第 37卷 第 2期 厦门大学学报(自然科学版) Vol. 37 No. 2
1998年 3月 Journal of Xiamen University (Natural Science) Mar. 1998

卵形半肠吸虫成虫、童虫与虫卵扫描电镜观察①

杨 玉 荣
(厦门大学生物学系 厦门 361005)

摘要 报道了用扫描电镜观察卵形半肠吸虫成虫、童虫、虫卵的体表超微结构,成虫、童虫体表布满单生棘和皱折,虫卵表面光滑具卵盖.

关键词 卵形半肠吸虫,扫描电镜
中国图书分类号 Q 18

卵形半肠吸虫 (*Mesocoelium ovatum* Goto et Ozaki, 1930)隶属于半肠科(Mesocoeliidae),系一类寄生于两栖类肠道中的吸虫,其终末宿主是黑眶蟾蜍(*Bufo melanastictus*).半肠科至今报道的种类仅有 20余种.我国除了唐仲璋、唐仲惕[1](1992)报道了他们 60年代在福州完成的卵形半肠吸虫生活史以外,其它少有报告,尤其体表超微结构的观察至今未见报道.作者在进行黑眶蟾蜍感染卵形半肠吸虫的调查时多次收集到此吸虫成虫、童虫和虫卵标本.为了解其体表亚显微结构,作者首次用扫描电镜观察了成虫、童虫及虫卵的体表超微结构.

1 材料和方法

从黑眶蟾蜍肠道中查获的卵形半肠吸虫,在解剖镜下,将成虫、童虫和虫卵分别检出,用 2.5%戊二醛固定、磷酸缓冲液洗涤数遍,再按扫描电镜常规方法干燥,喷涂金膜后在扫描电镜上进行观察和拍照.

2 观察结果

卵形半肠吸虫成虫和童虫在光学显微镜下都可见到它的体表披一层小棘,但成虫和童虫体内结构有显著差别.童虫体形小,有的和尾蚴大小相近,生殖器官已形成,但无虫卵,身体透明.成虫体较大,体内各器官已成熟,并有数目不等的棕色虫卵.电镜观察结果如下.

1)童虫: 在扫描电镜下体呈卵圆形,体表布满皱折,象环纹一样(图 1),但一些环纹并不连在一起,在体前部,环纹大多断开.体前端还有些纵向皱折存在于口吸盘处.在皱折凸出部分生长有体棘.棘为单生棘,尖刀形,由前向后倒伏,尖端一律朝向体后,前一排体棘与后排体棘呈交错排列.体棘自体前向体后由密变疏(图 2),背面亦如此,在体末端体棘稀疏而短.在虫体后端皱折越加明显,体壁皱折连成环纹,末端体壁表面间有些纵向皱折,成一个个网格状(图 3).

在口吸盘上分布着 3– 4排的圆凸状乳突,似馒头状(图 4).腹吸盘上也分布着圆凸状乳突.间或有些更大的圆突起(图 5).

① 本文 1997-04-23收到

2)成虫: 体壁与童虫相似,体表布满单生小棘,体棘由前向后逐渐稀疏(图 6).体壁的皱折在腹吸盘之后逐渐加深,到体末端逐渐变成环纹状.纵向皱折在体末端更加明显与横向皱折形成网格状(图 7).在口、腹吸盘边缘上分布着圆凸状乳突,腹吸盘上的乳突数目少于口吸盘上的,在口吸盘处也有纵向皱折存在(图 8).

3)虫卵表面光滑,偶见有附着树茎络状物质,虫卵具有卵盖,卵盖厚而明显(图 9).

