THESIS TITLE : MICROSCOPIC STUDIES OF HUMAN FETAL RETINA IN NORTHEAST THAILAND

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ABSTRACT

The purpose of this study was to investigate the microscopic structures and the development of human fetal retina in northeast Thailand, to compare the crown rump length(CR) of the fetal retina at various stages and to compare these data with those from Mann (1969),Hollenberg and Spira(1972,1973),Spira and Hollenberg(1973), Rhodes(1979) and other researchers.

The retinae of 44 human fetuses in north-east Thailand(three months to seven months old CR 43-200 mm) were studied with light microscopy(LM), as well as with transmission and scanning electron microscopy(TEM&SEM). The retinae of 3-5 months were fixed in Bodian's fixative and of 6-7 months, in 2% paraformaldehyde-2.5% glutaraldehyde in 0.1M phosphate buffer pH 7.2. Semithin sections, 1 um thick,were stained with borated toluidine blue.

Calculation of the fetal age was obtained from the last

menstrual period(LMP), general body development and condition of the eye.

At the 3rd-4th month CR 43-120 mm , not all of the retinal layers were present yet. At this stage the outer plexiform layer has begun to form posteriorly between the photoreceptors and deeper cells of the outer neuroblastic layer. Blood vessels are beginning to form in the nerve fibre layers at CR 105 mm. At the 5th month CR 125-155 mm , all retinal layers were clearly discernable. A thin outer plexiform layer subdivides the outer neuroblast zone into outer and inner nuclear layers. At the 6th month CR 165-185 mm , the retinal layers were broader , the inner plexiform and nerve fibre layers were increased in thickness and more distinct. The outer segments of rods and cones were not present , but the inner segments of rods and cones were present , they characteristically contain numerous mitochondria. At the 7th month CR 190-200 mm , the ganglion cell layer has begun to form a row and all retinal layers had developed further.