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RESEARCH NOTE

Surface morphology of *Gastrodiscoides hominis* (Lewis & McConnell, 1876) Leiper, 1913 (Trematoda: Digenea) as revealed by scanning electron microscopy

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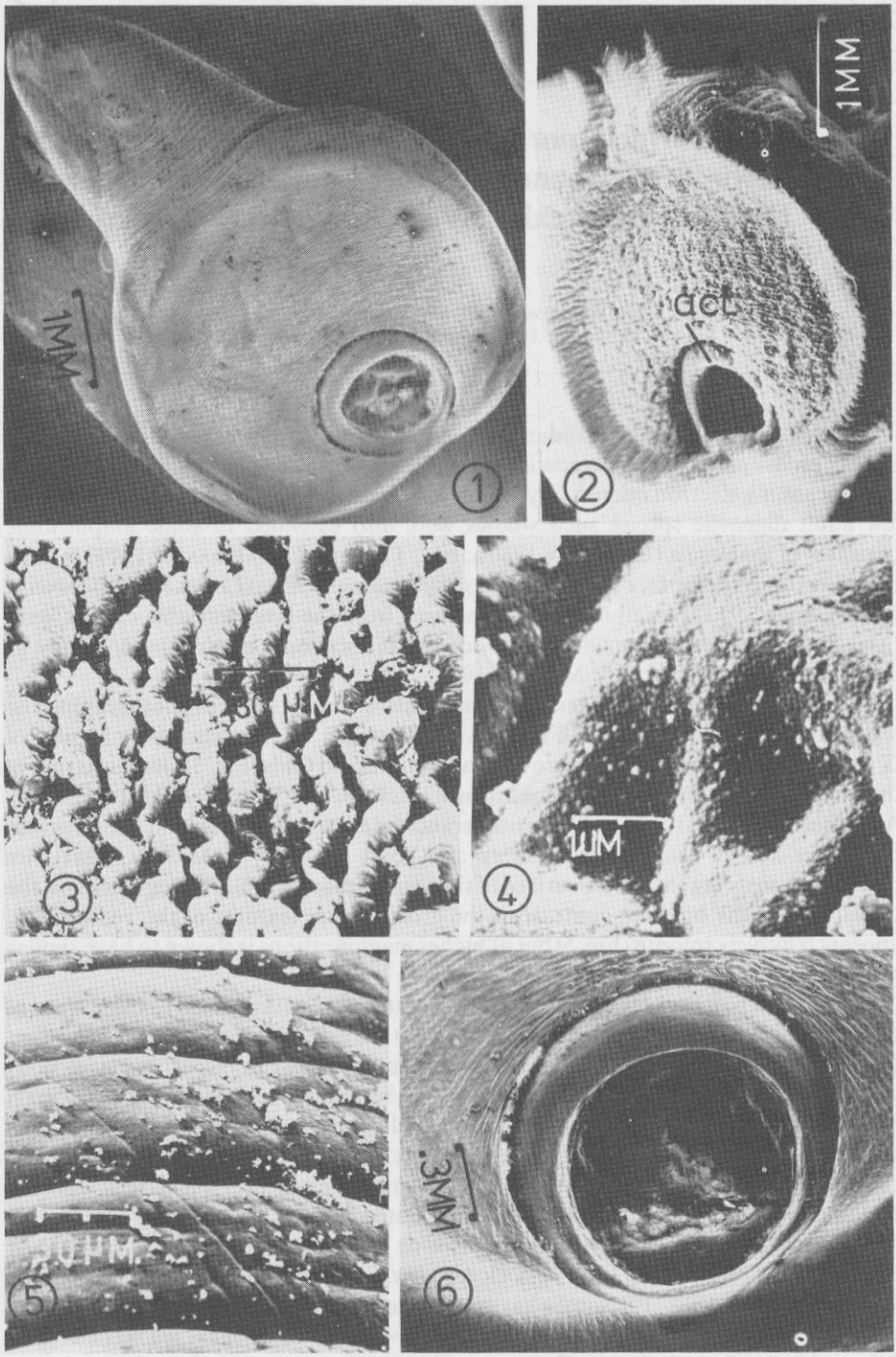
Conventional systematic studies of amphistome digenetic trematodes have relied mainly on histological characteristics at light microscopic levels. In view of the recent use of scanning electron microscopy (SEM) for visualization of surface topography of a few adult digenetic species such studies were also extended to some amphistome parasites of mammals (EDUARDO, 1980 a, b, c; TANDON & MAITRA, 1981, 1982). This note illustrates the surface features of *Gastrodiscoides hominis* (LEWIS & MCCONNELL, 1876) Leiper, 1913. Ten adult worms recovered from the large intestine of pigs, were fixed in 10% buffered formalin and processed for scanning electron microscopy as described earlier (TANDON & MAITRA, 1981).

