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Research Article

Study on Blood Supply of Appendix and Caecum in Human Cadavers and Its Variations

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Abstract: The size, shape, position and arterial supply of the caecum and appendix vary in different individuals of different sex and age. Therefore, a thorough knowledge of normal and abnormal anatomy, arterial supply of the caecum, appendix and ileocaecal junction is very important to surgeon performing abdominal operations in adults, children and infants. The clinical features of acute appendicitis vary according to its position, the age of the patient and obese individuals. Ischemia (or) Thrombosis of appendicular artery leads to gangrene of the appendix. The present work consists of the study of the caecum and vermiform appendix in human fetuses and adults. The total numbers of specimens studied are 50, out of which 25 are adult cadavers. The situation of caecum in 24 adult specimens is in the righty iliac fossa and 1 specimen is in sub hepatic in position. Out of 25 adults specimens 22 are normal adult type (ampullary type) (88%) and 2 specimens 8% are exaggerated type and only one specimen 4% is conical type. The shape of caecum in adults is asymmetrical type (adult) 100%.
Keywords: Arterial supply, Caecum, Appendix, Fetuses, Adults.

INTRODUCTION

Appendix is narrow blind tube arising from the postero-medial wall of caecum [1]. The word vermiform derived from the Latin word "Vermiforma" means worm shaped or resembling worm, hence called 'vermiform' [2]. Anatomically, it is one of the mobile viscera of abdomen [3].

The mesoappendix has a free border that carries the blood supply to the organ by the appendicular artery, a branch from the ileocolic artery [4]. Appendicitis is the most common in young people [5]. Identification of the normal position of appendix is important because in appendicitis variable positions may produce symptoms and signs that can mimic other diseases [6].

Knowledge about the arteries supplying the appendix and the possible variations is important to avoid intra and post operative complications like hemorrhage. Vascular anomalies are great challenges to the anatomists and surgeons. Laparoscopic surgery is widely accepted for appendicectomy that demands a thorough knowledge of arterial supply and its variations [7].

MATERIAL AND METHODS

The present work consists of the study of the caecum and vermiform appendix in human fetuses and adults.

The total number of specimens studied are 50, out of which 25 are adult cadavers (male and female), which are placed for dissection in the department of anatomy, Mamata Medical College, Khammam and the rest are 25 dead fetuses (male and female) freshly collected from labour rooms of the department of Obstetrics and Gynecology, Mamata General Hospital, Khammam. Sex is noted in the adult cadavers and the fetuses.

Preservation

The fetuses are preserved by injecting the preservative fluid. Composition of the preservative fluid is as follows:

10% formalin	- 25 c.c
Glycerine	- 15 c.c
Water	- 215 c.c

Total	- 255 c.c

Preservatives injected foetus according to weight of the foetus each kg body weight above fluids injected.

Soon after the fresh fetuses are brought from Mamata General Hospital, they are injected with the preservative fluid through one of the arteries of the umbilical cord or femoral artery. The preservative fluid is injected in small quantities (30c.c) in to the abdominal cavity and 40 c.c. is also injected into the brain through orbits and fontanelle. They are preserved in the tank containing

preservative solution, made up of 10% formalin and 2% carbolic acid for one week to Ten days.

Then the dissection is conducted on the fetuses and also in the adult cadavers kept the dissection hall.

Dissection in fetuses

A vertical incision from xiphisternum to pubic symphysis is given. Abdomen is opened. Greater omentum is removed. The coils of small intestine, the transverse colon and transverse mesocolon are pushed towards the upper abdomen to visualise the ileo caecal junction and the vermiform appendix.

The position of caecum, appendix and their peritoneal relations are noted. The position of the appendix is confirmed by the direction of the tip of the appendix.

The mesentery is cleaned and ileo-colic artery and its branches are identified. The superior and inferior divisions of ileocolic artery are traced, then the branches of the interior division of the ileo-colic artery.

RESULTS

The following observations are made on caecum & appendix in 25 adults & foetus.

Table 1: Meso appendix in adults and fetuses

Specimen	Incomplete Meso appendix	Complete Meso appendix
25 Adults	21	4
Percentage	84%	16%
25 fetuses	9	16
Percentage	36%	64%

Table 2: Arterial supply of appendix in adults and fetuses

Specimens	Appendicular artery from inferior division of iliocolic artery	Artery of seshachalam and Appendicular artery
Adult specimens	23	2
Percentage	92%	8%
Foetuses	25	--
Percentage	100%	--

DISCUSSION

Position of the Caecum

The caecum is the commencement of the large intestine, normally situated in the iliac fossa in the adults. In the present study the situation of caecum in 24 adult specimens is in the righty iliac fossa and 1 specimen is in sub hepatic in position.

In 15 foetal specimens (60%) with C.R length ranging from 23 cm to 43 cm, the caecum is situated in the right lumbar region. In 2 foetal specimens (10%) with C.R. length ranging from 21 cm to 40 cm, the Caecum is situated in the sub-hepatic region. In 8 foetal specimens (30% with C.R. length ranging from 30 cm to 34 cm, the caecum is situated in the right iliac fossa. These observations indicated the position of the caecum is not related to C.R. length.

