

EXTENSION AND ADJUSTMENT OF THE EXTREMITIES

Learn how to define Extension and adjustment of extremities.

You must know “what does the extremities means”?

You must also know how these extremities be disposed in the birth canal for normal un assisted delivery of foetus.

- Extension and adjustment of the extremities is the correction of abnormal postures usually due to flexion of one or more of the extremities causing dystocia.
- Note: It is expected from you that you know what does the extremities means?
- These are fore limbs (2) and Head and neck of foetus in Anterior longitudinal presentation.
- These are 2 hind limbs of the foetus in posterior longitudinal presentation
- These extremities should be extended in the birth canal for normal un assisted delivery of foetus.
- Flexion at any point may lead to dystocia particularly in Unipara,
- Flexion of limbs in multipara rarely cause dystocia.

EXTENSION AND ADJUSTMENT OF THE EXTREMITIES... continued

You must also know what are the various abnormal postures of the extremities which leads to dystocia.

- Flexion of head and neck cause dystocia in every species. Flexion of head and neck may be:
 - I. Lateral or alongside the body of foetus,
 - II. Downward to the body of the foetus,
 - III. Upward to the body of foetus.
- Flexion of fore-limbs at any joint
 - I. Pastern flexion posture,
 - II. Fetlock flexion posture,
 - III. Carpus flexion posture,
 - IV. Shoulder flexion posture
- Flexion of Hind limbs
 - I. Bilateral hip flexion posture,
 - II. Tarsus flexion posture,
 - III. Fetlock flexion posture,
 - IV. Pastern flexion posture.

EXTENSION AND ADJUSTMENT OF THE EXTREMITIES.....continued

Now you know that flexion of head and neck of foetus in place of extended in birth canal can cause dystocia in unipara as well as multipara.

You also know that flexion of limbs may cause dystocia in unipara but rarely flexed limb may cause dystocia in multipara.

This difference is because limbs are long in unipara fetuses while they are very short in multipara fetuses

- Flexion of head and neck causes dystocia in all species.
- Flexion of the limbs usually results in dystocia in uniparous animals but only rarely in multiparous animals.

EXTENSION AND ADJUSTMENT OF THE EXTREMITIES.....continued

It is time to recapitulate that mutation procedures are difficult to be performed in pelvic cavity due to little space.

Hence we have to repel the foetus from pelvic cavity to uterus in abdominal cavity.

- Corrective procedures are difficult and often impossible within the confines of the pelvic cavity.
- The foetus must usually be repelled out of the pelvis into the larger uterine and abdominal cavities to have sufficient room for the correction of abnormal postures.
- This is particularly true in the large uniparous animals, in which foetal extremities are long.

EXTENSION AND ADJUSTMENT OF THE EXTREMITIES.....continued

Learn how abnormalities of postures
of extremities are produced?

And How these are aggravated during
process of parturition?

- Many of these abnormal postures may be caused by the distal portion of the foetal extremity being caught on the pelvic brim, and are aggravated when the body of the foetus passes over this extremity thereby resulting in greater flexion of the extremity and even its extension beneath the body.

EXTENSION AND ADJUSTMENT OF THE EXTREMITIES.....continued

Just imagine if the aggravated postural abnormalities can be corrected just by repulsion of foetus.

- The act of repulsion of the foetus cranially into the uterine and abdominal cavities tends to correct the deviated extremity or abnormal posture.

EXTENSION AND ADJUSTMENT OF THE EXTREMITIES.....continued

Lear three basic mechanical principles to correct flexed extremities.

- Three basic mechanical principles are necessary to effect a prompt, easy correction of a flexed extremity.
- Repulsion of the proximal portion of the extremity,
- Lateral rotation of the middle portion of the extremity, carpus, tarsus or neck,
- Traction on the distal portion of the extremity.

REPULSION OF THE PROXIMAL PORTION OF THE EXTREMITY

Learn what is the proximal portion of the extremity in anterior longitudinal presentation which is required to be repelled for extension and adjustment of extremities?

Also Learn what is the proximal portion of the extremity in posterior longitudinal presentation which is required to be repelled for extension and adjustment of extremities?

- Repulsion of the proximal portion of the extremity such as the shoulder or chest is performed in anterior presentation in the correction of a flexed fetlock, carpus, elbow, or shoulder joints with the forelimb extended beneath the body; or the head and neck flexed alongside, beneath or over the body of the foetus.
- In posterior presentation repulsion is performed on the buttocks, stifle, or tarsus when the hind limbs are flexed at the stifle, tarsus, fetlock or hip.

