The iliolumbar artery arises from the posterior trunk of the internal iliac artery. It passes supero-laterally deep to the obturator nerve and external iliac vessels and anterior to the sacro-iliac joint and lumbosacral trunk, to reach the medial border of psoas major, where it divides into lumbar and iliac branches.

The lumbar branch supplies psoas major and quadratus lumborum, anastomoses with the fourth lumbar artery and gives rise to a spinal branch, which enters the vertebral foramen (canal) via the L5/S1 intervertebral foramen to supply the cauda equina. The iliac branch supplies iliacus and anastomoses with the iliac branch of the obturator artery. It gives rise to a nutrient artery to the ilium and muscular branches to the gluteal and abdominal muscles, which anastomose with the superior gluteal, circumflex iliac and lateral circumflex femoral arteries.