

Stage 7 Formation of Egg Cylinder

5 Days

As soon as invasion starts, the embryoblast enlarges considerably and bulges cone-like into the segmentation cavity (Fig. 41). The trophoblast also starts to form an excrescence (trophoblastic cap or ectoplacental cone), which projects above the embryonic pole and stains intensively with H.-E. (Fig. 45).

Embryoblast

The formative cells ("inner cell mass") of the embryoblast may be distinguished from the adjacent "trophoblastic cap" by their pale appearance. The detection of the entodermal cells, on the opposite side of the egg cylinder, is easier. They are cuboidal in shape and have been called proximal or visceral entoderm. Their surface does not appear to be sharply bounded

Figs. 38-45: Formation of egg cylinder

FIG. 38. Low magnification of uterus, cross section, PAS, 117 h.

M = mesometrium.

KT 911. 40:1

FIG. 39. Detail: Deciduous reaction.

In the vicinity of the egg, the uterine epithelium is dissolved. Appearance of glycogen cells (dark border) and of large deciduous cells. Enlarged blood vessels, PAS, 117 h. 100:1

FIG. 40. Implantation site enlarged. The uterine epithelium has disappeared.

G = large dark glycogen droplets in glycogen cells, *T* = trophoblastic giant cell with faintly staining nucleus and large nucleolus, PAS, 117 h. 560:1

FIG. 41. Low magnification of implantation site.

Thin section, OsO₄ fixation, phase-contrast.

KT 782. 360:1

FIG. 42. Detail of Fig. 41.

En = entoblast, with indistinct boundary (because of the presence of microvilli). 900:1

FIG. 43. Detail of Fig. 41.

E = large nucleus of embryonic cell, adjoining uterine epithelium. The latter contains lipid droplets, sometimes confluent and forming spheres of variable size (*L*) stained black by OsO₄. 900:1

