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Postpartum Complication In Farm Animals: A Practical Approach

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Abstract

The postpartum period in livestock is frequently associated with obstetrical complications, infectious diseases, and metabolic imbalances. Because postpartum reproductive performance and overall productivity are closely linked to uncomplicated parturition, systematic monitoring of the periparturient phase is essential in commercial dairy operations. Effective veterinary management relies on evidence-based preventive protocols, rigorous observation, stringent hygiene practices, and timely therapeutic intervention to promote optimal uterine involution. This article reviews the most clinically significant postpartum disorders in farm animals and outlines current strategies for their prevention and treatment.

Keywords: Postpartum, Nerve paralysis, Prevention, Management, Farm animals

INTRODUCTION

Under ideal conditions, parturition is a physiologically aseptic process. In practical field settings, however, it is frequently compromised by suboptimal hygiene, inadequate periparturient oversight, and poor management practices, predisposing animals to a range of postpartum disorders. Notably, such complications may arise following both eutocic (normal) and dystocic deliveries (Roberts, 2004). The postpartum period, defined as the interval from the conclusion of the second stage of labor to complete uterine involution, typically spans approximately 30 days in bovines, though duration varies considerably among breeds and species. In cattle and buffaloes, an early clinical indicator of postpartum pathology is often a decline in milk yield. While this reduction frequently prompts producers to improve feeding and general husbandry, such interventions remain largely empirical and lack integration with structured, evidence-based veterinary management. The following postpartum complications are commonly encountered in farm animals,

1. Retention of after birth
2. Post-partum bleeding
3. Post-partum prolapses
4. Paralysis (Obstetrical maternal nerve paralysis)
5. Post-partum metritis
6. Lacerations of the birth canal
7. Metabolic disorders (Milk fever, Eclampsia)

1. Retention of Fetal Membranes (Retained Placenta)

Retention of fetal membranes (RFM) is clinically defined as the failure to expel the placenta within a species-specific postpartum window. In ruminants (cattle, buffalo, sheep, and goats), expulsion should occur within 8–12 hours, whereas in mares, it is typically complete within 2 hours. RFM is classified as primary when physiological detachment from the maternal caruncles fails to initiate, or secondary when complete detachment occurs but mechanical obstruction impedes expulsion. **Epidemiology:** Reported incidence varies widely (2–50%), with higher prevalence observed during summer months and in regions characterized by selenium and vitamin E deficiencies. **Physiological mechanism of detachment:** In cattle, placental separation is a tightly regulated enzymatic and endocrine process. During late gestation, elevated fetal serotonin concentrations stimulate uterine epithelial cells to upregulate collagenase synthesis, initiating connective tissue remodeling. Postpartum, a marked increase in collagenase activity drives extensive collagen degradation at the cotyledonary-caruncular junction. Concurrently, progressive uterine distension, rising prostaglandin metabolites, and a physiological reduction in uteroplacental blood flow synergistically promote membrane detachment.

Etiology & Predisposing Factors: The pathogenesis of RFM is multifactorial. Key contributors include premature parturition, disruption of cotyledonary-caruncular separation pathways, and endocrine imbalances such as sustained progesterone elevation. Metabolic disturbances, particularly periparturient hypocalcemia, alongside selenium and vitamin E deficiencies, impair myometrial contractility and antioxidant defense, delaying clearance. Additionally, parturient trauma may increase local heparin release, which inhibits proteolytic enzymes essential for tissue breakdown. Concurrent postpartum diseases further compromise uterine contractility and immune function, exacerbating retention risk (Roberts, 2004).

2. Vaginal ruptures

Can be located by careful palpation. Fluid accumulations can be seen lateral to the vulva subsequent to vaginal ruptures during or after parturition. Surgical repair is possible (Drost, 2015).