LATERAL ROTATION OF THE MIDDLE PORTION OF THE EXTREMITY, CARPUS, TARSUS OR NECK

- Lateral rotation and repulsion of the flexed carpus or neck into the cranial and lateral flank region provides adequate room in most cases for the medial extension of the fetlock or nose into the pelvic cavity.
- In small equine or bovine fetuses, if the operator firmly grasps the metacarpus or metatarsus, he can with the same motion perform both repulsion and lateral rotation as well as extension of the fetlock into the pelvic cavity.
- In larger fetuses the operator may require a crutch repeller, or even better an assistant's arm to force the tarsus or carpus laterally and cranially while the operator brings the fetlock medially and caudally into the pelvic cavity.
- This later procedure allows the operator to cup or flex the pastern in his hand so that as the limb is extended the hoof of the foetus will not catch, tear or lacerate the wall of

TRACTION ON THE DISTAL PORTION OF THE EXTREMITY

Learn where (Distal Portion) to apply traction?

In case the point where traction is to be applied is not reachable at once than where to apply traction?

Learn about instruments to be used for traction?

- Traction on the distal portion of the extremity such as the pastern, the lower jaw or until these distant structures can be reached, the structures between the body and the distal portions of the extremity is applied to extend the limbs or head and neck.
- This traction may be applied by the hands and arm, a chain or a snare.

What to do when foetus is in Breech Presentation?

Recapitulate what is breech presentation?

Why it causes dystocia?

- When the foetus is in breech presentation with the legs extended beneath the body, the foetus is repelled cranially out of the pelvic cavity and into the right or left flank.
- The hand and arm is slid down the tibia on the opposite leg and by traction the leg is pulled into a hock flexed position.
- After that hock is repelled cranially and laterally in opposite side of flank , hand and arm is slid down to pull pastern after cupping into the hand of the operator.

What to do in deviation of head and neck

- In cases in which the head & neck are deviated alongside the foetal body,
 - I. The foetus is repelled cranially and laterally into the flank of the cow on the side opposite to the head so that as much space as possible is provided in the other flank to allow correction of the deviated head and neck.
 - II. By traction with the fingers:
 - in the orbits,
 - around the lower jaw in the angle of the mouth,
 - by a snare around the lower jaw or
 - By small hooks in the orbitsthe head can usually be pulled laterally back to the pelvic inlet without twisting the neck.

**What to do in deviation of
head and neck.....
continued**

- The head is then returned to its normal posture by
 - manual traction,
 - elevation or rotation of the head, and
 - lateral repulsion on the neck.
- During these procedures, the muzzle of the foetus should be guarded to make sure the lower incisor teeth do not lacerate the uterus, or the lower jaw catch on the pelvic brim of the dam, especially if the type of traction applied causes the mouth to gape.

When the dam is recumbent the deviated foetal head should be located in the upper flank before the mutation procedures begin. Otherwise the weight of the foetal body resting on the head and neck would make correction nearly impossible.

The combined use of these three mechanical principles will relieve almost all abnormal postures.

In rare cases, in order to obtain more room in which to perform these manoeuvres when the uterus is contracted tightly around the foetus a partial embryotomy may be necessary, such as amputation of a forelimb.

In a few cases of dystocia in cattle is observed due to the impingement of the elevated tail on the dorsal border of the pelvic inlet in posterior presentation.

Repulsion of the foetus, holding the tail against the perineum and applying traction to the rear limbs corrects the dystocia.

MULTIPARA

- In multipara, mutation of the foetus is not generally required except in deviation of the head and neck in anterior presentation, impaction of a large foetus in the pelvis in breech presentation or in dorso-pubic position when the nose or buttocks of the foetus may catch on the pelvic brim of the dam as the foetus enters the pelvis.
- By using the finger in the vagina and manipulating the canine or feline fetus through the abdominal wall and floor with the opposite hand these abnormal postures may usually be corrected.
- Occasionally forceps or snares may be indicated.

IMPORTANT NOTES

- NOTE:
- Mutation of the foetus must be performed carefully, cautiously and in a gentle manner in all animals.
- These manipulations can take place only at the level of or just below the pelvic brim.
- The earlier the dystocia is diagnosed, the easier is mutation of the foetus accomplished conversely, the longer aid is withheld or delayed the more difficult or impossible it is for mutation to be successful.
- This is true, but to a lesser extent, in the other major obstetrical operations.