The available literature revealed that the work on the gross structure of the kidney of Large White Yorkshire is still meagre. The present investigation has been planned to elucidate the gross aspect of the kidney of the Large White Yorkshire Pig. The results of this study will be useful to clinicians and para-clinicians for diagnosis and treatment of various ailments of this gland and will also help the scientists involved in research on urinary system of pig.

The present study was conducted on thirty, apparently healthy Large White Yorkshire pigs (Sus scrofa) of either sex between the ages of 5-8 months. Six freshly slaughtered animals were used for the topographic study of the kidney. The abdominal viscera was dissected out and relations of the kidney with other visceral organs were studied. For the gross anatomical studies 48 kidneys (24 rights and 24 left) were used. The measurement for various biometrical parameters like weight, length, width, thickness, circumference and volume were carried out. Weight was recorded with the help of electronic balance, volume was measured by water displacement method by measuring cylinder and length, width and thickness were measured by Vernier’s calipers and measuring scale, respectively. The circumference was measured with a non-stretchable cotton thread. The width and circumference had been measured at the hilus of the kidney. The correlation between each parameter was calculated at 1% level of the significance for conclusion with the help of T and F test.

The kidneys of Large White Yorkshire pigs were retroperitoneal and situated against the dorsal body wall one on each side of the vertebral column. Both the kidneys were almost symmetrically placed ventral to the transverse processes of the first four lumbar vertebrae, but the left kidney was often a little further cranial. The cranial end of the right kidney was not lodged in the renal impression of the liver (Fig. 1) and was related ventrally to the descending duodenum and jejunum. The left kidney was ventrally related to the ascending colon, base of the caecum and pancreas. The outermost renal fascia anchored the kidney to peritoneum. The central layer of adipose tissue provided additional support and cushioning. The innermost connective tissue layer was the renal capsule that was closely attached to the outer surface of kidney parenchymal tissue.

Abdalla (1973) stated that the right kidney of the camel was situated under the transverse processes of the first three lumbar vertebrae while the left one was under the transverse processes of the last three. The left kidney was often a little further cranial than the right and the cranial end of the right kidney was not lodged in the renal impression of the liver and was related ventrally to the descending duodenum and jejunum or the left kidney was ventrally related to the ascending colon, base of the caecum and the pancreas. In pig, similar description was made by Getty (1975).

The kidneys of Large White Yorkshire pig were bean-shaped and brown in colour. Both the kidneys were smooth. They were more flattened dorso-ventrally, more elongated and narrower at the extremities. Length was twice than
the width in both kidneys (length of right kidney was 7.60 cm and width of right kidney was 3.04 cm). They were embedded in capsule having peri-renal fat. The hilus was approximately in the middle of the medial border. When a section was made from pole to pole, the kidney was seen to be consisted of outer dark brown cortex and inner dull brown medulla. There was a renal crest or common papilla, some were narrow and conical and corresponded to a single pyramid, others were wide and flattened and formed by the fusion of two or more pyramids whereas some projected directly through the wall of the renal pelvis without the formation of a calyx (Fig. 2). The pig kidney had numerous and separate medullary pyramids (Fig. 2). All the pyramids fused to form a single medullary mass that confined the cortex to the periphery where it formed a continuous shell.

The kidney was consisted of outer dark brown cortex and inner dull brown medulla as reported by Chugh and Dhingra (1981) in buffalo, Dyce et al. (2010) in domestic animals and Singh (2013) in Marwari sheep. However, Dellmann and Brown (1993) stated that the multilobed kidney had numerous and separate medullary pyramids in pig. Abdalla and Alla (1974) in camel, there was a well developed renal crest projected into the pelvis.

The weight, length, width, thickness, circumference and volume of right and left kidneys were recorded in 24 pigs. The weight of right kidney ranged from 89.92 to 39.51 gm with an average of 66.53±2.63 gm and that of left kidney ranged from 90.92 to 40.49 gm with an average of 67.63±2.62 gm. Ommer and Harshan (1995) reported in pig that both the kidneys being of equal weight, their average weight was 200-280 gm each. However, these values were greater during the present study.

The average weight, length, width, thickness and volume of left kidney were slightly higher than the right kidney. These findings were similar to the findings of Singh (1994) in Marwari goat and Ladukar et al. (2006) in 15-year-old black bear. In pig, the weight of right kidney ranged from 89.92 to 39.51 gm with an average of 66.53±2.63 gm and that of left kidney ranged from 90.92 to 40.49 gm with an average of 67.63±2.62 gm. Ommer and Harshan (1995) reported in pig that both the kidneys being of equal weight, their average weight was 200-280 gm each. However, these values were greater during the present study.

REFERENCES


