

always run between the calices so that when you take a kidney that is creased, the blood vessel is in the bottom of the crease; if you cut along that line, the blood will only be from the capillaries; if you cut across the crease, you get the arteries. One of these calices, the lowest one, is the one that is always in the same place, and always has the same relative position in regard to the blood vessels. The only blood vessel, with the exception of the arteries, in the kidneys is the blood vessel which passes up just to the inner side of this posterior calix. If you desired to reach this calix, you would cut up into the posterior side without cutting anything more than capillaries. You could do that with perfect safety.

There is another feature that comes from this question of blood supply which is also very important; that is, that the posterior part of the kidney does not get the same amount of blood that the anterior does, so that, instead of having the same shape, it is larger owing to the greater amount of blood supply. If you wish to get into the calices, cut into the anterior side; if you wish to get into the pelvis of the kidney, cut into the posterior side. In getting at the pelvis of the kidney, one must always recall that the ureter always comes up from below, and it reaches the blood supply, so that in getting at the vascular supply you will always find that the ureter is well supplied, and you can take the ureter and turn it aside, and still have ample blood supply.

The ureter is about ten inches long. It has three points of narrowing: the first one, just about two inches on an average from the kidney, is at the junction of the pelvis and the ureter; the second point is where it crosses the iliac artery; and the third point of narrowing is just outside the bladder. Another peculiarity is in regard to the blood supply. When I was taught, and when I demonstrated anatomy, it was said the ureter had a single artery carried down from the top. As a matter of fact, the ureter is one of the best supplied organs of the body with blood, so that one does not need to be afraid he is going to stop the blood supply of the ureter. It can be cut open the whole length and the shell allowed to drop back, and if it does not turn, there will be no leakage. The practical point is that in the operations on the ureter of this kind, and in surgery of the intestines, I very carefully drain them with rubber tissue, not gauze. When you pull the gauze out, you get an infection which follows down and which will result in fistula. So if you drain these cases, you want to drain them with rubber. If you take a nerve and cut it and put one end in a glass or rubber tube, and put one end of the nerve above and the other below, the one above will grow down; if you take the end of the nerve from below and place it above, the other end will turn around. We have known that this thing takes