# DYSTOCIA AND EUTOCIA

We have to learn answering following questions.

1. Which language  words these are?
2. What are their meanings?
3. Define Dystocia.
4. What is the line of demarcation between Dystocia and Eutocia?

- These are Greek words.
- Dystocia means difficult birth.
- Eutocia means safe, easy, natural or physiological birth.
- When the first, or especially the second stage of parturition is markedly prolonged, becomes difficult or impossible for the dam to deliver the foetus without artificial aid, the condition is termed as Dystocia.
- There is no clear line between normal parturition and dystocia.

# Incidences of dystocia in different species

We have to learn answering following questions.

1. What are the data on incidences of dystocia in different species?

Under this question, Learn that data are not satisfactorily reported in different species, however it is 3.3% in cattle and 1.1% in horses at well managed farms. Sheep and swine not known, so also dog and cat.

2. What are the factors affecting incidences of dystocia in:

-Cow It is more in dairy vs beef breeds, more in large breeds, more in primipara, more in pregnancies that terminate early and also more in pregnancies that were prolonged.

-Horses.

-Dogs –More in Boston, scottish terrier, pekingese, sealyham and other brachycephalic breeds of dogs.

Less in natural breeds such as Hounds and mongrels

More in specialized breeds, kept in confinement and reared in artificial manner

- The incidence of dystocia in various species is not satisfactorily recorded.
- In cattle, incidence of about 3.3 percent has been recorded.
- It is apparently higher in dairy than beef cattle.
- It is higher in large breeds such as Holstein, Brown Swiss and Hereford.
- In Horses, the incidence was about 1.1% on a large well managed farm.
- It might be greater if horses under all conditions are considered.
- Incidence in Sheep and Swine is not known.
- In dogs it is highest in the Boston, Scotch terrior, Pekingese, Sealyham and other small brachycephalic breeds of dogs.
- It is lowest in the more natural breeds such as the hounds and in mongrels.
- In cats the incidence of dystocia is probably lower than in dogs.
- It is obvious that the incidence of dystocia is highest in the more specialized breeds and those kept under greatest confinement in the most artificial manner.
- Dystocia is much more common in primipara than in pluripara.
- The incidence of dystocia is greater in pregnancies that terminate early due to uterine disease, fetal death, and twinning, or that terminate after a prolonged gestation period due to excessive size of the fetus.

# Causes of Dystocia

Initially causes of dystocia are divided into two classes viz. Basic and Immediate causes.

- Basic causes pertains to some basic defect in the dam or foetus which predispose to dystocia say for example if there is Inguinal hernia in a pregnant bitch or if female is bred at too young an age, or if the maternal pelvis is narrowed due to pelvic bone fractures, or that there are defects in the genital tract of the dam.
- Immediate causes are those causes which happened all of sudden say for example uterine torsion or postural defects of foetus or incomplete dilation of cervix.

# Importance of Basic Causes

Why one should study basic causes of dystocia?

How it is beneficial if the basic causes are known and recognized?

- Basic causes should be studied for the purpose of obtaining knowledge that will help prevent the occurrence of dystocia.
- If basic causes are known and recognized, dystocia may largely be avoided or if unavoidable the veterinarian and owner will know in advance that dystocia is highly probable.
- The latter circumstance requires certain preparations and precautions so that if dystocia should occur, prompt handling may prevent injury or death of either or both the dam and fetus.

## Classification of Basic Causes of dystocia

We have to learn answering following questions?

1. What is the classification of basic causes of dystocia?

2. Can there be more than one basic causes in a single cases of dystocia?

- The basic causes of dystocia may be divided into the following categories.

1. Hereditary,
2. Nutritional and management,
3. Infections,
4. Traumatic,
5. Miscellaneous or
6. Combined causes.

- Many cases of dystocia have two or more basic causes.

# HEREDITARY CAUSES OF DYSTOCIA

We have to learn answering following questions.

1. What is the classification of hereditary causes of dystocia?

2. What are the defects of dams which may produce dystocia?

- The hereditary causes of dystocia may be divided into those:

1. That have produced defects in dam which predispose to dystocia,
2. Or those hidden or recessive genes in the dams and sire which may produce a defective foetus.

- Those hereditary defects in the dam predisposing to dystocia are:

1. Inguinal hernia in bitch,
2. Persistence of median wall of the mullerian duct with a large band in or caudal to the external os of the cervix,
3. Double uterus or uterus didelphys,
4. Hypoplasia of the vagina, vulva or uterus,
5. Uterus Unicornis,
6. Twinning and
7. Inherited breed characteristics.

**Inguinal hernia, persistence of wall of mullerian duct, hypoplasia of genital tract**

We have to learn answering following questions.

1. In which species does inguinal hernia causes dystocia?

2. How does persistence of median wall of mullerian duct causes dystocia?

3. Define Uterine Didelphys.

4. Define Uterus unicornis.

5. Define band of connective tissue in or caudal to external os of cervix.

6. Hypoplasia of hereditary origin is only rarely a cause for dystocia, as the hypoplasia often affects the uterus and ovaries, and conception does not occur.

- Inguinal hernia causes dystocia in dog.
- Persistence of the median wall of mullerian or paramesonephric duct may cause dystocia:

1. by obstructing the passage of the foetus if the leg should pass on one side and the other leg on the other side of this strong band.
2. In a true double uterus in the cow the placental area is limited to only one horn, a severe dystocia may result from overlooking a twin in the other horn.

# TWINNING RESULTING IN DYSTOCIA

We have to learn answering following questions.

What are the two types of twin?

-Monozygous (Identical), originated from same zygote and Dizygous, originated from two different zygotes.

-Monozygous twins are uncommon.

