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## Therapeutic management of pregnancy toxemia in a goat

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#### Abstract

A four year old female goat weighing 30kg was presented to campus veterinary hospital with history of advanced pregnancy (pleuriparous), sternal recumbency, inappetance since two days, torticollis, lateral deviation of neck, unable to stand, grinding of teeth, salivation. Clinical examination of animal revealed hypothermia (98.1°F), increased heart rate (82/min), opisthotonus and pink conjunctival mucus membrane. Blood was collected and analysed for serum glucose and calcium which revealed hypoglycemia and mild decrease in calcium level. Urine sample was collected and urine analysis revealed positive for ketone bodies. The goat was successfully treated with 20% dextrose i/v, glycerine orally and intra muscular calcium and B-complex injections.

**Keywords:** Twinning disease, biochemical analysis, rothera's test, treatment

#### Introduction

Pregnancy toxemia (PT), a metabolic disease in sheep and goats caused by negative energy balance, is commonly called pregnancy disease or twinning disease. The disease is commonly associated with rapid growth of multiple fetuses during late pregnancy (Lima *et al.*, 2012) [9]. Nearly 80% of fetal growth occurs during the last six weeks of gestation (Bergman E.N., 1993, Navarre and Pugh, 2002) [2, 14]. During the final month of gestation, the energy requirement of a pregnant doe carrying twins or triplets is 180% or 240% greater, respectively, than that of a doe with a single fetus and obese ewes and does are at greater risk for developing PT (Navarre and Pugh, 2002) [14]. Pregnancy toxemia follows a period of negative energy balance and impaired gluconeogenesis resulting in hypoglycemia, fat mobilization, ketonemia, and ketonuria (Rook J.S. 2000, Wastney *et al.* 1983, Marteniuk and Herdt, 1988, Ingraham and Kappel, 1988) [17, 20, 12, 7]. Hypoglycemia, hyperketonemia and metabolic acidosis are the primary blood disturbances in PT (Rook J.S., 2000) [17]. The disease occurs in association with anorexia caused by other diseases or sudden stresses (Navarrei and Pugh 2002) [14]. There are two factors involved in the development of hypoglycaemia. One is the glucose requirement of the uterus may increase to more than 40% of the total liver glucose output, Secondly the endocrinological status changes in late pregnancy (Lindsay and Oddy, 1985) [11]. Adequate plane of nutrition in the second half of pregnancy and imp-roving glyco-genic fatty acid production in the rumen may help in suppression of the problem (Radostits *et al.*, 2000) [16]. It is characterised by hypoglycaemia, low concentrations of hepatic glycogen, increased concentrations of ketone bodies in the blood (hyperketonaemia) and elevated plasma concentrations of free fatty acids (Lindsay and Pethick, 1983; Wastney *et al.*, 1983; Van Saun, 2000) [11, 20, 19].

#### History and Clinical Examination

A four year old female goat weighing 30kgs was presented to campus veterinary hospital, College of Veterinary Science, Rajendranagar with history of advanced pregnancy (pleuriparous), sternal recumbency (fig:1), inappetance since two days, torticollis, lateral deviation of neck (fig:1), unable to stand, grinding of teeth, salivation. Clinical examination of the goat revealed hypothermia (98.1°F), increased heart rate (82/min), pink conjunctival mucus membrane and opisthotonus.

#### Materials and Methods

Blood sample was collected from jugular vein aseptically for biochemical analysis. The serum sample was separated from clotted blood and glucose and calcium were estimated by using semi automatic analyser.

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Urine sample was collected and rothera's test was performed for ketone bodies.

### Treatment

The goat was treated with 20% Dextrose @250ml intravenously for four days, Glycerine@40g orally for two days, 20g for next two days, injection Sancal vet@2ml intramuscularly for two days, injection Tribivet@3ml intramuscularly for two days.

### Results and Discussion

Clinical examination of the affected goat revealed hypothermia (98.1°F), increased heart rate (82/min), pink conjunctival mucus membrane and opisthotonus. Biochemical analysis revealed hypoglycemia and mild decrease in calcium level. Urine analysis revealed positive for ketone bodies.

Pregnancy toxemia is a metabolic disorder of pregnant small ruminants, caused by an abnormal metabolism of carbohydrates and fats, which occurs at the final stage of pregnancy (Brozos *et al.* 2011) [3]. When the rate of glucose synthesis is too low to provide for combined requirements of the dam and the fetus (es), the dam can become hypoglycemic. Pregnancy toxemia results from competition for glucose between the doe (or ewe) and fetuses during rapid fetal growth in the third trimester of pregnancy (Bulgin, 2005) [4]. There is increased demand for metabolites in pregnant animals that accompanies fetal growth, especially glucose (Bergman *et al.*, 1993) [2]. A rapid breakdown of fat to meet increased energy needs can lead to the production of toxic levels of ketones and pregnancy toxemia. Serum components are most common biochemical indicators measured routinely for diagnosis or monitoring disease activity; alterations of their concentrations and patterns, although not specific, may be of diagnostic significance in metabolic disorder (Moghaddam and Olfati, 2012) [13].

Dextrose and calcium were used to treat the pregnancy toxemia (Emam and Galhoom, 2008) [6]. Abba *et al.*, (2015) [1] used dextrose to treat the pregnancy toxemia. Cal-Pereyra *et al.*, (2015) [5] used hypertonic glucose and glycerol to treat the pregnancy toxemia. Van Saun, (2006) [18] used glucose and calcium to treat the pregnancy toxemia. Olfati *et al.*, (2013) [15] used dextrose, glucose and glycerol to treat the pregnancy toxemia. Jyothi *et al.*, (2014) [8] used dextrose, glucose, calcium and glycerol to treat the pregnancy toxemia.



**Fig 1:** Figure showing lateral deviation of neck with sternal recumbency in a goat.

### Conclusion

In the present study, affected goat responded well with intravenous glucose therapy, calcium injections, vitamin B-complex injections and oral glycerine and complete recovery was seen after one week.

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