

Short Communication

Congenital malformation of liver in a West African dwarf goat

E Ikpegbu*, UC Nlebedum and O Nnadozie

Department of Veterinary Anatomy, College of Veterinary Medicine, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

A malformed liver was detected in the cadaver of an adult West African dwarf goat. The caudate process was absent hence no renal impression, while the papillary process was very large. This malformation may be congenital due to teratogens or postnatal. There was no history of emaciation or chronic illness prior to purchase. The enlarged papillary process may be a compensatory hypertrophy. (*Bangl. vet.* 2013. Vol. 30, No. 1, 39 – 40)

The liver develops as a hollow ventral diverticulum from the caudal region of the foregut. The diverticulum divides into cranial- hepatic bud and caudal –cystic parts. The hepatic part grows cranio-ventrally into the ventral mesogastrium and extends into the septum (Sadler, 2006; McGeady *et al.*, 2006). The hepatic bud consequently develops a right and left lobe. Subsequently two outgrowths of the right lobe give rise to the caudate and quadrate lobes. The caudate lobe later develops a caudate and papillary process. The caudate process and the right lobe bear the renal impression in the adult. In ruminants, the liver is displaced to the right by the rumen (Noden and Lahunta, 1985; McGeady *et al.*, 2006).

Though variations in liver lobulations are rare and not clinically significant, some reported anomalies in literature include rudimentary left lobe, absence of quadrate lobe associated with absence of gall bladder, and accessory liver in the falciform ligament (Singh and Pal, 2001; Aktan *et al.*, 2001; Sadler, 2006), but there is paucity of information on the incidence of liver lobe malformation in goats reared in Nigeria. This paper describes a case of congenital malformation of the liver caudate lobe in a female West African Dwarf (WAD) goat.

Liver lesion: : Over 40 apparently WAD goat cadavers were dissected and pathological lesion, organ malformation or change in position were documented. Only one cadaver presented malformed liver. The cadaver was examined for any sign of emaciation and none was observed. The caudate process of the caudate lobe was rudimentary. The papillary process was enlarged. Renal impression was only seen on the right lobe. The space between the right kidney and rudimentary caudate process was filled with perirenal fat.

The absence of normal renal impression on the caudate process of the liver caudate lobe may indicate that during growth of the liver, the caudate process did not reach the right kidney (Getty, 1975; Kandeel *et al.*, 2007). This rudimentary caudate process

*Corresponding author:- E-mail: fikpegbu@yahoo.com

may be a congenital malformation caused by consumption of teratogenic plants. Most farmers graze these animals on without enough nutritional or toxicologic information.

The hypertrophy of papillary process may compensate for the reduced hepatocyte function of the rudimentary caudate process. The unusually large peri-renal fat may help hold the kidney in place, since there is no additional support from the rudimentary caudate process.

The report of apparently healthy animal before purchase despite a malformed liver agrees with the report of Sadler (2006) that hepatic lobe malformations are of no clinical significance. This case report will add to knowledge of malformations and help veterinarians involved in meat inspection not to condemn carcass owing to this anomaly. It will help pathologists in magnetic resonance imaging (MRI) or X-ray imaging not to consider such a feature as clinical or pathological (Aktan, 2001).

References

- Aktan ZA, Savas R, Pinar Y, Arslan O 2001: Lobe and segment anomalies of the liver. *Journal of Anatomical Society of India* **50** 15-16.
- Getty R 1975: *Sisson and Grossman's The Anatomy of the Domestic Animals*. WB Saunders Company, Philadelphia, USA **1** pp. 908-913.
- Kandeel AE, Omar MSA, Mekkany NHM, El-Seddawy FD, Gomaa M 2009: Anatomical and Ultrasonographic study of the stomach and liver in sheep and goats. *Iraqi Journal of Veterinary Sciences* **23** (Suppl. **II**) 181-191.
- McGeady TA, Quinn PJ, FitzPatrick ES, Ryan MT 2006: *Veterinary Embryology*, Blackwell Publishing, Oxford, UK pp. 213.
- Noden DN, De Lahunta A 1985: *Digestive system*. In: *Embryology of Domestic Animals, Developmental Mechanism and Malformations*. Williams and Wilkins, Baltimore, MD, USA pp. 292-311.
- Sadler TW 2006: *Langman's Medical Embryology*, 10th Edn. Lippincott Williams and Wilkins, Philadelphia, USA pp. 213- 214.
- Singh I, Pal GP 2001: *Human Embryology*, 7th Ed. Macmillan, NewDelhi, India pp. 192.