

Index

Unless otherwise specified, all entries pertain to the liver. Thus, only a few entries begin with “Liver . . .” or “Hepatic . . .” Numbers in **boldface** refer to pages on which figures appear; numbers in *italics* refer to pages on which tables appear.

A

- Abetalipoproteinemia
 - fatty changes in, 75
 - steatohepatitis in, 87
- Abnormal bile ducts
 - associated clinical conditions, 231–233, 234–258
 - definition, 229–234
- Abnormal blood vessels
 - associated clinical conditions, 264–266
 - definition, 263
 - drug-induced, 272, 285
- Abnormal hepatocytes
 - associated clinical conditions, 164–165, 170–190
 - definition, 163–170
- Abnormal lymphatics
 - associated clinical conditions, 264–266
 - in congestive heart failure, 271
 - definition, 263
- Abnormal nonpigmented substances
 - associated clinical conditions, 208–209
 - definitions, 207–214
- Acetaminophen, 25, 56, 77, 121, 124, 161, 216, 240, 330
- Acetohexamide, 56, 330
- Acidophilic bodies
 - definition, 163–165
 - in viral hepatitis C, **16**, 17, **167**

Acidophilic inclusions

after bone marrow transplantation, 168

after burn injury, 168

Ackee fruit. *See* Jamaican vomiting sickness

Acquired immunodeficiency syndrome. *See* AIDS

Actinomycosis, granulomas in, 100

Acute fatty liver of pregnancy

abnormal hepatocytes in, 170

fatty changes in, 68–69, **69**

lobular hepatitis in, 27–28

Acute viral hepatitis. *See also* Unresolved viral hepatitis

abnormal blood vessels in, 267

cholestatic hepatitis in, 39–41

necrosis in, 116

Acute viral hepatitis A

lobular hepatitis in, 28–29

periportal hepatitis in, 13–14

Acute viral hepatitis B

lobular hepatitis in, 28–29

necrosis in, 116

Acute viral hepatitis C

lobular hepatitis in, 28–29

necrosis in, 116

Adenovirus infection

abnormal hepatocytes in, 170–171

necrosis in, 123

Adriamycin, 285

Adverse drug effects. *See* Drug-induced disorders

Aflatoxin, 75, 123, 285

AIDS

abnormal bile ducts in, 234, 253

abnormal blood vessels in, 266

abnormal hepatocytes in, 170

granulomas in, 102, **102**

lobular hepatitis in, 34–35

Ajmaline, 240

Alagille's syndrome, paucity of intrahepatic bile ducts in, 247

Alanine aminotransferase, normal levels, 352

Albumin, normal levels, 352

Alcoholic cirrhosis, 143–144, **144**

inactive, 144, **145**

Alcoholic hepatitis, 70

cholestatic hepatitis in, 41–42, **41**

fibrosis in, 131, **131**

steatohepatitis in, 82–83, **83, 85**

Alcoholic liver disease

abnormal bile ducts in, 234

abnormal blood vessels in, 267–268, **268**

abnormal hepatocytes in, 171–172, **171**

- fatty changes in, 69–70, **70**
 - iron-positive pigments in, 196–197
- Algorithms, use of, xxi
- Alkaline phosphatase, normal levels, 352
- Alkaloid poisoning, 285
- Allergic granulomatosis, granulomatous hepatitis in, 9–95
- Allograft dysfunction
 - abnormal hepatocytes, 179
 - arteriosclerosis in donor livers, 269
 - fibrosing cholestatic hepatitis B, 45
 - functional cholestasis, 46–47, **46**
- Allograft rejection
 - abnormal bile ducts in, 241–243, **242**
 - abnormal blood vessels in, 274–276, **274–275**
 - grading of acute rejection, 294, 295
 - healed centrilobular necroses in, 134
 - ischemic cholangitis in, 244–245, **244–245**
 - necrosis in, 115, **118, 119**
 - periportal hepatitis in, 23–24
 - portal hepatitis in, 9
- Allopurinol, 56, 105, 124, 330
- Allyl compounds, 123
- Alpha-1-antichymotrypsin deficiency, abnormal hepatocytes in, 172
- Alpha-1-antitrypsin, normal levels, 352
- Alpha-1-antitrypsin deficiency
 - abnormal hepatocytes in, 172–173, **173–174**
 - cholestasis in, 65
 - cirrhosis in, 146
 - iron-negative pigments in, 214
 - paucity of intrahepatic bile ducts in, 247
 - periportal hepatitis in, 14
- Alpha-1-antitrypsin globules, 172–173, **173–174**
 - definition, 168
- Alpha-fetoprotein, normal levels, 352
- Aluminum-containing granuloma, 94
- Aminopyrine, 216
- Aminosalicic acid, 25, 36, 56, 330
- Aminotriptylin hydrochloride, 36
- Amiodarone, 77, 85, **87, 89, 105, 161, 176–177, 330**
- Amitriptyline, 124, 240
- Amitriptyline hydrochloride, 56, 330
- Amoxicillin-clavulanic acid, 56, 240, 330–331
- Amphotericin B, 331
- Ampicillin, 240, 331
- Amyloid, definition, 207
- Amyloidosis
 - abnormal blood vessels in, 268
 - morphologic features, 214–215, **215**
 - pure cholestasis in, 61–62

- Anabolic steroids, 155, 272, 279
- Androgens, 272
- Anemia. *See specific types of anemia*
- Anemic infarct
 - fibrosis in healed infarcts, 134
 - necrosis in, 117, **119**
- Angioimmunoblastic lymphadenopathy with hypoxemia, abnormal blood vessels in, 268
- Angiosarcoma, 284
- Anthracosilicosis, iron-negative pigments in, 215, 223
- Anthracosis, iron-negative pigments in, 215
- Anthracotic pigment, definition, 207
- Antihepatitis antibodies, normal levels, 353
- Antihepatitis antigens, normal levels, 353
- Antimitochondrial antibodies, normal levels, 353
- Apoptotic bodies, definition, 166
- Aprindine, 36, 56, 105, 331
- Argininosuccinic aciduria, fibrosis in, 134
- Argyria, 215
- Arsenic, 137, 160, 285
- Arterial thrombus or emboli, 283
- Arteriohepatic dysplasia, paucity of intrahepatic bile ducts in, 247
- Arteriopenia, in allograft rejection, 275
- Arteriosclerosis, abnormal blood vessels in, 269
- Arteritis. *See also Polyarteritis nodosa*
 - abnormal blood vessels in, 269–270, 269
 - in allograft rejection, 275
- Ascariasis, granulomas in, 101
- Asparaginase, 77, 331
- Aspartate aminotransferase, normal levels, 353
- Aspergillosis, granulomas in, 100
- Aspirin, 25, 36, 56, 77, 105, 331
- Atenolol, 56, 331
- Atlases, xxiii–xxiv
- Atransferrinemia, congenital
 - fibrosis in, 134
 - iron-positive pigments in, 197
- Atrophy, iron-negative pigments in, 219
- Autoimmune cholangitis, abnormal bile ducts in, 234
- Autoimmune cirrhosis, 144–145
- Autoimmune hepatitis
 - abnormal bile ducts in, 256–257
 - abnormal blood vessels in, 267
 - abnormal hepatocytes in, 173–174
 - cholestatic hepatitis in, 42
 - with cirrhosis, 144–145
 - fibrosis in, 130
 - lobular hepatitis in, 29–30, **30**
 - necrosis in, 118
 - periportal hepatitis in, 14–15, **15**, 30
 - portal hepatitis in, 1–2, **3**

Azathioprine, 56, 177, 285–286, 331
 Azidothymidine. *See* Zidovudine
 AZT. *See* Zidovudine

B

Bacillary angiomatosis, in AIDS, 266
 Bacterial endocarditis, abnormal blood vessels in, 270
 Bacterial infection. *See also specific diseases and pathogens*
 abnormal bile ducts in, 252–254
 granulomas in, 100
 necrosis in, 122
 Bacterial toxin, fatty changes associated with, 75
 Ballooned hepatocytes, in acute viral hepatitis, 28, 29
 Ballooning degeneration, definition, 166
 Barium sulfate
 definition, 210
 after radiographic studies, 222
 BCG injection, granulomatous hepatitis in, 94–95
 Benign postoperative intrahepatic cholestasis, pure cholestasis in, 62
 Benign recurrent intrahepatic cholestasis
 cholestatic hepatitis in, 42
 pure cholestasis in, 62, **64**
 Bile, definition, 210
 Bile duct(s)
 abnormal. *See* Abnormal bile ducts
 loss of. *See* Ductopenia
 proliferation of. *See* Proliferation of bile ducts
 Bile duct adenoma, abnormal bile ducts in, 236–238, 236
 Bile duct degeneration
 associated clinical conditions, 233
 definition, 233
 Bile duct hemorrhage, 233
 Bile duct metaplasia, associated clinical conditions, 233
 Bile duct obstruction
 abnormal bile ducts in, 246–247, **246–248**
 abnormal hepatocytes in, 174–175
 cholestatic hepatitis in, **48–49**, 49–50
 fibrosis in, 135–136, **136**
 lymphoma-associated, 64
 periportal hepatitis in, 19, **20**
 portal hepatitis in, 6–7
 Bile ductules, proliferation of. *See* Proliferation of bile ductules
 Bile infarct
 in bile duct obstruction, 50
 definition, 39
 in PSC, **49**
 Bile lake, in bile duct obstruction, 50
 Biliary atresia, 47–48, **47, 186**. *See also* Infantile obstructive cholangiopathy

