ovarian. The above differentiating characters are valid enough to erect a new species for these cestodes and hence the name *Moniezia (B.) jamnerensisSp.Nov.* is proposed, after the locality of the host.

Taxonomic Summary

Genus - *Moniezia Blanchard*, 1891

Species- *Moniezia (B) jamnerensisSp.Nov*.

Type host- *Capra hircus*

Habitat (Site) -Intestine

Type locality –Jamner, Dist. Jalgaon Maharashtra, India.

Holotype and Paratype - Deposited in the Helminthology Research

Lab. Dept. of Zoology, Dr. B.A.M. University, Aurangabad, (M.S.) India.

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Etymology -Named after the locality of the species

A Key to the Species of the genus Moniezia Blanchard, [2]

Mature segments broader than long	-1
Mature segments Squarish	-*M. (B.) pallida* (1926)
Mature segments medium in size	-*M. (B.)capari* (2004)
Mature segments Craspedote	- 2
1) Scolex globular	- 3
Scolex quadrangular	-*M. (B.) aurangabadensis* (1985)
Scolexsquarish	-4
2) Inter proglottidal glands 14- 15 in number	-*M. (B.) hircusae* (1985)
Inter proglottidal glands 20-25 in number	- *Monieziashegaonensis*(2013)
Inter proglottidal glands 76 in number	- *M. (B.) shindei*(2004)
3) Testes below 150	- *M. (B.) govindae* (2011)
Testes in between 150-200	- *M. (B.)bharalae* (1985)
Testes in between 250-260	-*M. (B.) rajalaensis* (2007)
Testes above 300-350 in	- *M. (B.)warnanagarenisis* (1997)
Testes more than 350	- *M. (B.)benedeni*(1937)
4) Vitelline gland rounded	- *M. (B.) murhari*(1997)
Vitellaria follicular	- *M. (B.)kalawati*(1999)
Vitelline gland irregular	- 5
5) Testes below 100	-*M.(B) shivajiraovae* (2014)
Testes above 300	- ***M.(B) jamnerensisSp.Nov.***

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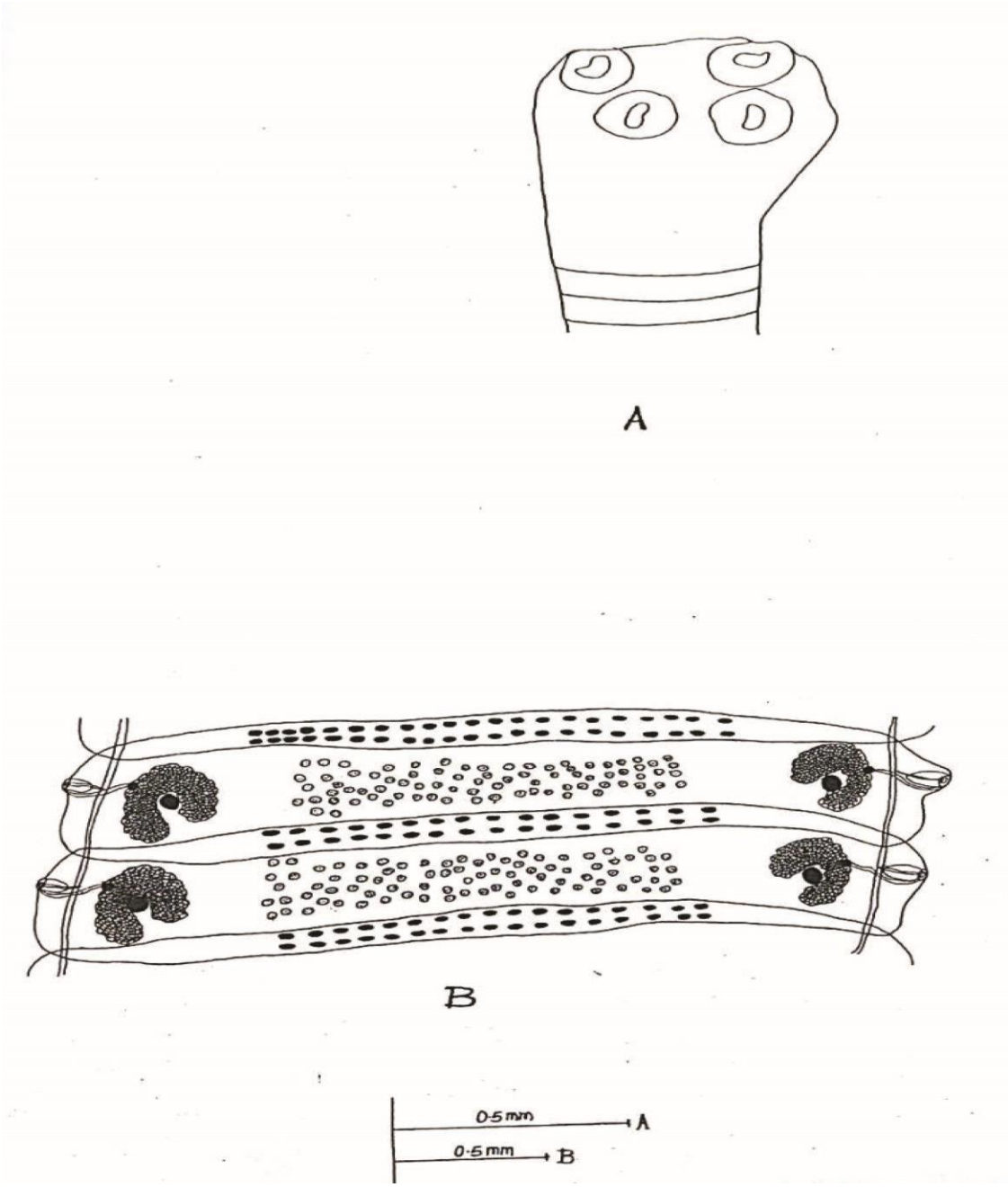

A:- Scolex

B:- Mature Segment