

Contents

1	Introduction	1
2	Definition of Terms	2
3	Evolutionary Biological Prerequisites	3
4	Development of the Amniotic Fluid Compartment in Humans	4
4.1	Formation of Fetal Membranes (Chorioamnion) ...	5
5	Histogenesis of Human Embryonic Membranes	6
5.1	Histogenesis of the Amnion	6
5.2	Histogenesis of the Intermediate Layer (Spongy Layer)	9
5.3	Histogenesis of the Chorion	9
5.4	Amniotic Fluid	10
6	Limitation of the Amniotic Fluid Compartment at Full Term	11
6.1	Amnion	11
6.1.1	Amniotic Epithelium	11
6.1.1.1	Nucleus	11
6.1.1.2	Cytoplasm	15
6.1.1.3	Special Forms	20
6.1.1.4	Cytochemical Findings	21
6.1.1.5	Cell Cluster	22
6.1.1.6	Placental and Umbilical Amnion	23
6.1.2	Interpretation of the Findings in the Amniotic Epithelium	23
6.1.3	Basement Membrane 1	25
6.1.4	Amniotic Connective Tissue	27
6.2	Intermediate Layer (Stratum Intermedium, Spongy Layer)	31

6.3	Chorion	33
6.3.1	Chorionic Connective Tissue	33
6.3.2	Basement Membrane 2	37
6.3.3	Trophoblast	38
6.3.3.1	Form of the Trophoblast Cell	38
6.3.3.2	Histochemical Analysis of the Trophoblast Cells ...	44
6.3.3.3	Cell Cluster	45
6.3.3.4	Intercellular Space and Extracellular Matrix	45
6.3.4	Fetomaternal Contact Zone (Junctional Zone)	46
6.3.5	Interpretation of Trophoblast Findings	46
6.4	Interpretation of Glycogen and Lipid Storage in the Fetal Membranes	50
7	Permeability of the Fetal Membranes	51
8	Mechanical Properties of the Fetal Membranes	54
8.1	Rupture of the Fetal Membranes	57
9	Amniotic Fluid	59
9.1	Cells of the Amniotic Fluid	59
9.2	Non-Cell Components of the Amniotic Fluid	61
9.3	Chemical Analysis of the Amniotic Fluid Content ..	63
10	Exchange of Amniotic Fluid and Interaction Between Fetus and Amniotic Fluid	68
10.1	Fetal Kidneys	69
10.2	Fetal Integument	70
10.3	Umbilical Cord and Placenta	71
10.4	Digestive Tract	73
10.5	Lung	76
10.6	Fetal Membranes and Paraplacental Transport	80
11	Regulatory Mechanism	83
12	Summary	84
	References	86
	Subject Index	99