- Biliary cirrhosis
 - obstructive, 155–156
 - primary. *See* Primary biliary cirrhosis
 - small-duct, 159–160
- Biliary cyst, 235
 - associated clinical conditions, 231
 - definition, 230
 - microhamartoma, 236–238
- Biliary cystadenocarcinoma, abnormal bile ducts in, 235–236
- Biliary cystadenoma, abnormal bile ducts in, 235–236, **235**
- Biliary fibrosis
 - definition, 136
 - in paucity of intrahepatic bile ducts, 248
- Biliary microhamartoma, 43
 - abnormal bile ducts in, 236–238, 236
- Biliary piecemeal necrosis, 111–112
- Bilirubin, normal levels, 353
- Blood vessels, abnormal. *See* Abnormal blood vessels
- Bone marrow transplantation
 - abnormal hepatocytes in, 175
 - acidophilic inclusions after, 168
 - veno-occlusive disease in, **284**
- Botryomycosis, granulomas in, 100
- Boutonneuse fever, granulomas in, 101
- Bowel resection, steatohepatitis in, 86–87
- Bridging fibrosis, in bile duct obstruction, **248**
- Bridging necrosis, 110, **112**, 113
 - in acute viral hepatitis, 28
- Brucellosis
 - abnormal blood vessels in, 274
 - granulomas in, 100
- Budd-Chiari syndrome, 152
 - abnormal blood vessels in, 270, **271**
 - drug-induced, 285
- Bulimia, steatohepatitis in, 87
- Burn injury
 - abnormal hepatocytes in, 175
 - acidophilic inclusions after, 168
- Busulfan, 331
- Byler's disease. *See* Progressive intrahepatic cholestasis

C

- Calcification, 166
 - dystrophic, 210
 - in hypercalcemia, 219
 - in hyperparathyroidism, 276
 - idiopathic arterial calcification of infancy, 277
 - metastatic, 210
- Calcium, definition, 210

- Camphor, 75
- Candidiasis, granulomas in, 100
- Capillaritis, granulomas in, 101
- Captopril, 25, 56, 124, 331
- Carbamazepine, 105, 124, 240, 331–332
- Carbarsone, 56
- Carbenicillin indanyl sodium, 36, 332
- Carbon tetrachloride, 86, 121, 123
- Cardiac cirrhosis, 272
- Carisoprodol, 56, 332
- Carmustine, 285, 332
- Carnitine deficiency, fatty changes in, 73
- Carnitine transport defect, fatty changes in, 73
- Caroli's syndrome, 43, 133–134, 236, 237–238
- Cat scratch disease, granulomas in, 100
- Cavernous hemangioma, 284
- Cefadroxil monohydrate, 56, 332
- Cefazolin sodium, 56, 332
- Celiac disease
 - fatty changes in, 74
 - steatohepatitis in, 87
- Cellulose
 - definition, 210
 - in intravenous substance abuse, 220
- Centrilobular necrosis
 - associated clinical conditions, 110
 - in congestive heart failure, 271
 - drug-induced, 124
 - healed, in allograft, 134
- Cephalexin, 105, 332
- Ceroid
 - definition, 210
 - in lobular hepatitis, 224
 - in TPN, 224
- Ceruloplasmin, normal levels, 353
- Chaparrel Leaf, 44, 120
- Chlamydial disease, granulomas in, 100
- Chlorambucil, 56, 332
- Chlordiazepoxide, 56, 124, 332
- Chlormezanone, 124, 332
- Chlorothiazide, 25, 56, 161, 332
- Chlorpromazine, 25, 44, 56, 105, 161, 216, 240, 332
- Chlorpropamide, 56, 105, 332–333
- Chlortetracycline, 56, 77, 124, 333
- Chlorthalidone, 56
- Chlorzoxazone, 56, 124, 333
- Cholangiectasis
 - associated clinical conditions, 231
 - definition, 230
 - in PSC, 250, 255

- Cholangiocarcinoma, abnormal bile ducts in, 235–236
- Cholangiocellular carcinoma. *See* Cholangiocarcinoma
- Cholangiolar proliferation. *See* Proliferation of bile ductules
- Cholangiolitis, definition, 230–233
- Cholangitis. *See also specific types of cholangitis*
 - associated clinical conditions, 232
 - definition, 230–233
- Cholate stasis, 167, 174
 - in PBC, 50–51, **51–52**
- Choledochal cyst, 47, 133, 236
- Cholestasis, cirrhosis with, 142
- Cholestasis of pregnancy, 63
- Cholestatic hepatitis
 - associated clinical conditions, 39–58, 40
 - definition, 39
 - drug-induced, 44, **44–45**, 56–58
 - feathery degeneration in, 166
- Cholestatic hepatitis B, 45
- Cholesterol, 167
 - normal levels, 353
- Cholesteryl ester storage disease
 - abnormal hepatocytes in, 175
 - fatty changes in, 75
 - fibrosis in, 134
- Cholin magnesium trisalicylate, 36, 333
- Chronic alcoholic hepatitis. *See* Alcoholic hepatitis
- Chronic cholestasis, iron-negative pigments in, 216
- Chronic congestion. *See* Congestion
- Chronic granulomatous disease of childhood, iron-negative pigments in, 216
- Chronic hepatitis
 - abnormal hepatocytes in, 183
 - grading of, 296, 297
 - staging of, 298, 299
- Chronic intrahepatic cholestasis of sarcoidosis, 52–53, 99
 - abnormal bile ducts in, 238–239
- Chronic nonalcoholic steatohepatitis, fibrosis in, 132
- Chronic viral hepatitis
 - abnormal blood vessels in, 267
 - cholestatic hepatitis in, 42
 - with cirrhosis, 145–146, **147**
 - fibrosis in, 132
 - lobular hepatitis in, 30–31
 - necrosis in, 118
- Chronic viral hepatitis B
 - with cirrhosis, 145–146, **147**
 - lobular hepatitis in, 30–31
 - periportal hepatitis in, 15–17, **17**
 - piecemeal necrosis in, **111**
 - portal hepatitis in, 10

- Chronic viral hepatitis B plus D, portal hepatitis in, 10
- Chronic viral hepatitis C
 - iron-positive pigments in, 204, 204
 - lobular hepatitis in, 30–31
 - periportal hepatitis in, 15–17, 16
 - portal hepatitis in, 2–3, 4
 - steatohepatitis in, 88–89
- Cimetidine, 25, 56, 124, 333
- Ciprofloxacin, 56, 124, 333
- Circulatory failure, necrosis in, 118–119
- Cirrhosis. *See also specific types of cirrhosis*
 - abnormal blood vessels in, 270
 - abnormal hepatocytes in, 175
 - associated clinical conditions, 142–143
 - with cholestasis, 142
 - definition, 141–143
 - drug-induced, 153, 161
 - etiologic types of, 142–143, 143–160
 - with fatty changes, 142
 - with hemosiderosis, 142
 - necrosis in, 119–120
 - toxic, 160
 - unexplained hemosiderosis in, 203
- Cisplatin, 56, 77, 333
- Clarithromycin, 125, 333
- Clindamycin, 240, 333
- Clinical diagnosis, xxi
- Clometacin, 77, 178
- Clomiphene citrate, 333
- Clonorchiasis, granulomas in, 101
- Clorazepate dipotassium, 56, 333
- Clozapine, 333
- Cocaine, 120
- Coccidioidomycosis, granulomas in, 100
- Comfrey herb tea, 285
- Congenital hepatic fibrosis, 133–134, 133, 236, 237
 - abnormal blood vessels in, 271
 - cholestatic hepatitis in, 43, 43
- Congenital syphilis. *See Neonatal syphilitic hepatitis*
- Congestion
 - abnormal hepatocytes in, 175–176
 - cirrhosis in, 152–153
 - fibrosis in, 132
 - hyaline globules in, 168
 - iron-positive pigments in, 197
- Congestive heart failure. *See also Congestion*
 - abnormal hepatic blood vessels in, 271–272
 - abnormal lymphatics in, 271
- Conjugated hyperbilirubinemia, 47

