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بعض الهميزات المورفولوجية لكلية الحمل وحيد السام

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SOME MORPHOLOGICAL FEATURES OF THE KIDNEY OF THE CAMEL
(*Camelus Dromedarius*)
(With One Table and One Figure)

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SUMMARY

The shape, position, relation, measurements and weights of the kidney of the camel (*Camelus Dromedarius*) were fully described. Moreover, examination of plastoid cast of the excretory part of the kidney of the camel was carried out in this investigation. It is evident that the renal pelvis of the camel's kidneys is narrow and crescentic in shape, it gave off 8 - 14 renal pelvic recesses.

INTRODUCTION

The morphological features of the kidneys of most domesticated animals were studied fully by many authors PFELFER (1951), NICKEL, SCHUMMER and SEIFRLE (1960), AKAVSKI (1968), SISSON and GROSSMAN (1969) and GETTY (1975).

However, the available literature lacks data on the morphological features of the kidneys of the camel except the very brief general description given by CHAUVEAU (1891), LESPRE (1903), LEESE (1927) and TAYEB (1948).

Since the kidneys play an important role in regulating the fluid balance of the body, so the present investigation is carried out to get a detailed description of the special morphological features of the kidneys of the camel and compared with other domesticated animals.

MATERIALS AND METHODS

The present investigation was carried out on 25 kidneys of adult one humped camels (*Camelus Dromedarius*) of both sexes and of different ages collected from the slaughter houses of Cairo and Assiut provinces. The position and relations of the kidneys were observed before their removal, and in other five carcasses in the department. Some of the kidneys were injected with plastoid through the ureter to get casts of the excretory part. The shape, measurements and weights of the kidneys were also studied.

RESULT AND DISCUSSION

The kidneys of the one - humped camel have smooth surfaces, bean - shaped with grayish or bluish white colouration similar description by CHAUVEAU (1891), LESBRE (1903) and TAYEB (1948) in the camel.

The fibrous capsule was opaque, dense and strongly attached to the renal cortex. Similar results were recorded by LESBRE (1903) and TAYEB (1948). Each kidney was found embedded in a fatty capsule, the thickness of which depended on the condition of the animal.

The position of the right kidney was further cranial than that of the left one as given by LESBRE (1903) and TAYEB (1948). The right kidney lies under the second, third and fourth lumbar transverse processes. However TAYEB (1948) stated that it lies under the first, second and third lumbar transverse spaces. The right kidney of the camel was found to measure about 17-21 cm in length 10.5 - 13.5 cm. in width, 6-7 cm. in thickness 700 to 1000 gm in weight. The left kidney was found to lie under the fifth, sixth and seventh lumbar vertebrae, which is similar to that given by TAYEB (1948). It measured about 18 - 22 cm. in length, 9.5 - 11 cm. in width and 6 - 8 cm. in thickness and 750 - 1250 gm in weight.

The large, rounded blunt cranial extremity of the right kidney resembled the caudal extremity and occupied the hepato-renal impression of the liver. However the cranial extremity of the left kidney was small and somewhat pointed and the caudal one was large and rounded. This is in agreement with the findings of TAYEB (1948) in the one - humped camel.

The lateral border of each kidney of the camel is convex and it is related to the lateral abdominal wall, and to the spleen. On the other hand the medial border was nearly straight and indented by the renal hilus. It is found that a section passing through the hilus divides the kidney into two unequal parts, the dorsal of which is slightly the smaller. The medial border is related to the renal lymph nodes, adrenal gland and the initial part of the ureter as well as to the caudal vena cava on the right side and the aorta on the left one. These findings are similar to those mentioned by TAYEB(1948). Yet he did not refer to the relation of the left kidney to the spleen.

The flat dorsal surface of both kidneys, as it is described by TAYEB (1948) was related to the psoas muscles and the iliac fascia, but the slightly convex ventral surface has different relations on both sides. The right kidney was related ventrally to a small area of the dorsal sac of the rumen but the left one was related ventrally to the rumen and the beginning of the ascending colon to which it is attached by a peritoneal fold. TAYEB (1948) claimed that the duodenum and the dorsal division of the colon are related to the ventral surface of the right kidney, while the corresponding surface of the left kidney is related to the dorsal sac of the rumen cranially and the ansa spiralis of the colon caudally and laterally.

