A STUDY OF ARTERIAL SUPPLY OF VERMIFORM APPENDIX IN HUMANS

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ABSTRACT: The surgical procedures like appendicectomy, demands a precise knowledge of vascular anatomy of ileocolic region. The aim of this study is to study the arterial supply of the appendix, findings of which may reveal more anatomical facts about the arteries of appendix and their variations. Total 52 specimens of caecum and appendix with their arteries intact were collected, cleaned and dissected. The ileocolic artery and its branches to the appendix were traced carefully and observations were recorded. The ileocolic artery arises independently from superior mesenteric artery in 96.88% of cases and ends by dividing into superior and inferior division in 93.76% of cases. The appendicular artery arises from inferior division in 46.88%, ileal branch 28.13%, ileocolic artery 18.75% and from arterial arcade in 6.25% of cases. 21.87% of cases showed additional appendicular artery.
KEYWORDS: Caecum, appendix, ileocolic artery, appendicular artery.

INTRODUCTION: Vascular anomalies always pose a great challenge to the anatomists and surgeons. The surgical trauma to the sustaining blood vessels is irreparable and lead to fatal necrosis of the part involved.
Surgical procedures like appendicectomy, which is one of the common surgical procedures in case of appendicitis, appendicular carcinoid tumors etc. require good knowledge of arteries supplying it and the possible variations to avoid intra and post-operative complications like hemorrhage.

MATERIALS AND METHODS: The arterial supply of the appendix was studied in 52 human specimens. The specimens (caecum with appendix and part of ascending colon and ilem) were collected with their arteries intact from the postmortem centre and dissection hall (Department of anatomy) of J.J.M medical college. Davangere and S.I.M.S & R.C .Mangalore .
Thus collected specimens were preserved in 5% formalin. After the preservation the specimens were dissected cleaned and numbered. The ileocolic artery and its branches to the appendix were traced carefully and observations were recorded.

RESULTS: The arterial supply to the vermiform appendix was studied by dissection method in 52 specimens. The arteries to the appendix were carefully traced from their origin to termination. The findings are noted down.

In the present study of 52 specimens the appendicular had variable origin as follows,

In the present study of 52 specimens, 12 specimens (23.07%) showed an additional appendicular artery.

Out of these 12 specimens, the additional appendicular artery was originating from posterior caecal artery in 11 specimens (21.15%) and in one specimen (1.92%) it was originating from common caecal artery.

The specimen no.50 showed an anastomosis between appendicular and posterior caecal arteries. The specimen no.40 showed anastomosis between appendicular and ileal branches. Specimen no 2 showed anastomosis of appendicular artery with the common caecal artery.

DISCUSSION: 52 specimens were studied for the arteries supplying the vermiform appendix. The findings of the study have been compared with those of previous workers on the subject.

24 (46.15%) out of 52 specimens studied, showed the origin of appendicular artery from the inferior division of ileocolic artery.Cunningham[1]and Michel R B [2] illustrate the origin of appendicular artery from the descending branch of the ileocolic artery. Susan Standring[3] in Gray's Anatomy mentions the origin of appendicular artery from the inferior division.

In 16 (30.76%) specimens of the present study, the appendicular artery originated from the ileal branch. Barry J Anson[4] and others[5,6] have mentioned the origin of appendicular artery from ilealbranch.Bergmann[7] mentioned the origin of appendicular artery from the ileal branch in 35% of cases. (Un-published report of Beaton, Anson, Swigart and Jamieson).Schumpelick Volker et al[8] mentioned the origin of appendicular artery from the ileac ramus of the ileocolic artery in 35% of cases.

In 10 (19.23%) specimens the appendicular artery originated directly from the ileocolic artery. This type of origin has also been mentioned by Haller[9]and others(4,6, 10, 11, 12, 13).Luzsa[14] state that the appendicular artery arises from the ileocolic artery in 1/3 of cases.Bergmann[7] mentions the origin of appendicular artery from the ileocolic artery in 48.5% of cases. Schumpelick Volker et al[8] state that the appendix gets its blood supply from the appendicular artery, which originate from the ileocolic artery in 28% of cases.

In the present study one specimen (1.92%) showed the origin of appendicular artery from the arterial arcade between posterior caecal and ascending colic branch. One more specimen (1.92%) from the arcade between ileal and common caecal branch. Anson and Mcvey[6] have mentioned the origin of appendicular artery from the arcade between colic and ileal branches. Kozmith et al [15] mentioned the origin from the ileal side of the ileocolic loop. Michel Simon et al[13] mentioned the origin of appendicular artery from the ileocolic arcade.

In the present study of 52 specimens, 12 specimens (23.07%) showed an additional appendicular artery. The variation is even mentioned by Barry J Anson [4], and others (6, 14, 16). Katzarski M et al [17],have demonstrated more than one appendicular artery in 39.8% of cases. Ajmani M L Ajmani[18] demonstrated more than one appendicular artery in 39% of cadavers.

In the present study, out of 12 specimens the additional appendicular artery originated from the posterior caecal artery in 11 specimens(21.15%) and in one specimen(1.92%) from

the common caecal artery.Piersol[19],Shah and Shah [20], and other workers (4, 6, 13, 14, 16)have mentioned the origin of appendicular artery from the posterior caecal artery. Bergmann [7] mentioned the origin of appendicular artery from posterior caecal artery in 5% of cases. Schumpelick Volker[8] states the origin of appendicular artery from posterior caecal artery in 12% of cases.

Specimen no 50 showed an anastomosis between appendicular and posterior caecal arteries. This observation is even mentioned by Susan Standring[3] in Gray's anatomy, Mc Minn R M H [16] in Last's anatomy.

Specimen no 40 showed anastomosis between appendicular and ileal branches. Specimen no 2 showed anastomosis of appendicular artery with the common caecal artery. Michel Simon[13] mentioned the anastomosis between the appendicular artery and the ileal branch of the superior mesenteric artery.

CONCLUSION: The appendicular artery originated from inferior division in 46.15%. Other sites of origin are ileal branch of inferior division (30.76%) and directly from the ileocolic artery in 19.23% and an arterial arcade in 3.84% of cases.23.07% of specimens showed additional appendicular artery, which originated from posterior caecal artery (21.15%) or common caecal artery (1.92%)5.76% of specimens showed anastomosis of the appendicular artery with the posterior caecal, ileal and common caecal branches.

From the inferior division of ileocolic artery	24 specimens	46.15%
From ileal branch	16 specimens	30.76%
Directly from ileocolic artery	10 specimens	19.23%
From an arterial arcade between posterior caecal and ascending colic branch	1 specimen	1.92%
From an arcade between ileal and common caecal branch	1 specimen	1.92%

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