Connective tissue stains, xxii–xxiii

Copper

- in alpha-1-antitrypsin deficiency, 214
- in chronic cholestasis, 216
- in exogenous copper toxicosis, 217–218
- in idiopathic adulthood ductopenia, 219
- in Indian and non-Indian childhood cirrhosis, 219
- in infantile obstructive cholangiopathy, 221
- normal levels, 354, 356
- in paucity of intrahepatic bile ducts, 221
- in PBC, 222, **223**
- in PSC, 222
- in TPN, 224
- in tumors and pseudotumors, 224
- in Wilson's disease, 224

Copper exposure, 137

Copper granules, definition, 210

Copper sulfate poisoning, 93

- abnormal blood vessels in, 272

Copper toxicosis, 160. *See also* Non-Indian childhood cirrhosis

- iron-negative pigments in, 217–218

Corticosteroids, 77, 85, 286, 333

Coumarin, 36, 334

Councilman bodies. *See* Acidophilic bodies

Coxsackievirus infection, necrosis in, 123

Crohn's disease

- abnormal blood vessels in, 274
- granulomas in, **94**, 95

Cromolyn sodium, 240, 334

Cryptococcosis, granulomas in, 100

Cryptogenic cirrhosis, 153

Cyanamide, 177–178

Cyclophosphamide, 285, 334

Cyclosporine, 56, 334

Cyproheptadine, 240, 334

Cyst. *See specific types of cysts*

Cysteamine, 285, 334

Cystic fibrosis

- abnormal bile ducts in, 239, **248**
- cholestasis in, 65
- cholestatic hepatitis in, 43
- cirrhosis in, 147

Cystine

- in cystinosis, 216
- definition, 211

Cystinosis, iron-negative pigments in, 216

Cytomegalovirus infection

- abnormal bile ducts in, 253
- abnormal hepatocytes in, 176, **177**

- granulomas in, 102–103
 - lobular hepatitis in, 34–35
 - necrosis in, 123
 - spotty necrosis in, **117**
- Cytosine arabinoside, 285, 334

D

- Dacarbazine, 56, 125, 285, 334
- Danazol, 286, 334
- Dantrolene sodium, 25, 36, 56, 77, 125, 161, 334
- Dapsone, 105, 125, 334
- Daunorubicin hydrochloride, 124, 285, 335
- Degenerative changes
 - associated clinical conditions, 164
 - definitions, 163–167
- Dengue virus infection, necrosis in, 123
- Desipramine hydrochloride, 124, 335
- Diabetes mellitus
 - abnormal hepatocytes in, 176, 184, **185**
 - fatty changes in, 73
 - steatohepatitis in, 84–85
- Diazepam, 56, 105, 124, 335
- DIC. *See* Disseminated intravascular coagulation
- Diclofenac, 25, 36, 56, 105, 124–125, 161, 335
- Dicloxacillin, 105, 335
- Didanosine, 77, 335
- Diethylstilbestrol, 286, 335
- Diltiazem hydrochloride, 89, 105, 335
- Dimethylformamide, 75
- Dimethylnitrosamine, 285
- Disopyramide phosphate, 36, 56, 335
- Disseminated intravascular coagulation (DIC), nongestational
 - abnormal blood vessels in, 272
 - necrosis in, 122
- Disulfiram, 36, 124–125, 177–178, 335
- Diverticulosis, steatohepatitis in, 87
- Down's syndrome, paucity of intrahepatic bile ducts in, 247
- Doxapram hydrochloride, 336
- Doxorubicin, 25, 336
- Drug idiosyncrasy, iron-negative pigments in, 216–217
- Drug-induced cholestasis, 63, 65
- Drug-induced cirrhosis, 153, 161
- Drug-induced disorders, 329–350. *See also specific drugs*
- Drug-induced fatty changes, 70–71, **71**, 77
- Drug-induced fibrosis, 137–138
- Drug-induced granuloma, 92, 105
- Drug-induced hemorrhage, 272

Drug-induced hepatitis

- abnormal bile ducts in, 240–241, 240
- abnormal hepatocytes in, 176–177
- cholestatic hepatitis, 44, **44–45**, 56–58
- lobular hepatitis, 31, **32**, 36
- necrosis in, 120
- periportal hepatitis, 17–18, **19**, 25
- portal hepatitis, 3
- steatohepatitis, 85, **87**, 89

Drug-induced necrosis, 124–125

Drug-induced peliosis hepatis, 272, **273**, 286

Drug toxicity, iron-negative pigments in, 216–217

Dubin-Johnson pigment, 217, **218**

- definition, 211

Dubin-Johnson syndrome, iron-negative pigments in, 217, **218**

Ductal proliferation. *See* Proliferation of bile ducts

Ductopenia

- associated clinical conditions, 233, 234–258
- in autoimmune cholangitis, 234
- in cystic fibrosis, 239
- definition, 234
- idiopathic adulthood, 160, 243
- iron-negative pigments in, 219
- in infantile obstructive cholangiopathy, 48
- in lymphoproliferative disorders, 246
- in paucity of intrahepatic bile ducts, 248
- in PBC, 249
- in portoenterostomy, 248
- in Zellweger's syndrome, 257

Ductular cholestasis, in septic shock, 53, **53**

Ductular piecemeal necrosis, 111–112

Ductular proliferation. *See* Proliferation of bile ductules

Dysplastic hepatocytes

- associated clinical conditions, 164
- definition, 166

Dystrophic calcification, 210

E

Echinococcosis, granulomas in, 101

ECHO virus infection, necrosis in, 123

Eclampsia

- abnormal blood vessels in, 280–281
- hemorrhage in, 281
- necrosis in, 120

Ecstasy (illicit drug), 120, 123

Embolization of silicone, 217

Enalapril, 56, 336

Endophlebitis, in mast cell disease, 279

- Endoplasmic storage disease, 178
- Endotheliitis
 - in alcoholic liver disease, 268
 - in allograft rejection, 243, 274, 275
 - in lymphoma, 279
 - in sarcoidosis, 282
 - in viral hepatitis, 267, 267
- Enflurane, 36, 124, 336
- Eosinophilic bodies, in bone marrow transplantation, 175
- Eosinophilic cholangitis
 - associated clinical conditions, 232
 - in hypereosinophilic syndrome, 243
 - in Kawasaki disease, 245
- Eosinophilic granulomatosis, 245
- Epithelioid cell granuloma. *See* Granuloma
- Epithelioid hemangioendothelioma, 284–285
- Epping jaundice, 241
- Epstein-Barr virus infection
 - cholangitis in, 259
 - necrosis in, 123
- Erythromycin, 25, 56, 125, 240, 336
- Erythropoietic protoporphyria
 - cirrhosis in, 147–148
 - iron-negative pigments in, 217
- Estrogens, 272
- Ethacrynic acid, 125, 336
- Ethchlorvynol, 56, 65, 336
- Ethinyl estradiol, 285, 336
- Ethionamide, 56, 124, 336
- Ethylene dichloride, 123
- Etodolac, 125, 336
- Etretinate, 77, 336

F

- Fabry's disease, abnormal hepatocytes in, 178
- Fascioliasis, granulomas in, 101
- Fasting for morbid obesity, steatohepatitis in, 88
- Fat mobilization, endogenous, 95
- Fatty changes
 - alcoholic, 69–70, 70
 - associated clinical conditions, 68–77, 68
 - in cirrhosis, 142
 - definition, 67
 - drug-induced, 70–71, 71, 77
 - nonalcoholic. *See* Nonalcoholic fatty changes
 - in pregnancy. *See* Acute fatty liver of pregnancy
 - steatohepatitis and, 86
 - of unknown cause, 76

