*Haryana Vet.* **45** (December, 2006), pp 49-52

**Research Article**

# THE ARCUATE ARTERIES AND THEIR BRANCHING PATTERN IN THE KIDNEY OF CAMEL (CAMELUS DROMEDARIUS)

R. K. JAIN[1] and A. N. GUPTA
Department of Anatomy and Histology, College of Veterinary Sciences
CCS Haryana Agricultural University, Hisar – 125 004

## ABSTRACT

The origin, course and distribution of the arcuate arteries of the kidney in adult camel were studied on 20 kidneys. The arcuate arteries arose from the interlobar arteries at the corticomedullary junction. They detached 3-5 side branches from their convex surfaces and then ended by dividing into 2-4 terminal branches. These side branches and terminal branches were present in a radiating manner and were described as the interlobular arteries. The interlobular arteries were of two types viz. radiating and deep interlobular arteries. The interlobular arteries gave off the intralobular arterioles. These intralobular arterioles were short and long and terminated into 3-4 afferent arterioles which in turn entered the glomerulus. It was concluded that the arterial blood supply to the kidneys of camel (specially the arcuate arteries and their branches) is basically similar to the other domestic animals including the two humped camel.

**Key words:** Arcuate arteries, kidney, camel

Since the kidneys are responsible for regulation of fluid balance in the body, it is essential to carry out a full investigation of the arterial system of kidneys especially the arcuate arteries and their branches in this species. The objective behind this study is to find out if there is any special feature attached to the kidneys for adaptation of this animal to the mode of living under adverse climatic and environmental conditions of limited water supply. In this respect, the available literature lacks the data on kidneys of camel except a brief general description given by Leese (1927), Grahame (1944), Tayeb (1948) and Anuradha *et al.* (2000).

## MATERIALS AND METHODS

Ten apparently healthy camels of either sex were embalmed with 10 per cent formalin solution (Grossman, 1959). The abdominal cavity was exposed and the kidneys along with the blood vessels were segregated from the carcasses. The renal artery was cannulated and the arterial system was flushed by injecting luke-warm heparinized saline solution (100 I.U./ 100 ml). A radio-opaque suspension (20% lead oxide in liquid soap) was injected by steady and constant digital pressure. After satisfactory filling, the organ was radiographed at 8 Mas, 50 KVP and 900 mm FFD in M/L profile to obtain the radiographs depicting the branching pattern of the vessels.

The tissues for histological examination were collected in 10% neutral buffered formalin and were fixed for 48 hours. The fixed tissues were then processed for routine paraffin embedding and sections of 6 $\mu$m were cut and stained with routine Harri's hematoxilin and eosin stain (Luna, 1968).

## RESULTS AND DISCUSSION

The arcuate arteries of the kidney in camel arose from the interlobar arteries. The latter arose from the lobar branches of the renal artery. These interlobar arteries in the renal medulla coursed towards the periphery of the kidney and at the corticomedullary junction formed 2-7 arched branches called as arcuate arteries (Fig 1). These vessels curved in various directions at acute to right angles. Generally, they followed the curvature of the base of the medullary pyramids. El-Shaieb *et al.* (1981)

[1] Corresponding author