Out of 25 adults specimens 22 are normal adult type (ampullary type) (88%) and 2 specimens 8% are exaggerated type and only one specimen 4% is conical type. Most authorities have described the shape of caecum in adults as asymmetrical 90%, infantile or conical 2% quardrate 3% and exaggerated asymmetrical 4-5% [8]. But Pavlov & Patron described 9% of intermediate type of caecum in adults [9]. In the present study, the shape of caecum in adults is asymmetrical type (adult) 100%.

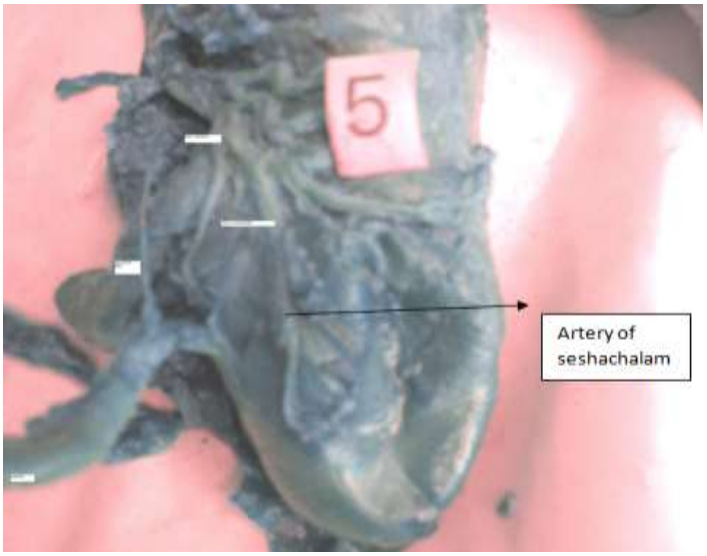

Fig. 1: Photograph showing that artery of seshachalam supplies the appendix

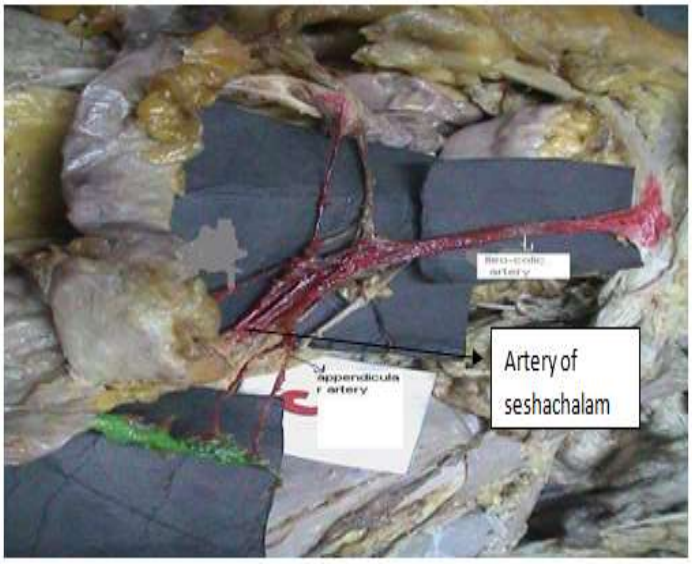

Fig. 2: Normal type of blood supply of appendix

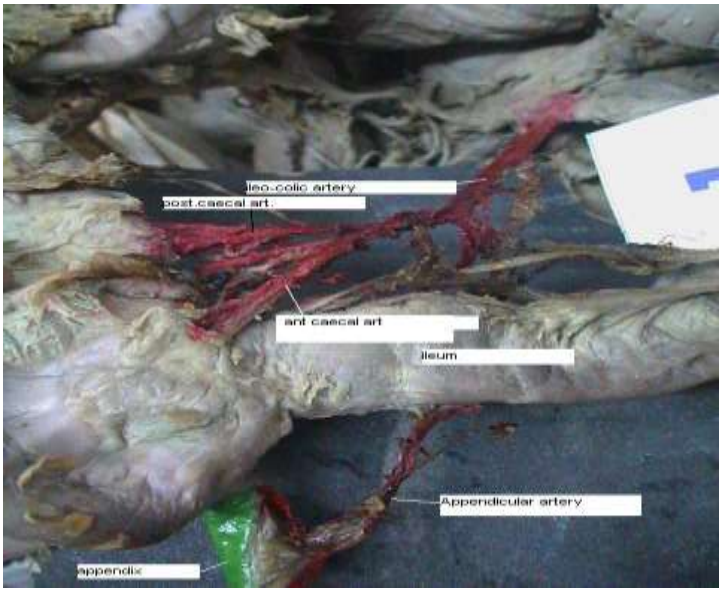

Fig. 3: Photograph showing variation in blood supply of appendix

CONCLUSION

The study was undertaken to elucidate the arterial supply to appendix and caecum in human cadavers and its variations. Total numbers of specimens studied are 50, out of which 25 are adult cadavers. The position of caecum, appendix and their peritoneal relations are noted and ileo-colic artery and its branches are identified.

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