

## FLOPPY KID SYNDROME

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Several conditions of newborn kids like nutritional deficiencies, bacterial infections etc. result in weakness among kids with nonspecific signs of depression and ataxia. Sometimes transient weakness occurs, especially among kids reared under intense farm conditions, which might become life threatening if ignored. Here is bringing account of a syndrome in neonatal kids characterized by weakness and depression associated with metabolic acidosis, without signs of diarrhea or dehydration. (Trembley et al, 1991)

Floppy Kid Syndrome (FKS) is a condition that occurs in very young kids (3 to 10 days after birth) and is characterized by profound muscle weakness and anorexia (a kid that is reluctant to suckle). These kids will be very much active and alert at birth, with a normal birth weight, but by around fifth to seventh day they assume a hunched back appearance which slowly progresses to uncoordinated movements and ataxia. Literally it appears as if the kids are "drunk & intoxicated". If left untreated they succumb to death. It is by definition, an acute onset of sudden weakness associated with paradoxical metabolic acidosis. Initially it appears as if other systems like gastrointestinal tract, respiratory tract etc are not affected due to absence of symptoms like diarrhea, dehydration, or respiratory problems. But it is assumed that gastrointestinal infection is the primary cause which further leads to indigestion of excess milk consumed, development of acidosis and further complications.

First report about this disease in goats came out in 1991 from Canada (Trembley et al., 1991), though similar cases in neonatal calves and a llama were reported earlier (Kasari et al., 1984, 1986 and Shepard et al., 1993). Now with the increasing popularity of goat rearing and that too in an intensive pattern, (where the dams are kept confined in pens and kids have the freedom to suckle whenever they feel like it) there is every possibility of the incidence of Floppy Kid Syndrome going up. University Goat and Sheep Farm, Mannuthy witnessed such

episodes of weak kids since last couple of years. In 2008, out of 261 kids born in the farm, 167 kids showed similar symptoms of anorexia and weakness. They respond to the line of treatment suggested for FKS and hence this syndrome is suspected. Further researches are being conducted to confirm it.

### Etiology

The correct causative agent for the disease is still unknown, though there are many assumptions and suggestions. There is every reason to believe that it is the result of a combination of many factors of which gastrointestinal infection is the major primary cause. Though involvement of *Escherichia coli*, *Clostridium perfringens* and *Cryptosporidium* were suggested, (Uhlrich et al., 2006) the exact causative agent for this syndrome has not yet been determined. Overfeeding of milk by kids, (whether it is from dams or from feeding bottles) forms the major exciting cause. Another astonishing and frustrating fact is that, the syndrome appears in flocks with improved nutrition and hence increased milk production. Similarly, from experience it is noticed that, smarter kids with higher birth weight and increased activity during their initial days of life will be the first to be affected, maybe because they consume more milk from their healthy and productive mothers.

Ulrich et al, (2006) reported that metabolic acidosis in goat kids with floppy kid syndrome is caused by an increase in the plasma concentration of D-lactate. According to them, the affected kids had a lower blood pH and base excess than control kids and had a significantly larger anion gap.

### Clinical signs

Kids will be active and alert at birth with a normal birth weight. By around fifth day, they show a hunched back appearance and reduced activity. They will be reluctant to run behind the dam and suckle, but if brought near the dam, they will consume milk. Farmers usually assume that the weakness is due to energy insufficiency, and commit

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the mistake of forcefully feeding the kid with milk. This will worsen the condition and kids proceed to recumbency and flaccid paralysis. Incoordinated movements with dog sitting posture and/or head pressing on the ground followed by flaccid paralysis on all four limbs is noticed. Rectal temperature is normal and dehydration is not noticed during initial stages of weakness. Distension of abdomen is seen in majority of cases, while a few kids who have not been nursed look hollow. Usually mouth will be dirty as they have a tendency to lick the walls/floor or eat dirt. If untreated, the condition progresses to ataxia, coma and death. Major postmortem findings include gastritis with a dilated stomach full of coagulated milk with strong acid smell. Sometimes evidence of systemic infections including pneumonia, hepatitis etc maybe noticed. In rare cases, there will be spontaneous recovery, especially if kids are not allowed to nurse for a day.

### Diagnosis

It can be done mainly on the basis of history, clinical signs supported by clinical and biochemical findings. Differential diagnosis has to be done for white muscle disease, or other nutritional and bacterial diseases which cause weakness in kids. But confirmation of the "floppy kid syndrome" can only be done by determining the venous blood gas concentration in affected animals. Blood chemistry is necessary to assess the severity of the base deficit and electrolyte imbalances.

### Treatment

In an affected herd, which usually has floppy kids, farmers have to keep a vigilant watch over kids which are 3 to 10 days of age. As soon as the kids show hunched back appearance, treatment has to be started. Sodium bicarbonate solution has to be given intravenously, (1.3% sodium bicarbonate in normal saline) 150 ml at eight hour interval.

In a moderately large farm, considering the difficulties involved in intravenous treatment, the affected kids should be withdrawn from milk for 24 to 36 hours. It is easily said than done because farmers will always argue that the weakness is due to insufficiency of milk, rather than overfeeding. But there will be remarkable improvement if kids are kept off the milk for at least a day. Also, to neutralise acidity, 10 -20 ml of baking soda solution (one teaspoon of baking soda in one glass of water) can be administered orally. This procedure can be

repeated in every two hours for next 24-36 hours and this will ensure recovery from depression and acidosis. Kids will become active, but may subsequently develop diarrhea and/or secondary infections. Hence it is always better to start a broad spectrum antibiotic. Kids can be put back with their dams after 36 hours, but it is better to milk the dams partially and allow suckling only for 2-3 times a day for next two days. After that kids can be left with the dams and they will remain healthy and active.

### Prevention

More studies need to be conducted before devising a correct strategy to prevent this disease in a flock. Involvement of trace mineral deficiency in dams and/or vaccinating dams during pregnancy has to be considered. At present the only precaution which can be strongly recommended is avoiding over consumption of milk, if kids show signs of "floppy kid syndrome".

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