Ain Shams University
Faculty of Medicine
Anatomy and Embryology Department

HEPATOBILIARY AND PANCREATIC ANOMALIES AND VARIATIONS: A REVIEW OF ETIOLOGY AND RECENT TECHNIQUES OF DIAGNOSIS

Essay
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By

Samer Atif Kamal Abdulmoneim
M.B, B.Ch

Under Supervision of:

Prof. Dr. Ashraf Ramzy Youssef
Professor of Anatomy and Embryology
Faculty of Medicine, Ain Shams University

Prof. Dr. Sherine Wagih Abdelmalek
Professor of Anatomy and Embryology
Faculty of Medicine, Ain Shams University

Dr. Enas Haridy Ahmed
Lecturer of Anatomy and Embryology
Faculty of Medicine, Ain Shams University

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LIST OF ABBREVIATIONS

AA	Abdominal aorta
AbLCA	Ascending branch of left colic artery
ADPKD1	Autosomal dominant polycystic kidney disease1
AGS	Alagille syndrome
AM	Artery of Moskowitze
APDAr	anterior pancreaticoduodenal arcades
APBJ	Anomalous pancreatico-biliary junction
aRHA	Accessory right hepatic artery
ASD	Atrial septal defect
BA	Biliary atresia
BASM	Biliary atresia splenic malformation
BCM	biliary cystic malformation
BEC	Biliary epithelial cells
CBD	Common bile duct
CBD	Common bile duct
CC	Choledochal cyst
CD	Caroli disease
CEHPS	Congenital extrahepatic portocaval shunt.

CFTCR	Cystic fibrosis transmembrane conductance regulator
CHA	Common hepatic artery
CHF	Congestive heart failure
CP	Chronic pancreatitis
CPA	Caudal pancreatic artery
CPV	Caudal pancreatic vein
CT	Computer topography
CT	Common trunk
DPA	Dorsal pancreatic artery
DPM	Ductal plate malformation
EBD	External bile duct
EBD	External biliary duct
EGD	Esophagogastrodudenoscopy
EMR	Endoscopic mucosal resection
ERCP	Endoscopic retrograde cholangiopancreatigrophy
EUS	Enoscopic ultrasound
FNAC	Fine needle aspiration cytology
GB	Gall bladder
GDA	Gastoduodenal artery

GEA	gastroepiploic artery
GIST	Gastrointestinal stromal tumor
GPA	Greater pancreatic artery
HHT	hereditary hemorrhagic telangectasia
HNF1β	Hepatocyte nuclear factor 1β
IAPDA	Inferior anterior pancreaticoduodenal artery
IBD	Internal bile duct
IBD	Internal biliary duct
ICA	Iliocolic artery
ICPN	intracystic papillary neoplasm
IHBD	Intrahepatic bile duct
IPA	Inferior pancreatic artery
IPF1	Insulin promoter factor 1
IPPDA	Inferior posterior pancreaticoduodenal artery
JSRD	Joubert syndrome and related disorder
LA	Linear artery
LD/SD	Long diameter /Short diameter
LV	Linear vein
MANEC	mixed adenoneuroendocrine carcinoma
MCA	Middle colic artery

MDCT	Multi-Detector Computed Tomography
MIP	Maximum Intensity Projection
MPD	Main pancreatic duct
MPV	Main portal vein
MRCP	Magnetic resonance cholangiopancreaticogrophy
MRI	Magnetic resonance imaging
OFD	Oral facial digital syndrome
PA	Pancreatic artery
PAVMs	Pancreatic arteriovenous malformations
PCLD	Polycystic liver disease
PD	Pancreatic divisum
PHA	Proper hepatic artery
PKHD1	Polycystic kidney and hepatic disease 1
PP	Polypeptide
PPDAr	posterior pancreaticoduodenal arcades
PKCS	Protein kinase C substrate
RAP	Recurrent acute pancreatitis
RCA	Right colic artery
RHA	Right hepatic artery
RHPD	Renal hepatic pancreatic dysplasia

SA	Splenic artery
SAPDA	Superior anterior pancreaticoduodenal artery
SMA	Superior mesenteric artery
SPIK1	Serine protease inhibitor kazal type 1
SPPDA	Superior posterior pancreaticoduodenal artery
SV	Splenic vein
tm4sf3	transmembrane 4 superfamily member 3
VIP	Vasoactive intestinal peptide
VMCs	Von Meyenburg complexes
VR	Volume Rendering
VSD	Ventricular septal defect
HNF1β	Hepatocytes nuclear factor 1 b

INTRODUCTION

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The hepatobiliary system is a necessary system for survival which involves production, storage, transport and release of bile. It plays an important role in the metabolism of carbohydrate, proteins and fat. It has a wide range of other functions, including detoxification of harmful substance, decomposition of red blood cells and hormone production ***(Skandalakis et al., 2014)***.

The pancreas plays an essential role through its two major functions; the exocrine function which helps in digestion and the endocrine function which regulates blood sugar. Maintaining proper blood sugar levels is crucial for the functioning of organs including the brain, liver, and kidneys ***(Junqueira and Carneiro, 2005)***.

There is pathogenesis of congenital anomalies in the hepatobiliary and the pancreatic systems. Anomalies of the hepatobiliary system are classified into four areas; A. Anomalies related to the hepatic vasculature (either arterial or venous), B. Anomalies related to the biliary systems, which include the anomalies of intrahepatic bile ducts, common hepatic duct, gall bladder, cystic duct and common bile duct, C. Anomalies of the liver structure including the accessory liver lobes or cystic anomalies of the liver, D. Anomalies associated with syndromes and like Alagille syndrome oral facial digital syndrome type1.