3. Postpartum haemorrhage

- Hemorrhage from a uterine artery is common in older mares and is a cause of death in a significant number of aged broodmares. Mechanical trauma to the blood vessels of the pelvic region as a result of parturition, usually following dystocia or assisted calving. Accidental rupture of cotyledons during manual removal of placenta
- Subsequent to torsion correction Vulval hematoma common in gilts
- Rupture of broad ligament, peritoneal hemorrhage common in mares with a copper deficiency and symptoms of vaginal pain, dysuria, colic and difficult defecation are seen

Signs: can range from scant venous ooze through to profuse arterial haemorrhage.

Diagnosis: diagnosis of the location and severity of the laceration and haemorrhage is important. It may be possible to visually inspect the outer walls of the vagina and vulva, however generally manual examination of the uterus, cervix and vaginal walls is necessary to identify any tears or bleeding vessels.

Treatment: where possible, by clamping and ligating affected vessels. Occasionally packing the vagina in order to control bleeding may be necessary. Blood transfusion is indicated in some severe cases. Cold packs are suggested. NSS + 10 cc formalin, oxytocin, blood transfusion, ergonovine maleate if bleeding occurs after several days of parturition.

4. Vulvar abscess

Vulvar abscess can occur a few days after parturition and can be treated by the administration of antibiotics or by surgical excision.

5. Vulvar edema

Vulvar edema is the result of dystocia handling or a consequence of truss application for prevention of a vaginal prolapse. The edema usually resolves spontaneously, however, cold fomentation, diuretics and anti-inflammatory drugs are suggested for 3-5 days if the edema is extensive.

6. Haematomas

Hematomas of the birth canal or vulva are rare in large animas. They are usually left untreated with overall supplementation of anti-inflammatory and analgesic drugs. These local injuries are absorbed generally within 5 to 10 days. However, if too large and cumbersome, they can be incised evacuating clots and suturing the site (Drost, 2015).

7. Postpartum haemorrhage in mare:

Common complications included fever, leucopenia, retained fetal membranes, increased digital pulses, thrombophlebitis, and cardiac arrhythmias. Treatment should be aimed at restoring cardiovascular volume, enhancing coagulation, controlling pain, and reducing the effects of endotoxemia (Drost, 2015). Haemostatic agent of choice is aminocaproic acid (40 mg/kg or 20 g/500 kg) diluted in 1 lit of isotonic saline and administered through the IV catheter. Formalin: The current recommended dose is 30–150 ml of 10% buffered formalin in 1 l of isotonic fluids. Administration of hypertonic saline (3–5 ml/kg or 2 l/500 kg) is suggested along with corticosteroids.

8. Cervical and vaginal lacerations

Common in cow, mare and goat and repaired by suture and or surgery at a later time.

9. Perineal lacerations

Common in mares the term ***Gill flirter*** is used when the rectum and vulva become continuous

Surgeries are suggested

10. Prolapse of bladder

Common in mares as the urethra is large and the birth process is violent. The prolapsed bladder is replaced under epidural anesthesia.

11. Uterine rupture:

- Common in cow, goat and ewe rarely in the mare. In the goat uterine rupture may occur due to fight or ring womb. Uterine rupture is a complication that may be associated with fetotomy, excessive manipulation during a dystocia, fetal malposition, uterine torsion, uterine lavage, or with a seemingly normal delivery (Drost, 2015).
- Complications that may be associated with uterine rupture include visceral herniation, peritonitis, haemorrhage, shock, and death. If a full-thickness tear or rupture has occurred, there will likely be contamination of the abdominal fluid and an increase in white blood cell counts. Abdominocentesis may be of benefit for a diagnosis and is indicated in any mare that has abdominal pain after foaling, especially after dystocia or fetotomy.

12. Obstetrical maternal nerve paralysis

- **Gluteal paralysis is reported in mare**. There is difficulty in getting up and atrophy of gluteal muscles. Animals should be kept on slings
- **Obturator paralysis** is common in hiplock condition in cow. There is paralysis of adductor thigh muscles and the limbs become stiff. Nervine tonics and slings are suggested.
- **Peroneal paralysis Cows** with dystocia and milk fever are commonly affected. There is knuckling of the fetlock and dropping of the hock joint. Bandage over the affected part and nervine tonics are suggested.
- **Rupture of gastrocnemius muscle:** There is inability to support weight

and the gastrocnemius tendon is flaccid. The condition is more in **Vit-E & selenium** deficient areas (Roberts, 2004 and Drost, 2015).

