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UMBILICAL ISSUES: WHEN DO WE NEED TO CUT?

Foals with pyrexia or other signs of sepsis eg septic arthritis, pneumonia, septicaemia) should always have an ultrasonographic examination of umbilical structures as chronic infection and abscessation of these structures is a common reason for origin/persistent/recurrence of such septic problems in foals in the first 4-6 weeks of life. In case umbilical structures show signs of inflammation or of enlargement, surgery should be shortly planned in order to eliminate the source of systemic infection. Surgical omphalectomy alongside specific treatment of the presenting signs significantly improves the long-term outcome of such cases.

Altogether sonographic criteria for infected intra-abdominal umbilical structures are the enlargement of the affected structures with the identification of anechoic areas, purulent echogenic material, and / or hyperchogenic gas echoes. Delineated and encapsulated structures are addressed as abscesses. All these findings are an indication for surgery in order to prevent ascending infection into joints, bones or lungs of the foal.

Furthermore foals presenting paraumbilical infiltration of urine with an increasing accumulation of oedema/fluids around the praeputium and the umbilicus often show very heterogenous urachus structures at sonography. These cases should as well be promptly operated.

Persistent urachus with urine loss through the umbilicus can be treated conservatively for 6-8 days. In some cases the urachus will close up spontaneously. If the urachus opens up a few days after birth, following a colic due to meconium impaction, it will rarely close up spontaneously and surgery is the safest way to prevent ascending infection.

Umbilical herniae will at some point necessitate a surgery. Until then the owner should keep an eye daily on the herniated structures and be aware of keeping those soft and reposition those into the abdomen daily.

The methods of surgery are as follow:

Options for umbilical surgery

Umbilical hernias are the most common form of congenital (hereditary) defect reported in foals. The incidence for this disorder has been reported to range from 0,5% to 2% but be as high as 29% in one report.¹ They are characterized by the failure of formation of a solid umbilical scar after involution of the umbilical structures. If herniation and evisceration occurs during birth, immediate emergency surgery is required and can have a successful outcome if the viscera are not damaged, contamination can be reduced to a minimum and prompt surgical correction is possible. More commonly, in the newborn foal the hernia is rarely fully visible but about 2 weeks after birth a preformed defect can be palpated. With continued growth and expansion of the abdominal contents the umbilical hernia becomes more visible at around 3 to 4 weeks of age. Small hernias up to 2cm in length may resolve spontaneously in foals less than 6months of age with daily manual reposition of the umbilical contents. Hernias larger than 4cm are repaired mostly for cosmetic reasons or for prevention of incarceration. A hernia belt may be a treatment option for hernias less than 6cm in length in foals less than 6months of age if husbandry conditions permit.

Despite the recommendation that hernias should be repaired surgically, there are numerous non-surgical "methods" for correction of umbilical hernias such as application of hyperemic ointments or astringent ointments, cauterization, application of wooden clamps or elastrator bands. These techniques are still used by breeders and even veterinarians but should be viewed critically as they may pose a high risk for complications such as skin necrosis, abscess formation, incarceration of intestines or evisceration. It is of importance, that this approach will not close the abdominal wall defect but rather reef the excess skin and results in additional scar tissue formation leading only to a "normal looking" ventral abdominal outline. The reported complication rate with the usage of clamps or bands was 19% in one report.

A thorough ultrasound exam with repeated measurements of the size of the umbilical structures is key to good surgical planning. Umbilical surgery is not without complications and the incidence has been reported to be as high as 19%.

FROM GESTATION TO A HEALTHY FOAL

Surgical corrections is recommended in foals older than 6 months of age, for hernias more than 6 to 8 cm in length or whenever any complication occurs, such as colic, incarceration of intestine or omentum, enterocutaneous fistula formation.

Surgical correction can be achieved by either open or closed herniorrhaphy under general anesthesia. Both techniques have their advantages and disadvantages. Open herniorrhaphy allows for detailed inspection of the umbilical structures, adhesiolysis of intestine or omentum and proper tissue adaptation of the fibrous linea because the inner hernia sac is resected and the collagen of the linea alba exposed, thus insuring primary intention healing with minimal scar tissue formation. Closure of the defect is achieved with preplaced monofilament, absorbable suture material of appropriate size. Smaller defects can be repaired with a simple continuous suture in smaller foals. In large defects, tension relieving suture techniques such as vertical mattress or near-far-far-near should be used. Subcutaneous tissues are closed routinely with 2-0 polyfilament, absorbable suture. The author prefers to close the skin intradermally with 3-0 monofilament, absorbable sutures followed by suturing a stent over the surgical wound. The foal is box-rested for 2 to 4 weeks depending on the foals age and size of the defect. The stent bandage is removed three to five days post-operatively.

In foals showing signs of systemic disease like fever, and or signs of joint infection, the author prefers to remove the umbilicus surgically as early as possible as it most often represents the main entry for bacteria into the foals body. The foals overall condition should be considered as general anesthesia may place the foal at a higher risk to suffer from complications attributable to general anesthesia. Gentle tissue handling techniques and adhering to Halsted's principles are extremely important for avoiding post-operative complications which include dehiscence, re-herniation, colic due to adhesion formation.

References

1. Werner L.A. in Robinson's Current Therapy in Equine Medicine 7th Ed.), 2015