The pertinent surface features (Fig. 1) are illustrated by a series of photographs. The tegument of the huge ventral disc (Figs. 1, 2), which is a characteristic feature of *G. hominis*, has a prominent pattern of convolutions and folds (Fig. 3) similar to that of the acetabular tegument in *Paramphistomum epiclitum* (see TANDON & MAITRA, 1981). At higher resolution tubercle-like protuberances similar to those seen in *Gastrothylax crumenifer* and *P. epiclitum* from sheep and goats (TANDON & MAITRA, 1981), are revealed as covering the whole surface of the ventral disc (Fig. 4). The tegument on the dorsal side of the body, in contrast to the gross surface features of the ventral disc, appears relatively smooth (Fig. 5) but at higher magnifications is shown to have similar protuberances.

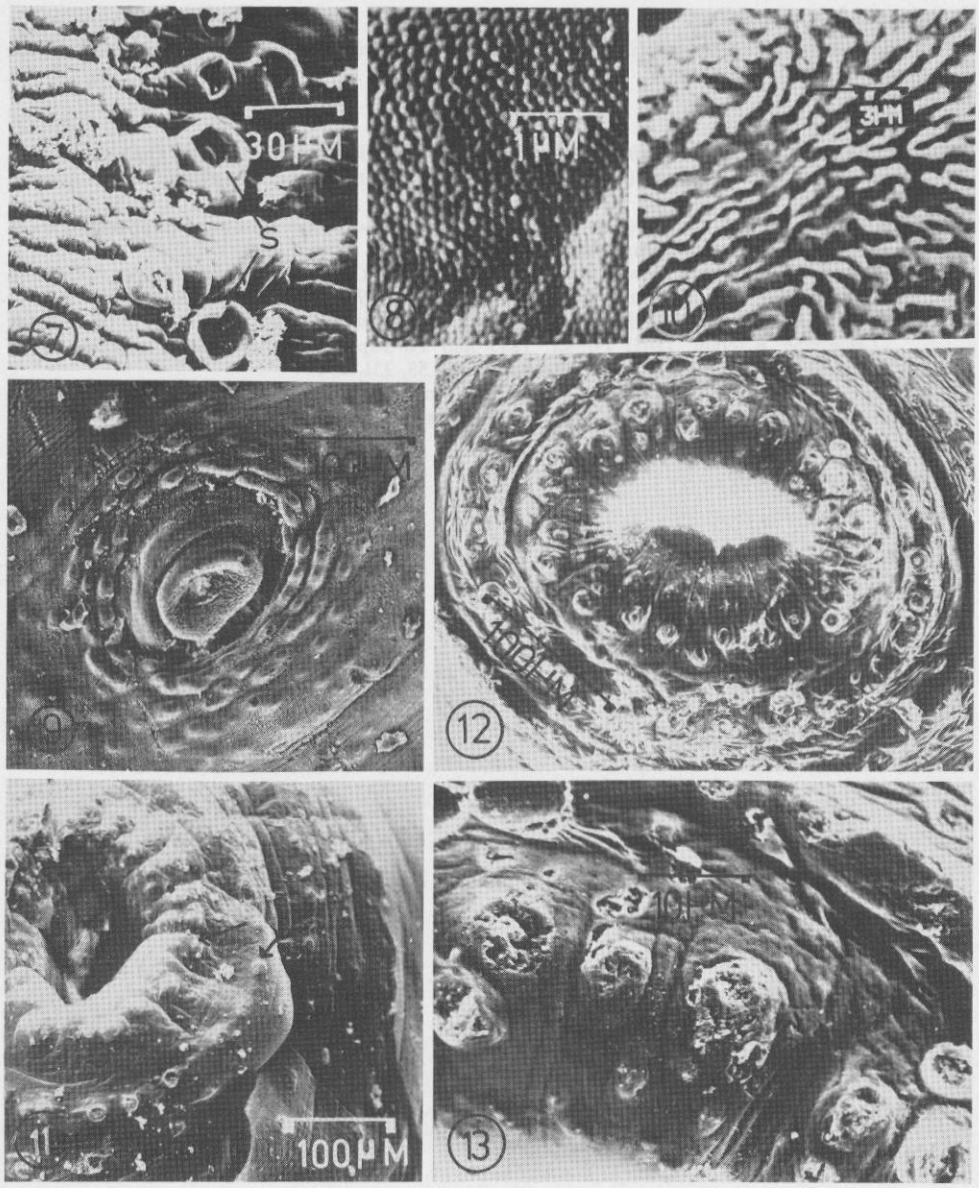
The folded pattern of the tegument of the ventral disc extends also to the surface of the acetabulum which is situated subterminally at the posterior margin of the disc (Figs. 1, 2, 6). Between the tegumental folds along the acetabular rim there are conspicuous globular or cup-shaped, mini sucker-like protuberances, "suckerlets" (Fig. 7) which probably aid the strong anchorage of the acetabulum to the host surface of contact. The surface of these "suckerlets" has a pattern of folds similar to that of the acetabulum and ventral disc. At higher resolutions, the tegument covering the "suckerlets" and the acetabulum as a whole appears to be tuberculated (Fig. 8).