How twinning in cattle may result into dystocia?

Dystocia due to bicornual twins?

Dystocia due to unicornual twins?

- Twinning in uniparous animals is usually associated with double ovulation.
- Monozygous twins are uncommon.
- The release of two or more ova at one estrum is usually predisposed by the dam's hereditary constitution or be influenced to a lesser degree by the season and the age of the dam.
- Twin bicornual pregnancy in cattle commonly results in dystocia because the long extremities frequently cause wedging of the foetuses in the pelvis.
- In twinning, uterine inertia associated with Unicornual twins, posterior presentation of one fetus, death of one or both foetuses and premature twin birth or abortion also favour dystocia.

# INHERITED BREED CHARACTERISTICS

We have to learn answering following questions.

1. What are inherited breed characteristics responsible for Dystocia?

2. How hereditary defects of dams resulting in or predisposing to dystocia are increased in population?

- Certain breeds of cattle, such as Brown Swiss, with a long gestation period and large foetuses, and certain brachycephalic or dwarf breeds of dogs, such as bulldogs, and other breeds with a large broad head and a relatively small pelvis and underdeveloped or weak reproductive systems are more prone to dystocia.
- Scotch terrier foetuses have a tendency toward premature hardening of the skull bones that may lead to dystocia.
- Most of the hereditary defects of the dam resulting in or predisposing to dystocia, with the possible exception of the inherited breed characteristics are favoured by inbreeding or close breeding practices.

**Hereditary causes resulting in defect in foetus and foetal membranes to cause dystocia**

1. DROPSY OF FOETAL MEMBRANES AND FOETUS
2. ACHONDROPLASTIC AND ANKYLOSED CALVES, INCREASED SIZE OF FOETUS, HEREDITARY LETHALS
3. CONGENITAL DROPSY
4. PROLONGED GESTATION
5. MUMMIFIED FOETUS
6. MUSCULAR HYPERTROPHY
7. MUSCLE CONTRACTURE MONSTER
8. INHERITED LETHALS IN SHEEP AND SWINE
9. MANY OTHER INHERITED LETHAL GENES

- The hidden and usually recessive genes in both male and female animals may produce a variety of pathological conditions affecting the fetus and fetal membranes thus causing dystocia.
- Most of these are lethal genes, as they usually result in the death of the fetus.

**Dropsy of foetal membranes and foetus**

- Dropsy of fetal membranes and fetus may be caused by mating hybrids such as Bison with the domestic cattle.
- Inbreeding in Dexter and Tuxziller cattle and others has resulted in achondroplastic calves and occasionally hydramnios.
- The known genetic lethal for cattle and other domestic animals have been certain types of muscle contracture monsters may be associated with hydrops of amnion.
- If this condition of the foetal membranes should go to term it usually is associated with uterine inertia and a weak or dead foetus.
- Both of these conditions favour fetal emphysema and dystocia.

**ACHONDROPLASTIC AND ANKYLOSED CALVES, INCREASED SIZE OF FOETUS, HEREDITARY LETHALS**

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- Achondroplastic and ankylosed calves have been produced without dropsy of fetal membranes by inbreeding animals with the recessive gene for those conditions.
- Dystocia often results at parturition due to the increased size of the foetus or certain of its parts.
- Hereditary lethal causing amputated limbs of foetuses, Acroteriasis congenital, hydrocephalus, and stillborn foetuses frequently may cause dystocia at the end of gestation.
- Hydrocephalus in cattle is frequently associated with deformed limbs.
- The early death of these foetuses at the time of parturition, and abnormal postures more common in defective foetuses, increase the incidence of dystocia.

**CONGENITAL DROPSY**

- An hereditary condition called congenital dropsy resulting in large, anasarcous foetuses or calves occasionally causes dystocia in Ayrshire or Swedish Lowland cattle when carried 200 days or longer.

**PROLONGED GESTATION**

- An autosomal recessive gene causing prolonged gestation of 300 to 370 days in Holstein cattle and terminating in severe dystocia due to oversized, giant calves has been described.
- In this case the fetus was already dead, died at birth or were killed during the difficult delivery.
- The dam's life was greatly imperilled and a number of dams died as a result of dystocia.

**MUMMIFIED FOETUS**

- Mummified foetuses in cattle occasionally may be hereditary.
- Dystocia may result at the time the mummified fetus is expelled, especially in cases of foetuses that mummifies after the fifth month of gestation

**MUSCULAR HYPERTROPHY**

- Muscular hypertrophy or double muscling in cattle is an hereditary condition that when present in foetuses, especially in primipara, often causes severe dystocia.
- Muscular hypertrophy has been described in Charolais, Holstein, South Devon, Hereford, Angus and Piedmont cattle.
- 50% of oversized foetuses in Belgium causing dystocia were double muscled.
- More of these lethal conditions causing dystocia affect bone development than any other tissue.

**MUSCLE CONTRACTURE MONSTER**

- The so called muscle contracture monsters are usually produced by general functional ankylosis with an abnormal development of muscles and tendons, causing an immobility and extreme rigidity of the affected limbs.

**INHERITED LETHALS IN SHEEP AND SWINE**

- In Sheep inherited lethal of general ankylosis and amputation and in swine general ankylosis have been described.

**MANY OTHER INHERITED LETHAL GENES**

- There are many other inherited lethal genes such as cerebral hernia, epitheliogenesis imperfecta, and short spines that might contribute to dystocia because the fetus is weak and usually dies at the time of parturition.
- This factor of a dead or weak fetus at parturition favours abnormal postures of the fetus even though its size may be small, and its shape normal or nearly normal.

A recessive hereditary condition should be suspected where several abnormal foetuses or dystocias are seen in related animals, especially over a period of several years.