- Feathery degeneration, definition, 166–167
- Felbamate, 125, 336
- Ferritin
 - definition, 195
 - normal levels, 354
- Ferrous fumarate, 161, 336
- Ferrous sulfate, 123
- Fibrinogen, 168
- Fibrin ring granuloma, 100, 101, 103
- Fibropolycystic liver disease, abnormal bile ducts in, 236–238, 236
- Fibrosing cholestatic hepatitis B, 45
- Fibrosis. *See also* Biliary fibrosis
 - associated clinical conditions, 130–138, 130
 - in Budd-Chiari syndrome, 270, 271
 - congenital. *See* Congenital hepatic fibrosis
 - definition, 129
 - drug-induced, 137–138
 - of unknown cause, 138
- Fibrous cholangitis
 - associated clinical conditions, 232
 - in bile duct obstruction, 246–247, 249
 - definition, 231
 - fibrosis in, 135
 - neutrophilic cholangitis, 245
 - in nonsuppurative cholangitis, 239
 - in PBC, 249
 - in PSC, 250, 256
 - in schistosomiasis, 251
 - in viral hepatitis, 256
- Fibrous piecemeal necrosis, 111–112
- Florid duct lesion. *See* Granulomatous cholangitis
- Floxuridine, 77, 285, 337
- Flucloxacillin, 56, 240, 337
- Fluconazole, 65, 337
- 5-Fluoro-2'-deoxyuridine, 285
- Fluoxymesterone, 56, 65, 286, 337
- Fluphenazine, 56, 337
- Flurazepam hydrochloride, 56, 77, 337
- Flutamide, 32, 56, 124–125, 337
- Focal fatty changes, 71, 72
 - steatohepatitis and, 86
- Focal necrosis, 109, 110, 114
- Focal nodular hyperplasia, 153, 154
- Focal nonzonal necrosis, 110
- Foreign body reaction, granulomas, 93–94
- Formalin pigment, definition, 211, 212
- Foucher's stain, xxiii
- Fructose intolerance, hereditary
 - cirrhosis in, 149
 - fatty changes in, 75

Fucosidosis, abnormal hepatocytes in, 178
 Fungal disease. *See* Mycotic disease

G

- Galactosemia
 - cholestasis in, 65
 - cirrhosis in, 148
 - fatty changes in, 75
- Gamma globulin, normal levels, 354
- Gamma-glutamyl transferase, normal levels, 354
- Gastrointestinal disorders, steatohepatitis in, 86–87
- Genetic diseases. *See also specific diseases*
 - cirrhosis in, 146–152
- Germander, 44, 120
- Giant cell arteritis, granulomatous hepatitis in, 94–95
- Giant lysosomes
 - in alcoholic liver disease, 172
 - definition, 168
- Gilbert's syndrome, iron-negative pigments in, 219
- Glucoprotein, 168
- Glutaric aciduria, type II, fatty changes in, 72
- Glyburide, 105, 337
- Glycogen
 - definition, 169
 - incidental focal hepatocellular deposition, 183
- Glycogenesis, fibrosis in, 134
- Glycogen storage disease
 - abnormal hepatocytes in, 178–179, 179
 - cirrhosis in, 148
 - fatty changes in, 75
 - liver cell adenoma in, 155
- Glycolipids, 168
- Glycyrrhizin, 240
- Gold granules, definition, 211
- Gold sodium thiomalate, 56, 65, 77, 105, 337–338
- Gold therapy, granuloma in, 92
- Grading, xxiv
 - of allograft rejection, 294, 295
 - of chronic hepatitis, 296, 297
- Graft rejection. *See* Allograft rejection
- Graft-versus-host disease
 - abnormal bile ducts in, 241
 - abnormal blood vessels in, 273
 - cholestatic hepatitis in, 46
 - portal hepatitis in, 3
- Granuloma
 - associated clinical conditions, 92–105, 92
 - definition, 91–92

- drug-induced, 92, 105
 - incidental, 103–104, 103–105
 - in PBC, 7, 21
 - in sarcoidosis, 239
- Granulomatous cholangitis, 95–96, 97
- associated clinical conditions, 232
 - in autoimmune cholangitis, 234
 - definition, 231
 - fibrosis in, 135
 - in PBC, 249, 251–252
 - in viral hepatitis C, 257
- Granulomatous disease, abnormal blood vessels in, 274
- Granulomatous hepatitis
- associated clinical conditions, 92–105, 92
 - definition, 91–92
- Griseofulvin, 56, 338
- Ground-glass hepatocytes
- in alcoholic liver disease, 172
 - associated clinical conditions, 164
 - definition, 167
 - in viral hepatitis B, 188–189, 188–189

H

- Hairy cell leukemia, 33
- Haloperidol, 56, 240, 338
- Halothane, 25, 36, 56, 77, 105, 124–125, 161, 338
- Hantavirus infection, necrosis in, 123
- Heart disease, necrosis in, 118–119
- Heatstroke
- abnormal bile ducts in, 241
 - fatty changes in, 73
 - necrosis in, 121
- Hemangioendothelioma, 284–285
- Hematoidin, definition, 211
- Hemochromatosis
- cirrhosis in, 148–149, 150
 - genetic, 196–198, 199–200, 201
 - idiopathic perinatal, 200
 - after portacaval shunting, 199
- Hemolysis
- cholestatic hepatitis and, 53–54
 - transient episodes, iron-positive pigments after, 203
- Hemolytic uremic syndrome, cholestatic hepatitis in, 53
- Hemorrhage
- associated clinical conditions, 264–266
 - definition, 263
 - drug-induced, 272
 - iron-negative pigments after, 221

- Hemorrhagic necrosis, oral contraceptive-induced, 122
- Hemorrhagic telangiectasia, hereditary, cirrhosis in, 149–150
- Hemosiderin, definition, 196
- Hemosiderosis
 - cirrhosis with, 142
 - unexplained, in cirrhosis, 203
- Hemozoin, 220
 - definition, 211
- Hepar lobatum, 137
- Hepatic allograft. *See* Allograft entries
- Hepatic artery, occlusion of, 117
- Hepatic iron index, normal values, 357
- Hepatic vein thrombosis, 283. *See also* Budd-Chiari syndrome
 - cirrhosis in, 152
- Hepatic venous outflow obstruction, of unknown cause, 276
- Hepatitis. *See specific types of hepatitis*
- Hepatitis A viral antibody, normal levels, 360–361
- Hepatitis A viral immunoglobulin, normal levels, 360–361
- Hepatitis B core antibody, normal levels, 360–361
- Hepatitis B e antibody, normal levels, 360–361
- Hepatitis B e antigen, normal levels, 360–361
- Hepatitis B surface antibody, normal levels, 360–361
- Hepatitis B surface antigen, 188–189, **188–189**
 - normal levels, 360–361
- Hepatitis B virus DNA, normal levels, 360–361
- Hepatitis C viral antibody, normal levels, 360–361
- Hepatitis D antibody, normal levels, 360–361
- Hepatitis E, 28
- Hepatobiliary cystadenoma. *See* Biliary cystadenoma
- Hepatocellular carcinoma
 - abnormal blood vessels in, 278–279
 - abnormal hepatocytes in, 180–181, **180–182**
 - iron-negative pigments in, 224
 - pure cholestasis in, 63
- Hepatocellular edema, 166
- Hepatocellular giant cells, in infantile obstructive cholangiopathy, **47, 48**
- Hepatocellular necrosis, iron-negative pigments in, 219
- Hepatocellular nodules without cirrhosis
 - associated clinical conditions, 143
 - definition, 141–143
 - etiologic types of, 142–143, 143–160
- Hepatocellular storage cells
 - associated clinical conditions, 164
 - definition, 167–168
- Hepatocytes, abnormal. *See* Abnormal hepatocytes
- Hepatoportal sclerosis
 - fibrosis in, 135
 - in idiopathic portal hypertension, 277, **278**
- Hepatotoxic chemicals. *See* Toxic chemicals

- Herbal hepatitis, 120
- Herbal preparations, 120
- Herbal tea, 44, 285
- Heroin, 93
- Herpes simplex virus infection
 - abnormal hepatocytes in, 181, **183**
 - necrosis in, 123
- Histoplasmosis, granulomas in, 100
- Hodgkin's lymphoma, 245, 279
 - cholestasis associated with, 64
- Hunter's syndrome, cirrhosis in, 150–151
- Hurler's syndrome, cirrhosis in, 150–151
- Hyaline globules, in congestion, 168, 175–176
- Hydralazine hydrochloride, 36, 105, 125, 338
- Hydroxychloroquine, 125, 338
- Hydroxyethyl starch, 177
- Hyperbilirubinemia
 - conjugated, 47
 - unconjugated, 219
- Hypercalcemia, iron-negative pigments in, 219
- Hypereosinophilic syndrome, abnormal bile ducts in, 243
- Hyperparathyroidism
 - abnormal blood vessels in, 276
 - abnormal hepatocytes in, 182
- Hypervitaminosis A
 - abnormal blood vessels in, 276
 - fibrosis in, 134–135
- Hypoxia
 - abnormal hepatocytes in, 182
 - fatty changes in, 75
- Hypoxic hepatitis, necrosis in, 118–119