13. Vulval haematoma in sow:

This is a condition where shortly after farrowing blood vessels inside the vulva rupture, due to stretching, pressure or trauma to the tissues. The vulva fills with blood. When this occurs the tissues become very fragile and if they are crushed the vulva splits with severe hemorrhage. Vulval hematoma can also arise where a gilt has to be assisted at farrowing and damage occurs from a large arm.

Clinical signs

- The vulva becomes swollen and very dark blue. If it ruptures it may bleed continuously. Blood clotting is poor and the animal becomes anemic and ultimately bleeds to death.

Treatment:

- The animal should be sedated and local anesthetic is injected around the tissues nearest the body of the sow just forward of the bleeding area. Three methods are then used for control: A piece of band or bandage is placed between the lips of the vulva and behind the bleeding tissues. It is then tightened to produce a tourniquet. This should be left for 24 hours. If this does not stop the bleeding then a series of mattress sutures should be passed through the vulva and tied to the exterior. If the haemorrhage still does not stop, the hematoma must be opened by a veterinarian who will use a pair of artery forceps to clamp the ruptured blood vessels and tie them off.

14. Postpartum dysgalactia syndrome (PPDS)

Postpartum dysgalactia syndrome (PPDS) is a primary cause of neonatal problems (eg, diarrhea, crushing, runting, inanition, poor growth) but is challenging to characterize because of its multiple manifestations and the difficulty in making an etiologic diagnosis. Evidence suggests that lipopolysaccharide (LPS) endotoxins, a portion of the cell wall of all gram-negative bacteria, play a central role. Bacterial endotoxins can be absorbed from the uterus (eg, endometritis or metritis), mammary glands (eg, acute multiglandular mastitis), or gut (eg, constipation as a consequence of feeding finely ground feed to sows can result in bacterial overgrowth and subsequent absorption of endotoxins from the intestines) and lead to endotoxemia.

MMA complex is essentially a subtype of PPDS, probably the most severe clinically but also the least common. LPS endotoxins exert their effects even before farrowing and act with the intervention of the innate immune system (macrophage activation). These changes adversely affect production and secretion of colostrum and milk. PPDS is seen almost exclusively within the first 3 days after farrowing. Piglet losses are due to emaciation or diarrhea (or both), as a consequence of poor nutrition during the first few days postpartum. Diagnosis is difficult and based on clinical signs.

Treatment and Control:

Systemic or local therapeutic intervention (antibiotics, NSAIDs) can sometimes be helpful but only on a short-term basis. Flunixin meglumine may help to counteract the effects of endotoxins. Antimicrobial treatment is usually prescribed before susceptibility can be tested.

A broad-spectrum antibiotic is therefore recommended. However, if antibiotics are used long-term, a dependence on them for puerperal fevers, acute mastitis, vaginitis, endometritis, or neonatal diarrhea can develop rapidly and lead to multiresistant bacterial infections. Oxytocin or prostaglandins (or both) can be useful in cases of prolonged farrowing or postpartum endometritis. By far the most effective method is to cross-foster the piglets from affected to healthy sows, as long as the health status of the litters are equivalent.

Oxytocin (5–10 U/sow) is occasionally effective in re-establishing lactation if used 4 or 5 times at 2- to 3-hr intervals. In herds in which PPDS is a significant problem, incidence may be reduced by inducing parturition with prostaglandin $F_{2\alpha}$; this results in rapid induction of labor and dilatation of the teats for a shorter period of time.

Conclusion

Among the postpartum complications retention of fetal membrane is the most common complication in domestic animal especially in ruminants. Strictly follow the standard protocol and current strategies for their prevention and treatment.

Reference

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