

Vilniaus universitetas
Medicinos fakultetas

A decorative graphic consisting of four triangles: a solid black triangle pointing up at the top center, a solid grey triangle pointing down at the top right, a solid grey triangle pointing up at the bottom left, and a solid grey triangle pointing up at the bottom right.

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VARIATIONS IN TOPOGRAPHY OF RENAL BLOOD VESSELS (A Study with Bodies Donated to Vilnius University)

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Background and aim. Throughout the studies of human anatomy, anatomical variations have been noticed among individuals. This is of specific importance for surgical interventions as special anatomical situations have to be taken into account. In our research about the variations of renal blood vessels, we assess the prevalence and type of differences in renal vascularisation on cadavers. While variations of renal arteries are very common, anomalies of renal veins are significantly more rare. The utilization of cadavers is of advantage because studies performed with CT underestimate the frequency of variations as sometimes not all structures are shown on imaging.

Materials and methods. For the thesis, bodies donated to Vilnius University are used. They are preserved with standard measures using formaldehyde by the anatomical institute. During the dissection, specific forceps and knives are used as tools. The data is collected by photography and analyzed on site.

Results. To date, we analyzed nine cases of which one is a kidney transplant. The standard anatomy of the kidney vasculature are one renal vein and renal artery on each side of the kidney. Because of the position of the aorta, the right renal artery is longer than the left. In the majority of cases the renal artery splits prehilary in two branches, anterior and posterior. A common variation are polar renal arteries, where the artery either connects to the superior or the inferior pole of the kidney. At the moment, we found one superior polar artery that splits early prehilary on a right kidney. Another right kidney has two veins and one artery connecting suprarenal to the kidney. They are branches of the main renal artery and vein. Without variations are one right and left kidney. One case of a left kidney, does have two renal veins arising from the vena cava, where one runs above and the other below the renal artery. The renal vein that runs superior to the aorta, connects to the gastric vein and also drains the adrenal gland as well as the suprarenal vein. The cadaver with the kidney transplant has two atrophied kidneys. They both have no variations in vasculature. The kidney transplant is connected to arteria and vena iliaca externa respectively.

Conclusions. During our research, we found in five out of nine kidneys anatomical structures of the vasculature that were not classical. This confirms that variations are frequent. Though, analysis of further cases are necessary. Within the next months further dissection cases will be assessed to have a higher number of cases and gain further insight into the anatomical variations of the renal vascularisation on the bodies donated to Vilnius University.

Keywords. Variations of Renal Blood Vessels; Renal Vascularisation; Cadaver studies; Anatomical Variations of Kidney.