I

- Ibuprofen, 77, 240, 338
- ICD-9-CM codes, xxiv, 301–328
- I-cell disease, abnormal hepatocytes in, 182
- Idiopathic adulthood ductopenia, 219, 243
- Idiopathic arterial calcification of infancy, 277
- Idiopathic chronic hepatitis, abnormal hepatocytes in, 183
- Idiopathic dilatation of intrahepatic bile ducts, 236
- Idiopathic perinatal hemochromatosis, 200
- Idiopathic portal hypertension, 277, **278**
- Imipramine, 56, 124, 240, 338
- Immune disease, granulomatous hepatitis in, 94–95
- Immunostains, xxiii
- Incidental focal hepatocellular glycogen deposition, 183
- Incidental granuloma, 103–104, **103–105**

- Indian childhood cirrhosis
 - abnormal hepatocytes in, 184
 - iron-negative pigments in, 219
 - morphologic features, 153–154
 - steatohepatitis in, 87
- Indomethacin, 57, 77, 124–125, 338
- Induction cells
 - definition, 167
 - in drug-induced hepatitis, 177
- Infantile hemangioendothelioma, 284
- Infantile obstructive cholangiopathy, 47–48, 47, 160. *See also* Paucity of intrahepatic bile ducts
 - iron-negative pigments in, 221
- Infarct. *See also* Anemic infarct; Bile infarct
 - fibrosis in healed infarcts, 134
 - iron-negative pigments after, 221
 - oral contraceptive-induced, 122
- Infarcts of Zahn, 277
- Infectious mononucleosis
 - abnormal blood vessels in, 278
 - granulomas in, 102–103
 - lobular hepatitis in, 34–35
 - portal hepatitis in, 9
- Infective intra-abdominal conditions
 - abnormal bile ducts in, 244
 - abnormal blood vessels in, 278
- Inflammatory bowel disease, fatty changes in, 73–74
- Inspissated bile syndrome, pure cholestasis in, 63
- Interface hepatitis, 15
- Interferon, 25, 77, 105, 338
- International System of Diseases. *See* ICD-9-CM codes
- Intracytoplasmic inclusions
 - associated clinical conditions, 164–165
 - definition, 168–169
- Intrahepatic bile duct carcinoma. *See* Cholangiocarcinoma
- Intrahepatic biliary atresia, 247
- Intrahepatic cholestasis, familial, 64–65
- Intranuclear inclusions
 - associated clinical conditions, 165
 - Cowdry type A, 183
 - definition, 169–170
- Intravenous substance abuse, iron-negative pigments in, 220
- Iodipamide meglumine, 57, 124, 339
- Iron
 - dietary or medicinal ingestion, iron-positive pigments in, 197
 - normal levels, 354, 357
- Iron-negative pigments
 - associated clinical conditions, 208–209, 214–224
 - definitions, 207–214

Iron-positive pigments

associated clinical conditions, 196–204

definition, 195–196

Iron stain, xxiii

Ischemic cholangitis, abnormal bile ducts in, 244–245, **244–245**

Ischemic hepatitis, necrosis in, 118–119

Isocarboxacid, 57, 339

Isoflurane, 125, 339

Isoniazid, 25, 36, 57, 77, 105, 124–125, 161, 339

Isotretinoin, 77, 339

J

Jamaican vomiting sickness

cholestatic hepatitis in, 44

fatty changes in, 73

necrosis in, 120

Jejunioileal bypass surgery, **84, 86, 88**

K

Kawasaki disease, abnormal bile ducts in, 245

Ketoconazole, 36, 57, **112, 125, 339**

Ketoprofen, 77, 339

Kupffer cell hemosiderosis, 202, **203**

Kwashiorkor, fatty changes in, 74

L

Labetalol hydrochloride, 124–125, 339

Laboratory test values, normal, 351–357

Labrea hepatitis, 76

Lactate dehydrogenase, normal levels, 355

Lafora bodies, 187

in congestion, 176

Lafora's disease. *See* Progressive familial myoclonic epilepsy

Langerhans' giant cells, in granulomas, **98, 98**

Laparotomy, iron-negative pigments after, 221–222

Large-duct biliary cirrhosis. *See* Obstructive biliary cirrhosis

Lead inclusion bodies, definition, 169

Lead poisoning, abnormal hepatocytes in, 184

Leptospirosis, necrosis in, 122

Leukemia. *See also* Myeloproliferative disease

hairy cell, **33**

Limb lipodystrophy, steatohepatitis in, 89

Lipid inclusions, definition, 169

Lipochrome

definition, 211

in drug idiosyncrasy and toxicity, 216

- Lipofuscin
 - in chronic granulomatous disease of childhood, 216
 - definition, 212
 - in hepatic atrophy, 219
 - in TPN, 224
- Lipogranuloma
 - caused by endogenous fat mobilization, 95
 - caused by mineral oil, 96
- Lisinopril, 124, 340
- Listeriosis
 - granulomas in, 100
 - necrosis in, 122
- Liver cell adenoma
 - abnormal blood vessels in, 278–279
 - features, 155
 - pure cholestasis in, 63
 - steatohepatitis in, 88
- Lobular hepatitis
 - associated clinical conditions, 27–36, 28
 - definition, 27
 - drug-induced, 31, 32, 36
 - iron-negative pigments in, 224
- Long-chain acyl coenzyme A dehydrogenase deficiency, fatty changes in, 72
- Lovastatin, 57, 340
- Lyme disease, granulomas in, 102
- Lymphangiomatosis of the liver, 279
- Lymphatics, abnormal. *See* Abnormal lymphatics
- Lymphocytic cholangitis
 - definition, 230
 - fibrosis in, 135
 - in graft-versus-host disease, 241
 - in PBC, 249
 - in PSC, 250, 254
 - in viral hepatitis, 256, 258–259
- Lymphocytic piecemeal necrosis, 111, 111
- Lymphoid cholangitis
 - in autoimmune cholangitis, 234
 - in drug-induced and toxic hepatitis, 240
- Lymphoma. *See also* Lymphoproliferative disease
 - abnormal blood vessels in, 279, 280
 - cholestasis associated with, 64
 - intrahepatic, 64
 - zonal necrosis in, 116
- Lymphopathia venereum, 100
- Lymphoproliferative disease
 - abnormal bile ducts in, 245–246
 - simulating lobular hepatitis, 31–32, 33–34
 - simulating periportal hepatitis, 18
 - simulating portal hepatitis, 4, 5
- Lysosomes, giant. *See* Giant lysosomes

M

- Macroregenerative nodules, in hepatic necrosis, 155
- Malabsorption, steatohepatitis in, 86–87
- Malacoplakia with Michaelis-Gutmann bodies, iron-negative pigments in, 220
- Malaria
 - iron-negative pigments in, 220
 - lobular hepatitis in, 34–35
- Malaria pigment, 220, 223. *See also* Hemozoin
 - definition, 212
- Malignancy-associated changes. *See* Tumor-associated changes
- Malignant melanoma, iron-negative pigments in, 220–221
- Malignant tumor, extrahepatic, granulomas in, 93, 93
- Mallory bodies
 - in alcoholic cirrhosis, 144, **144**
 - in alcoholic hepatitis, 82–83, **83**
 - in alcoholic liver disease, 171, **171**
 - associated clinical conditions, 164–165
 - in autoimmune hepatitis, 173
 - in biliary cirrhosis, 174
 - in childhood cirrhosis, 154
 - definition, 169
 - in nonalcoholic steatohepatitis, 83–84, **84**
 - in PBC, 50, **51–52**
- Mallory-Heidenhain stain, xxii
- Malnutrition, steatohepatitis in, 86–87
- Mannosidosis, abnormal hepatocytes in, 184
- Marasmus, abnormal blood vessels in, 279
- Margoas oil, 75
- Mast cell disease, abnormal blood vessels in, 279
- Mauriac's syndrome, abnormal hepatocytes in, 184, **185**
- Medium-chain acyl coenzyme A dehydrogenase deficiency, fatty changes in, 72
- Megamitochondria
 - in alcoholic liver disease, 171–172
 - definition, 169
- Megestrol acetate, 57, 340
- Melanin
 - definition, 212–213
 - in malignant melanoma, 220–221
- Melioidosis
 - granulomas in, 100
 - necrosis in, 122
- Mephobarbital, 125, 340
- Meprobamate, 57, 340
- Mercaptopurine, 36, 57, 124, 161, 178, 340
- Mestranol, 65, 285, 340
- Metastatic calcification, 210
- Methimazole, 36, 57, 77, 105, 340
- Methotrexate, **71**, 77, 89, 125, 137–138, 160, 161, 178, 340

