



ORIGINAL RESEARCH PAPER

Anatomy

THE CADAVERIC STUDY OF INCIDENCES OF ACCESSORY CYSTIC ARTERY

KEY WORDS: Accessory cystic artery, Cholecystectomy, cystic artery.

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ABSTRACT

INTRODUCTION: The vascular supply of gallbladder is variable and may causes problem during surgery. The knowledge of variations is helpful for prerequisite for safe cholecystectomy.
MATERIALS AND METHODS: Dissect the 100 liver specimens with intact extrahepatic duct system and vessels.
RESULTS: Out of 100 specimens accessory cystic artery was present in 11(11%) specimens.
CONCLUSION: The recognition of anatomical variations is important for avoid intraoperative haemorrhage during cholecystectomy.

INTRODUCTION

The cystic artery is the main source of the blood supply of gallbladder, cystic duct, hepatic duct and upper part of bile duct. The cystic arises from right hepatic artery. An accessory cystic artery originate from the common hepatic artery and one of its branch and the cystic artery often bifurcates near to the origin, which give rise to two vessels that reaches up to gallbladder. Multiple fine arterial branches arise from the parenchyma of the liver and contribute to the supply of the body, particularly when the gallbladder is substantially intrahepatic. This makes the gallbladder relatively resistant to necrosis during occlusion of the cystic artery¹.

An accessory cystic artery defined as any artery which supplying the gallbladder with an abnormal origin but normal cystic artery still present. An aberrant artery defined as any artery which supplying gallbladder with an abnormal origin but normal cystic artery being absent.²

During surgery unawareness of presence of an accessory cystic artery can lead to troublesome bleeding.

MATERIALS AND METHODS

The study was conducted on 100 human liver specimens with intact extrahepatic duct system which obtain from cadaver through dissection from the department of anatomy of various medical colleges of Gujarat region over the period of 3 years from 2015 to 2017 and observe the presence of cystic artery.

RESULTS

Out of 100 specimens accessory cystic arteries were present in 11(11%) specimens. An accessory cystic artery was originated from liver parenchyma in 10 (10%) specimens and in 2 specimens (2%) from right hepatic artery. The accessory cystic arteries which originated from liver parenchyma terminated on superior surface of gall bladder in 5 specimens (5%), on inferior surface in 2 specimens (2%) and in 3 specimens (3%) join with cystic artery. In 2 specimens accessory cystic artery present along with the double cystic arteries, in these specimens accessory cystic artery join with second cystic artery. The cystic artery which arises from right hepatic artery was terminated on superior surface of gallbladder in 1 specimen (1%) and on inferior surface of gallbladder in 1 specimen (1%).

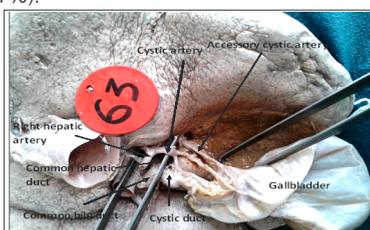


Figure-1: Accessory cystic artery

Table No-1: Termination of Accessory cystic arteries

Source of Origin	No. of specimens	Termination			Total
		Superior Surface of Gallbladder	Inferior Surface of Gallbladder	Join with Cystic artery	
RHA	1	1	-	-	1
Liver Parenchyma	10	5	2	3	10
TOTAL		6	2	3	11

DISCUSSION

The incidences of the presence of accessory cystic artery was reported in many studies. Therefore, during surgery carefully ligating of one artery surgeon must be careful for the presence of accessory cystic artery, if not identified that can injured and causes the bleeding may unclear the operative field.

Table No.2: Comparison of presence of Accessory Cystic artery with other studies

S.No.	Studies	No. of Case	Incidence of Accessory Cystic artery	Percentage
1	Futara G et al. (2001) ³	110	11	10%
2	Flint E.R. (1923) ⁴	200	31	15.50%
3	Suzuki M. et al(2000) ⁵	244	18	7.50%
4	Present Study	100	11	11%

Incidence of the accessory cystic are observed in 11% specimens in present study which is approximately similar to studies performed by Futara G et al. who found the presence of accessory cystic artery in 10%cases. Flint E.R.³ observed the incidences of accessory cystic artery in 15.5% cases which are higher than present study and Suzuki M. et al.³⁷ noted the accessory cystic artery in 7.50% cases which are less than present study.

CONCLUSION

The unawareness of presence of accessory cystic artery creates the major complications during surgery like hemorrhage. The present study helpful for surgeon when performing cholecystectomy. In view of the importance of the variations of anatomy of cystic artery which causes injury during cholecystectomy, it is advisable to look occurrence of variation should be assess with the help of imaging technique like ultrasound before procedure.

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