

An Electron Microscopic Study of Developing Human Fetal Pancreas

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Abstract : Introduction: For the prospect of successful replacement therapies in treatment of Diabetes mellitus it is necessary to know events occurring during normal human pancreas development. Literature of human pancreas development are few in number as well as mainly related to first trimester because of ethical and technical difficulties. So the study was conducted on 12 fetuses from 12 gestational weeks (GW) to 5 months of infant to know normal development of exocrine and endocrine part of human pancreas. Material and Methods: Human fetalpancreases were screened by haematoxyline and eosin staining and done electron microscopy for suitable specimens to know ultrastructural detail of fetal pancreas. Results:It was observed arborized tubules, the cells budding out from these tubules differentiated into primitive acini and islets in 12thGW. At 14 weeks scanty granules were observed in the endocrine cells which coincided with the capillary invasion of the islets. The ducts and acini were surrounded by well-organized connective tissue. The acinihad elongated cells, small amount of cytoplasm and large open face euchromatic nuclei with single nucleolus. The mature form of islets of Langerhans was observed close to the acini and duct in 20 GW fetus. Connective tissue around the duct was well organized.No significant developmental change was observed early postnatal, infant. Conclusion: The development of both component exocrine as well as endocrine part of human fetal pancreas was studied by light and electron microscopy. Observations suggested that the fetal pancreas contained mainly ducts, few acini, many centroacinar cells, and large undifferentiated tissue.

Keywords : gestational weeks (GW), acini, islets of Langerhans, ducts

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