- Methoxsalen, 36, 125, 340–341
- Methoxyflurane, 36, 124–125, 341
- Methyldopa, 25, 36, 57, 77, 105, 124–125, 161, 341
- Methylenediamine, 241
- Methyltestosterone, 65, 161, 240, 285–286, 341
- Metolazone, 105, 341
- Metoprolol, 77, 341
- Midzonal necrosis, 110, 124
drug-induced, 124
- Mineral oil granuloma, 94, 96
- Minocycline, 125, 341
- Mitochondrial antibodies, normal levels, 355
- Mitomycin, 125, 285, 341
- Mixed-cell cholangitis
in allograft rejection, 242, 242
associated clinical conditions, 232
in autoimmune cholangitis, 234
definition, 230
in drug-induced and toxic hepatitis, 240–241
fibrosis in, 135
in graft-versus-host disease, 241
in PBC, 249
in PSC, 250
in toxic oil syndrome, 254
in viral hepatitis, 256
- Morphologic diagnosis, xxi
- Mucocutaneous lymph node syndrome. *See* Kawasaki disease
- Mucolipid(s), 168
- Mucopolipidosis
abnormal hepatocytes in, 184
type II. *See* I-cell disease
- Mucopolysaccharides, 168
- Mucopolysaccharidosis
cirrhosis in, 150–151
fibrosis in, 134
- Mucormycosis, granulomas in, 100
- Mucoviscidosis. *See* Cystic fibrosis
- Multilobular necrosis, 110, 113, 113, 124–125
drug-induced, 124–125
- Multinucleated giant hepatocytes
associated clinical conditions, 165
in autoimmune hepatitis, 173
definition, 170
in drug-induced hepatitis, 178
in hepatocellular carcinoma, 181, 182
in neonatal liver disease, 185, 186
- Multiple myeloma, abnormal blood vessels in, 286
- Mushroom poisoning, 121
- Mycobacterial disease, granulomas in, 102, 102

- Mycotic disease. *See also specific diseases*
 - granulomas in, 100
 - necrosis in, 122
- Myeloproliferative disease
 - simulating lobular hepatitis, 31–32
 - simulating periportal hepatitis, 18
 - simulating portal hepatitis, 4

N

- Nafcillin, 57, 341
- Nandrolone, 341
- Naproxen, 89, 341
- Necrosis. *See also specific types of necrosis*
 - associated clinical conditions, 110, 115–125
 - cholestatic hepatitis in, 49
 - definition, 109
 - drug-induced, 124–125
 - macroregenerative nodules in, 155
 - massive, 109
 - submassive, 109
 - tumor, 123
 - of unknown cause, 121
- Necrotizing enterocolitis, TPN in, 54
- Neonatal hepatitis, 47
- Neonatal liver disease, abnormal hepatocytes in, 185, 186
- Neonatal syphilitic hepatitis, fibrosis in, 137
- Neoplasm. *See Tumor entries*
- Neutrophilic cholangiolitis
 - associated clinical conditions, 232
 - definition, 230
- Neutrophilic cholangitis
 - in alcoholic liver disease, 234
 - associated clinical conditions, 232
 - in bile duct obstruction, 246, 247
 - definition, 230
 - in drug-induced and toxic hepatitis, 241
 - in heatstroke, 241
 - in infective intra-abdominal conditions, 244
 - ischemic cholangitis, 245
 - in Kawasaki disease, 245
 - in recurrent pyogenic cholangitis, 251
 - in toxic shock syndrome, 253
 - tumor-associated, 255
- Niacin, 77, 342
- Nicardipine, 89, 342
- Nicotinic acid, 25, 36, 57, 125, 342
- Niemann-Pick disease
 - abnormal hepatocytes in, 186

- cholestasis in, 65
- fatty changes in, 72
- Nifedipine, 57, 85, 342
- Nitrofurantoin, 25, 36, **44**, 57, 77, 105, 125, 161, 342
- Nizatidine, 125, 342
- Nocardiosis, granulomas in, 100
- Nodular regenerative hyperplasia, 155
- Nonalcoholic fatty changes, 71, **72**, 73–75
 - abnormal hepatocytes in, 186–187
- Nonalcoholic steatohepatic cirrhosis, 152
- Nonalcoholic steatohepatitis, 83–84, **84**, **86**, 88
 - abnormal blood vessels in, 280
 - abnormal hepatocytes in, 186–187
 - cirrhosis in, 152
 - fibrosis in, 132
- Non-Hodgkin's lymphoma
 - abnormal blood vessels in, 279
 - cholestasis associated with, 64
- Non-Indian childhood cirrhosis
 - abnormal hepatocytes in, 184
 - iron-negative pigments in, 219
 - morphologic features, 153–154
- Nonpigmented substances, abnormal. *See* Abnormal nonpigmented substances
- Nonspecific reactive hepatitis
 - lobular hepatitis, 32–33
 - periportal hepatitis, 18
 - portal hepatitis, 6
- Nonsuppurative cholangitis
 - chronic or healing stage, abnormal bile ducts in, 239
 - definition, 231
 - fibrosis in, 135
 - in idiopathic adulthood ductopenia, 243
 - in viral hepatitis, 257
- Norethindrone, 65, 105, 285, 342
- Norethynodrel, 65, 105, 342
- Norfloxacin, 124, 342
- Norgestrel, 65, 342
- North American blastomycosis, granulomas in, 100
- North American Indian cholestasis, 64
- Nortriptyline, 124, 343
- Norwegian cholestasis, 64

O

- Obesity
 - fatty changes in, 73, 75
 - steatohepatitis associated with, 84–85, 88
- Obstructive biliary cirrhosis, 155–156
- Ofloxacin, 57, 343

- Omeprazole, 124, 343
- Oncocytes
 - in alcoholic cirrhosis, 172
 - in cirrhosis, 175
 - definition, 167
- Opisthorchiasis, granulomas in, 101
- Oral contraceptives, 122, 155, 270, 272, 278
- Orcein stain, xxiii
- Oriental cholangiohepatitis. *See* Recurrent pyogenic cholangitis
- Oxacillin, 25, 57, 89, 105, 343
- Oxaprozin, 125, 343
- Oxidative phosphorylation deficiency, fatty changes in, 72
- Oxymetholone, 286, 343

P

- Pale bodies, in hepatocellular carcinoma, 180–181, **180–181**
- Pancreatic disorder, steatohepatitis in, 86–87
- Pancreatitis, cholangitis in, 244
- Papaverine hydrochloride, 25, 36, 57, 105, 161, 343
- Para-aminosalicylic acid, 178
- Paracoccidioidomycosis, granulomas in, 100
- Paragonimiasis, granulomas in, 101
- Paraquat, 241
- Parasitic disease. *See also specific diseases*
 - granulomas in, 101
 - recurrent pyogenic cholangitis, 251
- Paucity of intrahepatic bile ducts, 47, 160
 - abnormal bile ducts in, 247–248
 - iron-negative pigments in, 221
- PBC. *See* Primary biliary cirrhosis
- Peliosis hepatis
 - in AIDS, 266
 - in angioimmunoblastic lymphadenopathy with hypoxemia, 268
 - in bacterial endocarditis, 270
 - in copper sulfate poisoning, 272
 - drug-induced, 272, **273**, 286
 - in hypervitaminosis A, 276
 - in liver cell adenoma, 279
 - in lymphoma, 279
 - in marasmus, 279
- Pemoline, 125, 343
- Penicillamine, 25, 57, 343
- Penicillin, 36, 57, 105, 343
- Pentastomiasis, granulomas in, 101
- Perhexiline maleate, 85, 89, 177
- Periductal fibrosis, in bile duct obstruction, 246–247, **249**
- Perinatal hemochromatosis, idiopathic, 200
- Periodic acid-Schiff reaction with diastase digestion, xxiii

- Periportal hepatitis
 - associated clinical conditions, 13–25, 14
 - definition, 13
 - drug-induced, 17–18, 19, 25
- Periportal necrosis, 110
- Perisinusoidal lipocytes, in hypervitaminosis A, 276
- Peritonitis, cholangitis in, 244
- Perphenazine, 25, 57, 343
- Phagocytized erythrocytes, definition, 169
- Phenacetin, 216
- Phenazopyridine hydrochloride, 36, 343
- Phenelzine sulfate, 125, 343
- Phenobarbital, 57, 125, 344
- Phenylbutazone, 36, 57, 105, 125, 161, 240, 344
- Phenytoin, 125
- Phenytoin sodium, 19, 25, 36, 57, 105, 344
- Phlebitis
 - in alcoholic liver disease, 267–268
 - in allograft rejection, 275
 - in infarcts of Zahn, 277
 - in viral hepatitis, 267, 267
- Phleboscrosis, in alcoholic liver disease, 267–268
- Phospholipid(s), 168
- Phospholipidosis, 176–177
- Phosphorus, 123
- Piecemeal necrosis, 110
 - biliary, 111–112
 - ductular, 111–112
 - fibrous, 111–112
 - lymphocytic, 111, 111
- Piperazine preparations, 57, 344
- Piroxicam, 57, 65, 125, 344
- Pizotyline, 57, 344
- Polyarteritis nodosa
 - abnormal blood vessels in, 269, 269
 - granulomatous hepatitis in, 94–95
- Polythiazide, 57, 344
- Porphyria cutanea tarda
 - abnormal hepatocytes in, 187
 - cirrhosis in, 151
 - fatty changes in, 75
 - iron-negative pigments in, 221
 - iron-positive pigments in, 201
- Portacaval shunting, hemochromatosis after, 199
- Portal hepatitis
 - associated clinical conditions, 1–10, 2
 - definition, 1
- Portal hypertension, idiopathic, 277, 278
 - fibrosis in, 135

