Histomorphological Development of the Capsule and Stromal Elements in Metanephros of Goat Foetii (*Capra hircus*)

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**SUMMARY**

The present study was conducted on the kidneys of 22 goat foetii divided into three groups. In the goat foetus at 45 days of gestation, the mesenchymal cells condensed around the kidney (metanephros). The periphery of the capsule was surrounded by a thin sheet of mesenchymal cells. At 61 days of gestation, the collagen fibres formed a constituent part of the renal capsule. At 120 days of gestation, the renal capsule showed an outer layer composed mainly of collagen and reticular fibres along with smooth muscle cells.

**Key words:** Capsule, Goat, Metanephros, Stromal elements

The mesenchymal cells condensed as a thin layer around the kidney (metanephros) as forerunners of the renal capsule (Fig. 1). It was found that in the goat foetii at 45 days (CRL= 5.3 cm) and 46 days (CRL= 6.3 cm) of gestation. Gradually the mesenchymal cells differentiated into the fibroblasts and secreted few reticular fibres mainly at towards the periphery of the capsule. Bacha and Bacha (2000) had reported the formation of a distinct smooth muscle layer along with connective tissue fibres in the renal capsule of cow, sheep and goat. At 48 days (CRL=7.5 cm) and 50 days (CRL=7.6 cm) of gestation, the relative amount of the reticular fibres increased in the capsule. No collagenous or elastic fibres could be noticed at this age as reported by Gopinath (1999) and Chaudhary et al. (2002) in goat foetii.

At 61 days (CRL=8.8 cm) and 62 days (CRL=10.1 cm) of gestation, the collagen fibres were observed in the renal capsule. They were arranged in thick bundles in the goat foetus at 96 days of gestation (CRL=19.0 cm). Strands of nerve fibres were seen in the capsule, mainly towards its inner parts. Bacha and Bacha (2000) reported the formation

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of a distinct smooth muscle layer along with connective tissue fibres in the renal capsule of cow, sheep and goat.

The cortex and medulla were well demarcated. The stromal elements were composed mainly of densely arranged mesenchymal cells especially in the medulla (Fig. 4). The demarcation of cortex and medulla was also reported earlier in goat foetii at 24 mm CRL (Gopinath and Singh, 1999 and Chaudhary et al., 2002).

At 109 days of gestation (CRL=25.0 cm), the capsule of metanephros contained differentiating mesenchymal cells, fine elastic, reticular and thick collagen fibres (Fig. 5). The cortex was darkly stained as compared to the medulla. Blood vessels of various sizes were observed. The inner lamina of these vessels was lined by elastic fibres both in the cortical and medullary zones. Large aggregations of nerve fibres could be noticed in the stroma (Fig. 6). Similar findings were also reported at the third trimester of pregnancy in goat foetii (Chaudhary et al., 2002).

REFERENCES


