

Contents

1 Embryology and Structure of the Mesothelium (N.W. Thomas)	1
Embryology of the Mesothelium	1
Structure of the Mesothelium	2
 2 The Physiology of Fluid Exchange Between the Circulation and the Body Cavities (E. Rasio)	 15
Introduction	15
Transport from Plasma into the Serosal Cavities	16
Blood Capillary Endothelium	16
Interstitial	17
Mesothelium	18
Haemodynamic Factors	19
Microvascular Pressure	19
Pressure in the Interstitium	20
Absorption of Fluid from the Serosal Cavities	21
Absorption by Venous Capillaries	21
Absorption by Lymphatics	21
Pleural Cavity	21
Pericardial Cavity	22
Peritoneal Cavity	22
Serosal Cavity Surrounding the Testes	23
Physiology of Peritoneal Dialysis	23
Introduction	23
The Peritoneal Membrane Area	24
Permeability Characteristics of the Peritoneal Membrane	24
Microcirculation	25
Capillary Permeability	25
The Interstitium	25
The Mesothelium	26
The Dialysis Solution in the Peritoneal Cavity	26
 3 The Mechanism of Effusions in the Serosal Cavities (E.A. Brachet)	 33
Transudates	33
Starling's Forces and the Lymphatic System	33
Exudates	35

4 The Pleura and Its Pathology (J.S.P. Jones, E.A. Brachet and E.B. Butler)	39
Conditions Associated With Pleural Transudates	39
Congestive Heart Failure	39
Effusion ex Vacuo	41
Pulmonary Infarction	41
Peritoneal Dialysis	42
• Cirrhosis of the Liver	42
Hydronephrosis	43
Conditions Associated With Pleural Exudates	43
Acute Inflammation (Pleurisy)	43
Chronic Inflammation	47
Tuberculosis	47
Systemic Lupus Erythematosus	51
Rheumatoid Arthritis	52
Hepatic and Subphrenic Abscess	53
Pancreatitis	53
Conditions Associated With Complex Pleural Effusions	54
Neoplasm	54
Primary—Malignant	54
Secondary—Metastatic Carcinoma	98
Miscellaneous Tumours	100
Mesothelial Proliferation	104
Asbestosis	104
Effusions	105
Parietal Pleura	107
Visceral Pleura	107
Intra-Abdominal Disease	108
Eosinophilic Effusions	109
Conditions Not Necessarily Associated With Pleural Effusions	111
Pleural Plaques	111
Gross Appearance	111
Distribution	113
Microscopic Appearance	113
Electron Microscopic Appearance	115
Relationship Between Pleural Plaques and Other Diseases	115
Latent Interval	116
Pathogenesis of Pleural Plaques	116
Diffuse Pleural Fibrosis	117
Post-Traumatic	117
Postinflammatory	117
Asbestos-Related	117
Benign Localised Mesothelioma	120
Clinical Features	120
Gross Appearance	121
Microscopic Appearance	121
Histogenesis	123
Trauma and Foreign Bodies	123
Petechial Haemorrhages	123

5 The Pericardium and Its Pathology (J.S.P. Jones and E.A. Brachet) 135

Introduction	135
Conditions Associated With Pericardial Transudates	138
Conditions Associated With Pericardial Exudates	138
Acute Pericarditis	138
Tuberculous Pericarditis	140
Uraemic Pericarditis	141
Myocardial Infarction	143
Post Pericardiotomy Syndrome	144
Rheumatoid Arthritis	145
Systemic Lupus Erythematosus	145
Systemic Sclerosis	146
Conditions Not Necessarily Associated With Pericardial Effusions	146
Cysts	146
Benign Neoplasms	146
Malignant Neoplasms — Primary	147
Primary Malignant Mesothelioma	147
Relationship of Primary Malignant Mesothelioma of the Pericardium with Abestos Exposure	147
Primary Angiosarcoma	149
Malignant Neoplasms — Secondary	149
Miscellaneous	151
Mesothelioma of the AV Node	151
Petechial Haemorrhages (see p 123)	151

6 The Peritoneum and Its Pathology (J.S.P. Jones, E.A. Brachet and E.B. Butler) 155

Conditions Associated With Peritoneal Transudates	155
Increased Venous Pressure	155
Right-Sided Cardiac Failure	156
Constrictive Pericarditis	157
Budd–Chiari Syndrome	158
Cirrhosis of the Liver	158
Reduced Oncotic Pressure	160
Decreased Hepatic Synthesis	161
Amino Acid Deficiency	162
Urinary Losses	163
Gastrointestinal Losses	164
Conditions Associated With Peritoneal Exudates	165
Acute Bacterial Peritonitis	165
Other Causes of Peritonitis	167
Chemical Insult	167
Foreign Bodies	170
Tuberculosis	170
Parasitic Diseases	170
Meconium Peritonitis	171
Conditions Affecting the Female Genital Tract	171

Miscellaneous Conditions	172
Mesenteric Infarction	172
Acute Pancreatitis	173
Systemic Lupus Erythematosus	173
Whipples' Disease	175
Polyserositis (Familial Mediterranean Fever or Concato's Disease)	175
Conditions Associated With Complex Peritoneal Effusions	176
Hyperplasia	176
Endometriosis	176
Neoplasms	177
Primary—Benign	177
Primary—Cystic Mesothelioma of the Peritoneum	177
Primary—Malignant	181
Secondary	189
Conditions Not Necessarily Associated With Peritoneal Effusions	196
Sugar-Icing Spleen	196
Retroperitoneal Fibrosis	197
Mesenteric Panniculitis	198
Intraperitoneal Loose Bodies	198

7 The Tunica Vaginalis and Its Pathology (J.S.P. Jones and E.A. Brachet) 203

Introduction	203
Hydrocele	204
Primary	205
Secondary	205
Inflammatory Conditions	206
Acute	206
Chronic	206
Foreign Body Reaction	206
Neoplasms	207
Papillary Mesothelioma of the Tunica Vaginalis	207
Adenomatoid Tumour	207
Fibrous Tumours of the Scrotal Sac	210
Mesothelioma	210
Carcinoma	211

8 Mineral Fibres and the Mesothelium — Epidemiological and Experimental Studies (J.S.P. Jones and E.A. Brachet) 213

Asbestos Fibres and Their Biological Effects on the Mesothelium	213
Introduction	213
The Types of Asbestos Fibres in Commercial Use	215
Properties and Commercial Uses of Asbestos	219
Formation of Dust Clouds	222

The Entry of Asbestos into the Body	225
Distribution of Asbestos Fibres in the Lung	229
The Significance of Asbestos in the Lung	230
The Identification of Fibres in Tissues	231
Wet Preparation of Lung Fluids	231
Thick Lung Sections	232
Digestive Techniques	232
Electron Microscopic and X-ray Diffraction Techniques	234
Standard Reference Samples of Asbestos	235
The Biological Effects of Asbestos on the Mesothelium	236
Humans	236
In Animals	243
In Vitro Experiments	248
Tissue Culture Experiments	250
Non-Asbestos Fibres and Their Biological Effects on the Mesothelium	252
Introduction	252
Natural Mineral Fibres	253
Fibrous Zeolites	253
Fibrous Clays	253
Wollastonite	254
Synthetic Mineral Fibres	255
Subject Index	263