- Portal vein thrombus or emboli, 282–283
- Portoenterostomy, abnormal bile ducts in, 248
- Postinfection state, fibrosis in, 138
- Postinflammatory state, definition, 233
- Postnecrotic state
 - associated clinical conditions, 110, 115–125
 - definition, 109
- Postoperative intrahepatic cholestasis, benign. *See* Benign postoperative intrahepatic cholestasis
- Povidone
 - definition, 213
 - iron-negative pigments after administration, 221
- Prednisone, 73
- Preeclampsia
 - abnormal blood vessels in, 280–281
 - hemorrhage in, 281
- Pregnancy
 - acute fatty liver of. *See* Acute fatty liver of pregnancy
 - cholestasis of, 63
 - eclampsia in. *See* Eclampsia
- Primary biliary cirrhosis (PBC)
 - abnormal bile ducts in, 248–249, 250–252
 - abnormal blood vessels in, 267
 - abnormal hepatocytes in, 174
 - cholestatic hepatitis in, 50, 51
 - granulomas in, 95–96, 96–97
 - iron-negative pigments in, 222, 223
 - morphologic features, 156–157, 157–158
 - periportal hepatitis in, 20–21, 20–22
 - piecemeal necrosis in, 112
 - portal hepatitis in, 7–8, 7
 - staging of, 292
- Primary sclerosing cholangitis (PSC)
 - abnormal bile ducts in, 249–250, 253–255
 - abnormal blood vessels in, 267
 - abnormal hepatocytes in, 174
 - bile infarct in, 49
 - cholestatic hepatitis in, 49, 50–52, 52
 - fibrosis in, 136–137
 - granulomas in, 97–98, 97
 - iron-negative pigments in, 222
 - morphologic features, 157–158, 158–159
 - periportal hepatitis in, 21–22, 23
 - piecemeal necrosis in, 112
 - portal hepatitis in, 8
 - staging of, 293
- Probenecid, 125, 344
- Procainamide hydrochloride, 105, 344
- Procarbazine hydrochloride, 105, 344
- Prochlorperazine, 57, 65, 125, 240, 345

- Progressive familial myoclonic epilepsy, abnormal hepatocytes in, 187
- Progressive intrahepatic cholestasis
 - cirrhosis in, 151
 - features, 64–65
- Proliferation of bile ducts
 - in alcoholic liver disease, 234
 - associated clinical conditions, 231
 - in bile duct obstruction, 19, 20
 - in cystic fibrosis, 239
 - definition, 229–230
 - in drug-induced and toxic hepatitis, 240–241
 - in PSC, 22, 23
- Proliferation of bile ductules
 - in alcoholic liver disease, 234
 - associated clinical conditions, 231
 - in bile duct obstruction, 248
 - in cystic fibrosis, 239
 - definition, 230
 - in paucity of intrahepatic bile ducts, 248
- Propionic acidemia, fatty changes in, 73
- Propoxyphene hydrochloride, 57, 345
- Propranolol, 36, 124, 345
- Propylthiouracil, 25, 105, 124–125, 345
- Prothrombin time, normal values, 355
- Protoporphyrin, erythropoietic. *See* Erythropoietic protoporphyrin
- Protoporphyrin
 - definition, 213
 - in erythropoietic protoporphyrin, 217
- Protozoal infection
 - granulomas in, 101
 - necrosis in, 122
- PSC. *See* Primary sclerosing cholangitis
- Pseudoinclusion, 169–170
- Pseudotumor
 - iron-negative pigments in, 224
 - vascular, 284–285
- Pseudoxanthomatous change, 167
- Psittacosis, granulomas in, 100
- Pure cholestasis
 - associated clinical conditions, 61–65, 62
 - definition, 61
 - drug-induced, 63, 65
- Pylephlebitis, 278
- Pyrimethamine, 125
- Pyrimethamine-sulfadoxine, 345

Q

- Q fever, granulomas in, 101
- Quinethazone, 57, 345

Quinidine, 105, 124, 345

Quinine sulfate, 105, 345

R

Radiographic studies, iron-negative pigments after, 222

Recurrent intrahepatic cholestasis, benign. *See* Benign recurrent intrahepatic cholestasis

Recurrent pyogenic cholangitis, abnormal bile ducts in, 251

Regenerative nodules, abnormal blood vessels in, 278–279

Rejection arteriopathy, 275

Renal cell carcinoma, abnormal blood vessels in, 283

Reidu-Osler-Weber disease. *See* Hemorrhagic telangiectasia

Reticulum stains, xxiii

Retinol, normal levels, 355

Reye's syndrome, fatty changes in, 76

Rheumatoid arthritis

 abnormal blood vessels in, 282

 granulomatous hepatitis in, 94–95

Rhodamine stain, xxiii

Rickettsial disease, granulomas in, 101

Rifampin, 57, 77, 124, 345

Rubella virus infection, necrosis in, 123

S

Salmonellosis, necrosis in, 122

Sanded nuclei

 definition, 170

 in viral hepatitis, 17, 189

Sanfilippo's syndrome, cirrhosis in, 150–151

Sarcoid cirrhosis, 159

Sarcoidosis

 abnormal bile ducts in, 238–239

 abnormal blood vessels in, 282

 cholestatic hepatitis in, 52–53

 granulomas in, 98–99, **98–99**

Schistosomal pigment, definition, 213

Schistosomiasis

 abnormal bile ducts in, 251

 abnormal blood vessels in, 282

 fibrosis in, 137

 granulomas in, 101

 iron-negative pigments in, 223

Sclerosing cholangitis, primary. *See* Primary sclerosing cholangitis

Secondary biliary cirrhosis. *See* Obstructive biliary cirrhosis

Sepsis

 cholestatic hepatitis in, 53–54, **53**

 fatty changes in, 75

- Serologic findings, in viral hepatitis, 359–361
- Shikata's orcein stain, xxiii, 189, **189**
- Shock
 - cholestatic hepatitis in, 53–54, **53**
 - necrosis in, 118–119
- Sickle cell disease, cholestatic hepatitis in, 53
- Sideroblastic anemia, iron-positive pigments in, 201–202
- Silica
 - in anthracosilicosis, 215
 - definition, 213
 - in silicosis, 223
- Silicone
 - definition, 213
 - embolization of, 217
- Silicone-containing granuloma, 93–94
- Silicosis, 223
- Silver
 - in argyria, 215
 - definition, 213
- Sinusoidal dilatation
 - in AIDS, 266
 - artifactual, 280, **281**
 - in Budd-Chiari syndrome, 270, **271**
 - in cirrhosis, 270
 - in congestive heart failure, 271
 - in DIC, 272
 - drug-induced, 272
 - in granulomatous disease, 274
 - in hepatocellular carcinoma, 279
 - in hypervitaminosis A, 276
 - in infarcts of Zahn, 277
 - in liver cell adenoma, 279
 - in lymphoma, 279
 - in pregnancy, 281
 - in regenerative nodules, 279
 - in rheumatoid arthritis, 282
 - tumor-associated, 283
- Sinusoidal endotheliitis, 276
- Slide analysis, xxii
- Small-duct biliary cirrhosis, 159–160
- Smooth muscle antibodies, normal levels, 355
- SNOMED codes, xxiv, 301–328
- Solitary hepatic cyst, abnormal bile ducts in, 251–252
- Solvent exposure, 75
- Special stains, xxii–xxiii
- Sphingomyelin, 168
- Spirochetal disease, granulomas in, 102
- Spirolactone, 345
- Spotty necrosis, 110, 114, **117**