Unlike in bovines, the left kidney of the camel is found to be more fixed in position as evidenced by its stable location even when the rumen was found to be greatly distended.

Examination of the cast of the excretory part of the kidney of the camel revealed a narrow crescentic shaped pelvis, with 8 - 14 pelvic recesses or the so called buttresses by GRAHAME (1944) who recorded that their number in the two humped camel are 8 and TAYEB (1948) recorded 12 radiating processes in the dromedary. HOLLE (1964) called them collateral recesses in the sheep and goat. These renal pelvic recesses are found to be extended in the medullary zone of the kidney (Fig. 1). They were consisted of dorsal and ventral series related to the corresponding surfaces of the kidney as well as terminal ones at its poles. Each renal pelvic recess had an inner (deeper) surface which surrounded the medullary part of a renal lobe and an outer surface enclosing with its neighbouring one the corresponding interlober artery and its branches. Moreover each renal pelvic recess presented two borders, a slightly convex border which is directed towards the surface of the kidney and is provided with numerous folds and a smooth, slightly concave border which is directed deeply. The terminal renal pelvic recesses at the poles of the kidney were usually the smallest ones. This is supported by the findings of TAYEB (1948) in the one humped camel.

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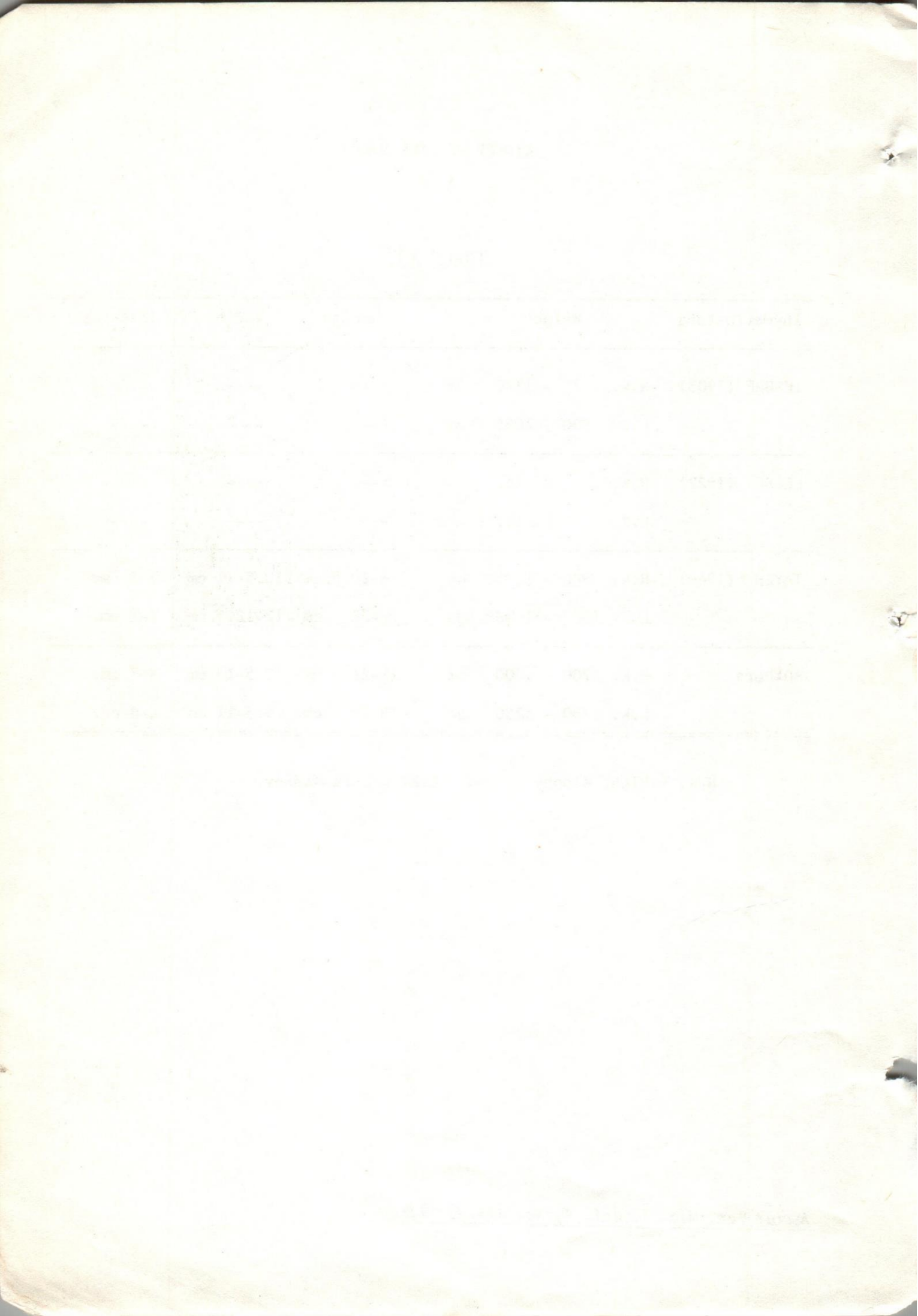
KIDNEY OF THE CAMEL