The genital atrium is surrounded by two or three concentric rows of papillae or elevated areas of tegument (Fig. 9). A closer view of the genital pore revealed a highly folded tegument (Fig. 10) somewhat similar to that of the ventral disc. Papillae surrounding the genital atrium have been observed in *Orthocoelium indonesiense* and *Bilatorchis papillogenitalis* (see EDUARDO, 1980 a, b).

Numerous bosses and small button-like circular patches are present on the circumoral surface arranged in two or three concentric rings (Figs. 11, 12, 13). The structure of these resembles that in *P. epiclitum* and *G. crumenifer*, but the arrangement differs. In *G. crumenifer*, the papillate structures are arranged in one row around the rim



FIGS. 1–6. SEM photomicrographs of *Gastrodiscoides hominis*. Abbreviation: act = acetabulum. FIG. 1. Whole worm (ventral view). FIG. 2. Ventral disc with acetabulum. FIG. 3. Surface of ventral disc showing deeply folded tegument. FIG. 4. Surface of ventral disc as revealed under high resolution. FIG. 5. Dorsal surface. FIG. 6. Acetabulum in closer view.



FIGS. 7–13. SEM photomicrographs of *Gastrodiscoides hominis*. Abbreviation: s = suckerlet. FIG. 7. Acetabular rim showing tegumental folds and 'suckerlets'. FIG. 8 Tuberculated appearance of tegument at rim of a 'suckerlet' under high resolution. FIG. 9. Genital pore region. FIG. 10. Tegument along the rim of the genital pore revealing its deeply folded nature. FIGS. 11, 12. Circumoral region, showing bosses and patch-like structures (arrows), and in top view, respectively. FIG. 13. A magnified view of the bosses on the circumoral surface.

of the mouth and in *P. epiclitum* they are irregular (TANDON & MAITRA, 1981). Several concentric rows of circumoral papillae are present in *B. papillogenitalis* (see EDUARDO, 1980 a) and *O. indonesiense* (see Plate I a in EDUARDO, 1980 b). In the region around the oral opening in *Calicophoron papillosum* there are sensory pits but in *C. calicophorum* there are many tegumental elevated pits each containing spine-like structures (TANDON & MAITRA, 1982). These structures are probably chemoreceptors involved in food detection.

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