Staging, xxiv

of chronic hepatitis, 298, 299

of PBC, 292

of PSC, 293

Stanozolol, 65, 345

Starch, definition, 213

Starch granules

in intravenous substance abuse, 220

after laparotomy, 221–222

Stauffer's syndrome, 255, 283

Steatohepatitis

alcoholic, 82–83, 83

associated clinical conditions, 82–89, 82

definition, 81

drug-induced, 85, 87, 89

nonalcoholic. *See* Nonalcoholic steatohepatitis

Storage cells. *See* Hepatocellular storage cells

Streptokinase, 345

hematoma with administration of, 282

Strongyloidiasis, granulomas in, 101

Substance abuse, intravenous, iron-negative pigments in, 220

Sudden childhood death, fatty changes and, 76

Sulfadoxine, 105, 346

Sulfamethizole, 25, 346

Sulfamethoxazole, 57, 105, 125, 346

Sulfanilamide, 105, 346

Sulfasalazine, 36, 57, 89, 105, 124–125, 346

Sulfathiazole, 105, 346

Sulfonamides, type unspecified, 25, 36, 57, 105, 125, 346

Sulindac, 36, 57, 77, 124–125, 346

Surgery-associated hepatitis, lobular hepatitis, 33–34, 35

Syncytial giant cell hepatitis, abnormal hepatocytes in, 187

Syphilis

fibrosis in, 137

granulomas in, 102

Systematized Nomenclature of Human and Veterinary Medicine. *See* SNOMED codes

Systemic disease. *See also specific diseases*

cholestatic hepatitis in, 53–54, 53

lobular hepatitis in, 34–35

periportal hepatitis in, 24

portal hepatitis in, 9–10, 9

Systemic lupus erythematosus

abnormal blood vessels in, 269

granulomatous hepatitis in, 94–95

T

Tacrin hydrochloride, 346

Tacrolimus, 124, 347

Talc

definition, 214

- in intravenous substance abuse, 220
- after laparotomy, 221–222
- Tamoxifen, 25, 77, 89, 161, 286, 347
- Tealine, 120
- Terbinafine, 57, 347
- Terbutaline sulfate, 347
- Tertiary syphilis, fibrosis in, 137
- Testosterone, 65, 347
- Test values, normal, 351–357
- Tetracycline, 77, 240, 347
- Textbooks, xxiii–xxiv
- Thalassemia major, iron-positive pigments in, 201–202, 202
- Thiabendazole, 57, 161, 240, 347
- Thioguanine, 285–286, 347–348
- Thiopental sodium, 348
- Thioridazine, 57, 348
- Thorium, definition, 214
- Thorotrast, 222, 282, 284
 - definition, 214
- Ticarcillin, 57, 348
- Ticlopidine hydrochloride, 348
- Tidopidin, 57
- Tocainide, 105, 348
- Tolazamide, 25, 57, 124, 348
- Tolbutamide, 57, 105, 240, 348
- Tolmetin, 77, 348
- Total iron-binding capacity, normal values, 355
- Total parenteral nutrition (TPN)
 - cholestasis associated with, 63
 - cholestatic hepatitis in, 54, 54
 - cirrhosis associated with, 146
 - fatty changes in, 75
 - iron-negative pigments in, 224
 - steatohepatitis in, 88
- Toxemia of pregnancy. *See* Eclampsia
- Toxic chemicals
 - fatty changes associated with, 75
 - fibrosis induced by, 137–138
 - granuloma associated with, 93
 - necrosis associated with, 120, 123
 - steatohepatitis associated with, 86
 - toxic cirrhosis, 160
- Toxic hepatitis
 - abnormal bile ducts in, 240–241, 240
 - abnormal hepatocytes in, 187–188
 - cholestatic hepatitis, 44, 44–45
- Toxic oil syndrome
 - abnormal bile ducts in, 241, 254–255
 - steatohepatitis in, 86

- Toxic shock syndrome
 - abnormal bile ducts in, 252–254
 - abnormal blood vessels in, 283
 - fatty changes in, 76
- Toxoplasmic mononucleosis
 - lobular hepatitis in, 34–35
 - necrosis in, 122
- Toxoplasmosis, granulomas in, 101
- TPN. *See* Total parenteral nutrition
- Transfusion, iron-positive pigments after, 202–203, 203
- Transient hemolytic episodes, iron-positive pigments after, 203
- Transjugular intrahepatic portacaval shunt, cholestatic hepatitis and, 53
- Tranlycypromine sulfate, 36, 57, 348
- Trauma, abnormal blood vessels in, 283
- Trazodone, 25, 57, 348
- Triazolam, 57, 348
- Trichlormethiazide, 105, 349
- Trifluoperazine hydrochloride, 57, 240, 349
- Trihydrocoprostanic acid excess, familial. *See* Zellweger's syndrome
- Trimethadione, 36, 349
- Trimethobenzamide hydrochloride, 58, 349
- Trimethoprim, 58, 349
- Trimethoprim-sulfamethoxazole, 45, 65, 177, 240, 349
- Tripelennamine, 58, 349
- Troleandomycin, 58, 240, 349
- Tropical splenomegaly syndrome, 220
 - lobular hepatitis in, 34–35
- Tuberculosis
 - abnormal blood vessels in, 274
 - granulomas in, 102
- Tularemia, granulomas in, 100
- Tumor
 - iron-negative pigments in, 224
 - treated, fibrosis in, 138
- Tumor-associated changes
 - abnormal bile ducts, 255–258
 - abnormal blood vessels, 283–284
 - portal hepatitis, 5, 6
- Tumor necrosis, 123
- Typhoid fever, granulomas in, 100
- Tyrosinemia, fatty changes in, 75
- Tyrosinosis
 - cirrhosis in, 151
 - liver cell adenoma in, 155

U

- Ulcerative colitis, chronic, 51, 136
- Unresolved viral hepatitis. *See also* Acute viral hepatitis
 - cholestatic hepatitis in, 39–41

- fibrosis in, 132
- iron-negative pigments in, 224
- lobular hepatitis in, 30–31
- necrosis in, 116
- periportal hepatitis in, 15–17
- portal hepatitis in, 10
- Uric acid, normal levels, 355
- Uroporphyrin
 - definition, 214
 - in porphyria cutanea tarda, 221

V

- Valproic acid, 58, 77, 124–125, 161, 285, 349
- van Gieson stain, xxii
- Varicella zoster, multilobular necrosis in, 113
- Vascular pseudotumor, 284–285
- Vascular tumor, 284–285
- Veno-occlusive disease
 - after bone marrow transplantation, 284
 - drug-induced, 285, 285
 - in hypervitaminosis A, 276
 - necrosis in, 119
 - zonal necrosis in, 114
- Verapamil hydrochloride, 58, 349
- Vinblastine sulfate, 285, 349
- Vinyl chloride, 137, 284, 286
- Viral disease. *See also specific diseases*
 - abnormal bile ducts in, 252–254
 - granulomas in, 102–103
 - necrosis in, 122–123
- Viral hepatitis
 - abnormal bile ducts in, 256–257, 257–259
 - iron-positive pigments in, 204, 204
 - serologic findings, 359–361
- Viral hepatitis B(D), abnormal hepatocytes in, 188–190, 188–189
- Viral hepatitis C
 - abnormal hepatocytes in, 188–190, 188–189
 - acidophil bodies in, 167
 - fatty changes in, 75
 - granulomas in, 102–103, 103
- Viral hepatitis D, fatty changes in, 76–77
- Viral inclusion bodies
 - in CMV hepatitis, 176
 - definition, 169
- Viral inclusions, definition, 170
- Visceral larva migrans, granulomas in, 101
- Visceral leishmaniasis
 - granulomas in, 101
 - lobular hepatitis in, 34–35

- Vitamin A. *See also* Hypervitaminosis A
 - normal levels, 355
- Vitamin D, normal levels, 356
- Vitamin E, normal levels, 356

W

- Waldenström's macroglobulinemia, abnormal blood vessels in, 286
- Warfarin sodium, 65, 349
- Weber-Christian disease, steatohepatitis in, 89
- Weight-reducing surgery, steatohepatitis in, 84, 86, 88
- Whipple's disease, granulomas in, 103
- Wilson's disease
 - abnormal hepatocytes in, 190
 - cholestatic hepatitis in, 55, 55
 - cirrhosis in, 152
 - fatty changes in, 74, 74
 - iron-negative pigments in, 224
 - periportal hepatitis in, 24
 - steatohepatitis in, 87–88
- Wolman's disease
 - abnormal hepatocytes in, 190
 - cirrhosis in, 152
 - fatty changes in, 75

Y

- Yellow fever
 - necrosis in, 123
 - zonal necrosis in, 115
- Yersiniosis, granulomas in, 100

Z

- Zellweger's syndrome, abnormal bile ducts in, 257
- Zidovudine, 77, 125, 350
- Zonal necrosis, 109, 113–114, 114–116