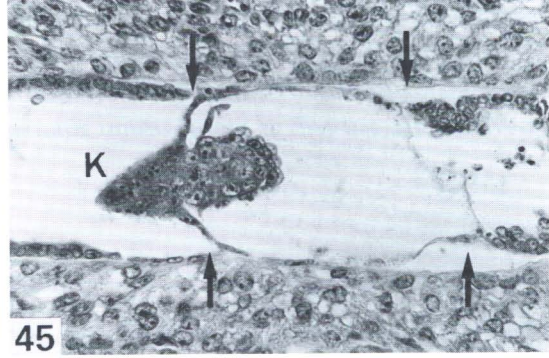
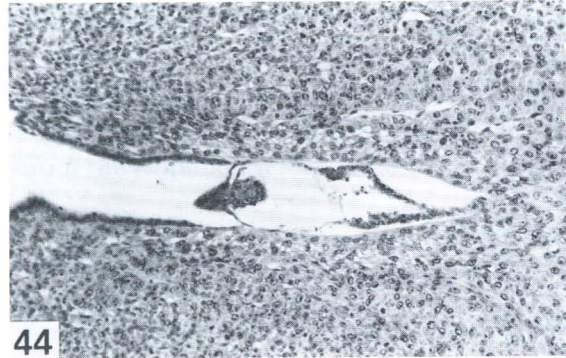
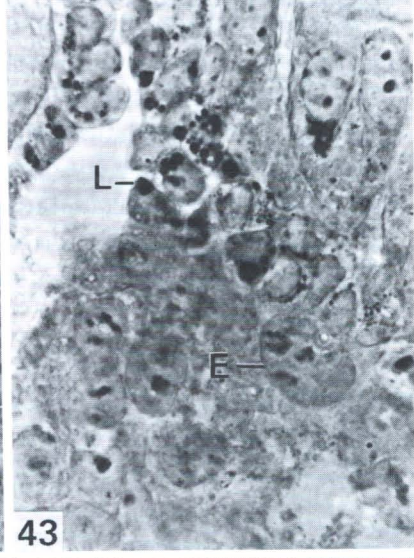
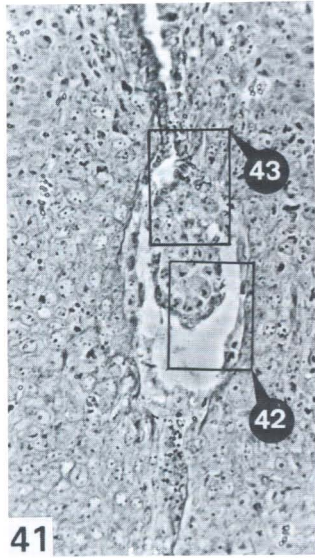
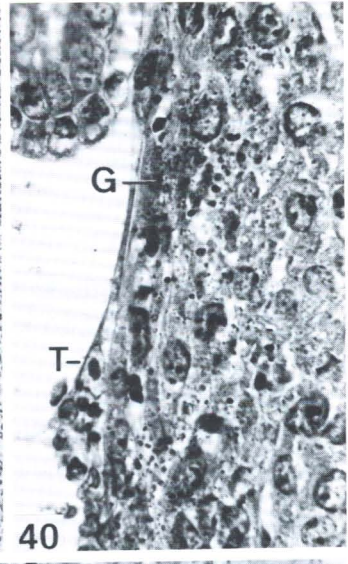
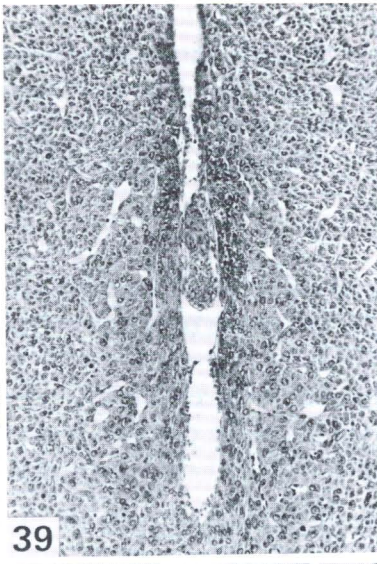
FIG. 44. Invasion and formation of egg cylinder, H.-E.

KT 693. 120 h. 100:1

FIG. 45. Detail of Fig. 44.

Cap-like thickening of trophoblast, *K*.

Arrows indicate limits of the uterine epithelium. 270:1



with the light microscope because of the presence of microvilli (Fig. 42). Toward the base of the egg cylinder, near the trophoblast, the distinction between embryoblast and trophoblast is less obvious. Some cells migrate along the inner surface of the trophoblast at the base of the egg cylinder (Fig. 45) and become the distal or parietal endoderm.

Trophoblast

Above the egg cylinder the trophoblastic cells are cuboidal in shape and protrude as a cap-like mass (Fig. 45). Further growth of this trophoblastic cap gives rise to the “ectoplacental cone.”

The peripheral, flattened trophoblastic cells dissolve the adjacent uterine epithelium. The disintegration proceeds all around the egg cylinder. Within the epithelial cells, large lipoid droplets are often visible (Fig. 43). They have been interpreted as “secretion droplets” [2].

Endometrial Reaction

The endometrial reaction involves both the uterine epithelium and connective tissue [22]. The adjoining epithelial cells degenerate and numerous lipoid droplets form within the cytoplasm. These are stained black with OsO_4 and red with Sudan B.

Fig. 44 shows some cell debris in the original uterine lumen (*right*). In the vicinity of the implantation site, the deciduous cells exhibit a marked glycogen reaction when stained with PAS (“deciduous glycogen cells”).

Tubular uterine glands are now more numerous. They are situated in between implantation sites.

Material	Age	
KT 693	119 h	7 egg cylinders, stained with H.-E. Only part of uterus fixed in OsO_4 for thin sections, in methacrylate
KT 782	117 h	2 egg cylinders
KT 911/12	117 h	6 egg cylinders, H.-E. and PAS