Renal arteries originate from the abdominal aorta in most the majority of cases (99.1%). Accessory renal arteries usually arise from the aorta above or below the main renal artery and follow it to the renal hilum. At present, there is no common opinion consensus on the cause of the emergence of accessory renal arteries. Felix described that in a 18-mm fetus, the developing mesonephros, metanephros, and the suprarenal glands are vascularized by nine pairs of arteries that take originating from the dorsal aorta and that can be divided into cranial (1st and 2nd), middle (3rd to 5th), and caudal (6th to 9th) arteries. Thus, failure to reduce the number of arteries results in accessory renal vessels. The incidence of accessory renal arteries varies, is uneven and it depends not only on the study method but also on other factors. Depending on the population, the incidence of accessory renal arteries ranges from 4% (Malaysia) to 61.5% (Brazil). Additionally, the incidence also can greatly be very variable in countries with ethnic heterogeneity. The Republic of Moldova is a multinational country, and which means that the incidence frequency of occurrence of the accessory renal arteries widely can vary in wide ranges depending on the nationality. In Ukraine and Romania, which are countries that are geographically close to the Republic of Moldova—Ukraine and Romania, the incidence of accessory renal arteries is 31.8% and 19.9%, respectively.

According to previous based on the data from the literature, more than one accessory renal artery is a rare finding. According to Jamkar et al. and coworkers, this variant on the left side in 3.77% of specimens on the left side and on the right side in 4.71% of specimens on the right side was found. Several authors consider that accessory renal arteries are considered to be more frequent on the right side than on the left side (p = 0.01). Usually, in this case, the diameter of the main renal artery in this case is smaller. It should be noted, that Notably, variants of developmental variants of the renal
arteries, in particular accessory arteries, are often associated with other developmental variations of vascular supply.