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AGENESIS OF RIGHT EXTERNAL ILIAC ARTERY – A CASE REPORT

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ABSTRACT

External iliac artery agenesis is a rare congenital variation characterized by the absence or incomplete development of the external iliac artery; the major blood vessel supplies to the lower limb. Here a case we found an agenesis of right external iliac artery in a Male cadaver of about 60 years. The variation was unilateral and the course of left external iliac artery and its branches were trace and found to be normal. Apart from this variation the abdominal aorta showed thickening and dilatation and rest of the branches of the aorta were as usual. The knowledge of this might be important for surgeons since it may be involved in surgeries of hip, prostate and bladder and in performing Endovascular aneurysm repair (EVAR) is an important advance in the treatment of abdominal aortic aneurysm (AAA) also during ligations in surgeries.

KEYWORDS: Agenesis, external iliac artery, embryology, collateral circulation

INTRODUCTION

External iliac arteries are the terminal branches of the common iliac artery and extends as continuation of the latter downwards and laterally along the medial border of the psoas major up to the mid-inguinal point, where it enters the thigh behind the inguinal ligament and is continued as the femoral artery[1].

Branches[1]

Each artery provides two named branches, inferior epigastric and deep circumflex iliac**.**

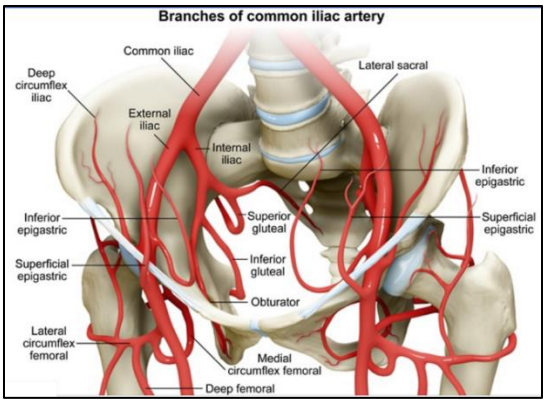

Diagram 1- Branches of Common Iliac Artery

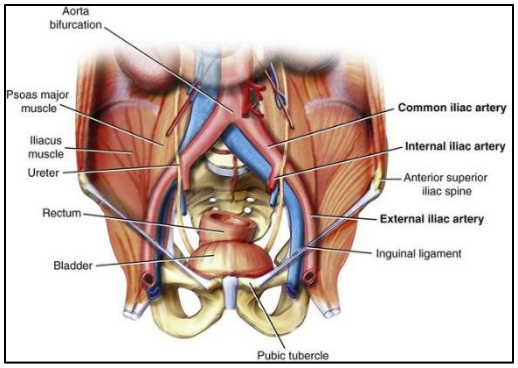

Diagram 2- Relation of Iliac Artery

Relations[1]

In front – (a) covered by peritoneum, on right side by the terminal part of ileum, caecum and occasionally vermiform appendix; left artery is overlapped by the coils ileum and crossed by the sigmoid colon. (b) Crossed by the corresponding ureter at the beginning of the artery. (c) In female posterior part of the artery is crossed by the ovarian vessels. (d) anterior part of the artery is related in front to the testicular vessels, and is crossed by the genital branch of the genitofemoral nerve, deep circumflex iliac vein, vas deferens in male or round ligaments of uterus in female.

Behind – (a) the artery rest on psoas major, separated by fascia iliaca. (b) External iliac vein is lies behind the artery in the upper part and medial to the artery in the lower part**.**

Embryology

In the fourth week of fetal development, the umbilical arteries anastomose with dorsal intersegmental artery branches to become the dominant placental-aortic connection. This "new" umbilical artery becomes the common and internal iliac artery after birth interrupts the placental circulation. At five weeks of fetal development, the sciatic arteries and external iliac arteries arise from the same dorsal umbilical artery root. The two vessels then interconnect, and the sciatic artery regresses, forming the arteries of the lower extremity including the femoral artery[2].

CASE REPORT

During the routine dissection of the abdominopelvic region to Ayurvedic undergraduate students at SDMIAH Bangalore, we found an agenesis of right external iliac artery in a male cadaver of about 60 years. The variation was unilateral and the course of left external iliac artery and its branches were trace and found to be normal. Apart from this variation the abdominal aorta showed thickening and dilatation and rest of the branches of the aorta were as usual.

Images shows the variation

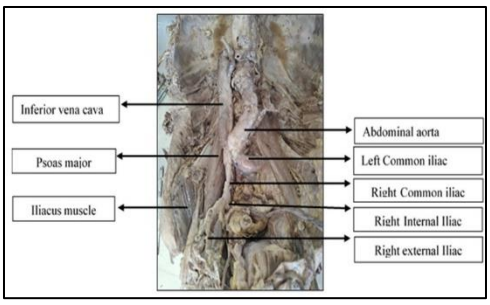

Diagram 3 - Agenesis of right external iliac artery in Cadaver

DISCUSSION

The external iliac artery is the largest branch of the common iliac artery and it is the main blood supply to the lower extremity.

The incidence of external iliac artery agenesis remains unknown since the condition only manifests itself when symptomatic. In the congenital absence of an external iliac artery, compensatory blood flow patterns provide arterial perfusion to the lower extremity. Tamisier D, Melki JP, Cormier JM article shows, the most common anatomy observed in these cases involves the distal internal iliac artery being continuous with the common femoral artery. Descriptions of an external iliac artery with an unusual, deep pelvic course may also represent a form of agenesis[3].

The diameter and disease status of the external iliac artery plays an important role in planning an endovascular abdominal aortic aneurysm repair. Endovascular access to the abdominal aorta usually involves passing guide wires and sheaths from the common femoral artery, through the external and common iliac arteries, and into the aorta. An extremely small caliber, tortuous, or calcified external iliac artery may necessitate alternative vascular access techniques or conversion to open surgery[4].

The external iliac may be longer or shorter than usual, according to the bifurcation of the common iliac above or below its usual point. When longer, it often takes a tortuous course, making a partial loop or bend that may take it below the brim of the pelvis as in the second case. The artery may be smaller in diameter than usual, when the femoral or main vessel of the lower limb arises from the inferior gluteal or other branch of the internal iliac. It then often terminates in profunda femoris. The external iliac may provide a large branch, as the circumflex iliac or inferior epigastric, at a point higher than usual. On occasion, it gives rise to the obturator artery (1.1% of cases). In some cases, it gives rise to branches usually arising from the femoral as superficial external pudendal or profunda femoris. In cases where the ischiatic artery persists as the main artery of the lower limb, the external iliac is usually poorly developed[5].

In Present case, we found agenesis of right external iliac artery and there was collateral circulation through distal internal iliac artery, inferior epigastric and deep circumflex iliac artery. The right common iliac artery was short and narrow than the left common iliac artery. There were no variations found in the femoral artery and its branches. No deformities observed in the lower limb externally as well as internally. Also, we observed atherosclerosis of the aorta, dilated deep veins, enlarged thoracic duct and

scoliosis towards left side. Due to scoliosis, azygos vein and aorta are deviated towards left side.

CONCLUSION

The congenital anomalies in external and internal iliac arteries are rare and that they may occur in different degrees. The knowledge of normal and variational anatomy of external iliac artery is essential for surgeons in performing Endovascular aneurysm repair (EVAR) is an important advance in the treatment of abdominal aortic aneurysm (AAA) also during ligations in surgeries.

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