TABLE (1)

Investigators		Weight		Length	Width	Thickness
IESBRE (1903)	R.K.	75 - 1120	gm	----	----	----
	L.K.	800 - 1085	gm	----	----	----
LEESE (1927)	R.K.	2 lb.		----	----	----
	L.K.	2 lb.		----	----	----
TAYEB (1948)	R.K.	900 - 1.350	gm	18-20.5	10.5-11	7-8
	L.K.	1000 - 1,462.5	gm	19-22	12-12.5	8-9
Authors	R.K.	700 - 1000	gm	17-21	10.5-13	6-7
	L.K.	750 - 1250	gm	18-22	9.5-11	6-8

R.K. = Right Kidney.

L.K. = Left Kidney.



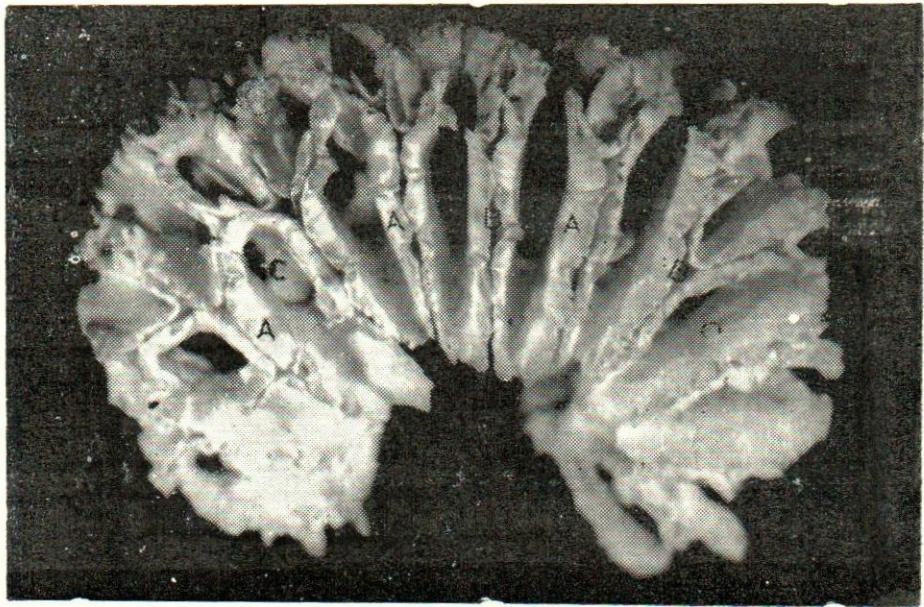


Fig. 1 : Plastoid cast of the renal pelvis.

- A. pelvic recesses.
- B. sulci between pelvic recesses.
- C. site of renal pyramid.

