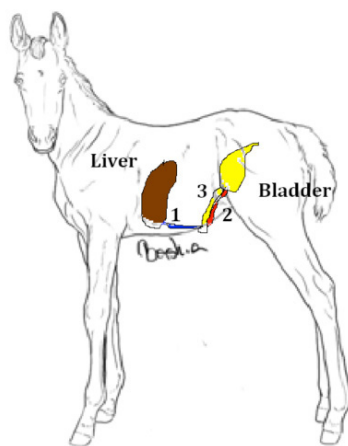


Patent Urachus and other Umbilical Complications

ANATOMY

At birth the umbilicus should break close to the foal (approximately 2-3cm) and the vein, arteries and urachus should all retract into the abdomen. The stump should be treated with either povidine-iodine or chlorhexidine dips. Colt foals usually urinate by 6h and filly foals by 11h.

- Umbilical vein
- Umbilical arteries
- Urachus

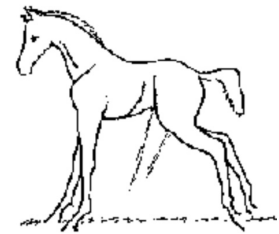


PATENT AND PERSISTENT URACHUS

The urachus connects the fetal bladder to the allantois in utero and must retract and close at birth in order for the bladder to expel urine normally. Patent urachus can be both congenital (persistent) and acquired. The congenital form is considered to be associated with a partial torsion of the umbilicus in utero and dilation. Excessively long cords are more prone to torsion and hence an increased tension at the attachment to the abdominal wall. Traumatic rupture of the cord post partum is also possible but most common is an acquired patency secondary to infection or recumbency. Often with this variation the urachus which had initially been closed will reopen. The recumbent animal will rarely stand for urination so will have abnormal pressures on the bladder, increasing the pressure on the closure of the urachus and similarly an increased abdominal pressure for

example from meconium retention and straining, will increase the likelihood of the urachus reopening.

Signs of patency include urine dribbling at the umbilical stump either as a constant stream or only during attempts at urination or the stump is permanently moist. The foal may have a 'sawhorse' stance while straining to urinate. The stump may become inflamed with constant irritation and secondarily infected with a purulent discharge. It was often thought that the patent urachus may be a portal for entry for systemic infection; however, this is probably not the case.



A congenital persistent urachus will usually seal if treated judiciously with cauterising agents such as 2% iodine, silver nitrate or 10% formalin. Ultrasonography is used to determine if the affected structures are becoming infected and if this occurs then surgical removal is usually necessary.

URACHAL DIVERTICULUM

This condition is effectively a partially patent urachus: the portion nearest the bladder does not seal immediately after birth but it is not fully open so urine pools with a portion of the urachus. The condition can cause mild discomfort and straining but usually resolves within a few days. It can only be diagnosed definitively with ultrasonography but when it occurs, it generally requires no treatment.

UMBILICAL INFECTIONS

Infection can occur in either of the umbilical arteries, urachus or umbilical vein and is relatively common. Palpation of the external remnant can be misleading and in one study only 50% of cases showed clinical signs, but heat, pain and swelling may be evident. Umbilical infection is commonly seen with septicaemia and joint ill and may not be noticed until these more severe complications are encountered. Ultrasonography is a sensitive tool in diagnosis and distinguishing which component is affected, while blood samples will reveal an inflammatory profile.

Prevention of infection is very important with judicious use of dips such as chlorhexidine (0.5%) or povidine iodine (0.1%). Use of 7% iodine has been shown to reduce infection but caused rapid desiccation and tissue destruction and of these, 40% developed a patent urachus.

Treatment with appropriate antibiotics, either local or systemic, should be sufficient, ideally following culture and sensitivity. Some cases may require surgical excision. IgG and white blood cells should be monitored in these cases.

URACHAL RUPTURE

Occasionally the urachus ruptures, usually secondary to infection. This is a major problem that leads to accumulation of urine within the abdominal cavity. Foals show progressive lethargy and abdominal distension and like, bladder rupture, these foals require emergency intensive care and surgery to resolve the problem. Ruptured bladder most often occurs in colts at the time of birth, with signs becoming progressively

more obvious in the first day or two of life. Rupture of the urachus can happen in any young foal and colts and fillies are equally affected. Because the urachal rupture often follows a period of milder illness due to the pre-existing urachal infection, it is important to consider this possibility in any foal that develops more severe signs when being treated for a simple umbilical infection.

UMBILICAL HERNIATION

Umbilical hernias are defects in the ventral body wall that allows abdominal contents to become palpable through the skin. These are seen as an obvious swelling around the umbilical stump which can be reduced on palpation. Most are amenable to application of a rubber ring to the hernia sac once the contents have been reduced. The hernia sac will slough off with the fibrosis, effectively closing the body wall defect. Although crude, this technique can be performed standing with sedation if necessary and rarely leads to complication. Larger hernias, which are uncommon, can be repaired surgically.