3 讨 论

卵形半肠吸虫的尾蚴和后蚴体表,在光镜下即可见到布满小棘,童虫和成虫虽发育程度不同,但其体表结构基本一致,都有体棘和皱折,说明此种吸虫从童虫到成虫的体表结构随着体内的发育并没有发生明显的变化,至于尾蚴及后蚴体表结构是否和它们相近,尚需进一步观察,卵形半肠吸虫体表体棘类似于卫氏并殖吸虫的单生棘[2],不同于斯氏并殖吸虫和大平并殖吸虫的丛生棘[3],也不同于中华双腔吸虫与胰阔盘吸虫的体表结构[4],唐崇惕、崔贵文等[4](1985)报导这两种吸虫的体表均呈海绵状,没有小棘分布,口吸盘外壁上具有圆凸,但腹吸盘上未见有圆凸和明显的乳突.因此尽管卵形半肠吸虫和双腔吸虫在演化上存在亲缘关系,但体内结构和体表超微结构皆不相同.这可能是与它们各自不同的寄生部位生活环境相适应有关.

参 考 文 献

1 唐仲璋,唐崇惕.卵形半肠吸虫的生活史研究(Mesocoeliidae).动物学报, 1992, 38(3): 272~277

2 何毅勋,马金鑫.卫氏并殖吸虫的扫描电镜观察.动物学报, 1980, 26(2): 146~148

3 樊培方等.三种并殖吸虫光学与扫描电镜观察.动物学报, 1979, 25(4): 353~358

4 唐崇惕,崔贵文等.中华双腔吸虫与胰阔盘吸虫体表亚显微结构的观察比较.动物学报, 1985, 31(4): 387~388

5 徐秉锟.人体寄生虫电镜图谱.北京: 人民卫生出版社, 1988

Observation on *Mesocoelium ovatum* Juvenile, Adult and Egg by Scanning Electron Microscope

Yang Yurong

(Dept. of Biol. Xiamen Univ., Xiamen 361005)

Abstract The author reports the surface structure of *Mesocoelium ovatum* juvenile and mature adult as well as egg by scanning electron microscope observaton for the first time. The appearance of juveniles looks very like the mature adults. They both are covered with folds and spines, though their sizes and some inner structures are different under the light microscope. The juveniles have the sex organs but no egg in the uterus. It is shown that the maturation of surface structure may not be related with the development time. The body surface of juveniles and adults are provided with transverse folds and vertical folds, which only are present at the anterior end and posterior end. The shape and arrangement of the tegumental spines of worms at different maturation are basically uniform, belonging to the single

spaced- pattern with pointed grow backword projecting. Several dome- shape papillae are observed around the rim of the oral sucker and acetabulum. They are tentatively identified as sensory organs. The surface of eggshell of *M. ovatum* including the operculum is generally smooth, and the operculum is thick and prominent.

Key words　*Mesocoelium ovatum*, Scanning electron microscope.

图版说明

图 1　童虫体表亚显微结构,示皱折× 300
图 2　童虫体表指向体后的单生体棘× 580
图 3　童虫体末端网格状皱折× 700
图 4　童虫口吸盘上的圆凸状乳突× 1000
图 5　童虫腹吸盘上的体棘及乳突× 1190
图 6　成虫体表皱折及体棘× 300
图 7　成虫尾部网格状皱折× 1000
图 8　成虫口、腹吸盘上的圆凸状乳突× 400
图 9　虫卵表面光滑,箭头示卵盖× 2000

Figure Illustration

Fig. 1　Scanning electron micrograph of *Mesocoelium ovatum* juvenile with showing tegumental transverse folds.× 300
Fig. 2　Juvenile by SEM showing the backward pointing spines which are single growth pattern.× 580
Fig. 3　The posteriror region of juvenile by SEM can be observed transverse and longitudinal folds.× 700
Fig. 4　Several dome- shape papillae on the oral sucker region.× 1 000
Fig. 5　Acetabulum portion showing single growth pattern spines and papillae.× 1 190
Fig. 6　Scanning electron micrograph of the mature adult showing the tegumental folds and spines with pointed backward projecting end.× 300
Fig. 7　The posterior region of adult showing transverse and vertical folds shaped mesh.× 1 000
Fig. 8　The dome- shaped papillae on the oral sucker and acetabulum of *Mesocoelium ovatum* adult.× 400
Fig. 9　Smooth appearance of *Mesocoelium* ovatum egg by SEM.× 2 000