

Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Third Year)

Subject: Zoology

Course Code: ZOC 108

Course Title: Developmental Biology

Unit: Unit 03 – Early Embryonic Development of Chick

Module Name: Development of Chick embryo upto day 1 of incubation – Part 2

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Notes

Development of Chick embryo upto day 1 of incubation – Part 2

Formation of Headfold

A slight depression occurs in front of the anterior end of head process. Immediately posterior to this depression, a crescentic fold appears. This fold involves both ectoderm and endoderm. The crest of the fold extends forward and overhangs the depression. This wide transverse crescentic fold is called the Head fold. It marks the anterior end of the embryo at the end of first day of incubation.

Alimentary canal and Foregut

Fore gut is a blind pocket, enclosed by endoderm. The opening of foregut into yolk is referred to as anterior intestinal portal.

Amnio-cardiac vesicles

In the region of the headfold, coelomic spaces push toward each other. By the end of first day of incubation, their walls fuse so that their spaces are separated

by thin layer of mesoderm. Thus, the endoderm is pushed further backward separating it from ectoderm and increasing the length of the foregut. This inpushing portions of the coelom are called Amnio-cardiac vesicles. It represents the rudiment of pericardial cavity.

Nervous system

Primordium of brain is the Medullary plate; extending from anterior to posterior end of primitive streak .

Lateral margins of medullary plate elevate to form Neural folds or medullary folds. In the centre of medullary plate is a deep groove – medullary groove or neural groove.

Neural folds develop prominent ridges which bend toward each other and meet in the midline, short distance behind the anterior end of medullary plate to form a Neural tube.

Neural tube then, is pinched off from the ectoderm, which then forms a continuous sheet over it. The opening at the anterior end of neural tube is the Neuropore.

Nephrotome

A narrow strip of mesoderm immediately next to dorsal mesoderm forms the Nephrotome. It is lying between paraxial mesoderm and lateral plate. It consists of unsegmented mesoderm composed of dorsal and ventral layers. The nephrotome serves as primodium for the excretory system during later part of development.