COMPLICATED UMBILICAL SURGERY IN CALVES
A. N. (Nickie) Baird, DVM, MS, DACVS
Purdue University, West Lafayette, IN

Key points
- Umbilical surgery on male calves presents some incisional difficulties as compared to females
- Infected umbilical remnants require more extensive dissection than simple hernias
- Urachal remnants can cause urinary signs in older calves

Male calves
The umbilical incision in the male calf is complicated by the preputial orifice being near the umbilicus. The elliptical skin incision is only recommended when the umbilical mass fully cranial to the preputial orifice and involvement of umbilical remnants is not expected. A half-moon (semi-lunar) skin incision is the suggested incision for male umbilical surgery. The skin incision is centered over the umbilicus with the concave side directed caudally. Caudal reflection of the sheath is usually adequate to allow an elliptical body wall incision. The semi-lunar skin incision may be extended caudally on one side as a paramedian incision allowing reflection of the sheath to the contra-lateral side to facilitate a longer body wall incision. This approach allows access to any urachal or umbilical artery remnants without damaging the elastic tissues of the prepuce or the penis. The closure is done in a routine fashion for the incision. The underline will have a dimple and not be very cosmetically pleasing immediately after the surgery. However, the long-term result is very acceptable.

Persistent (+/- infected) remnants
The anatomy of the umbilical area should be understood as one approaches umbilical surgery but there is not space in these notes to cover that topic. Any of the umbilical remnants can be found to be infected when doing what one expects to be a simple hernia. Deep abdominal ligature is usually sufficient to completely resect the abnormal portion of an infected umbilical vein. However, marsupialization of the vein is indicated when the abnormal vein extends into the liver parenchyma. This is a good reason to clip and prepare a larger area than you hope to need. While some marsupialize the vein at the cranial end of the skin incision, placing the vein through a separate right paramedian stab incision cranial to the laparotomy incision leads to fewer incisional complications. The risk of abdominal contamination is minimal when properly covering the end of the vein during relocation. The separate stab also compliments the semi-lunar incision described earlier in male calves. A circular skin incision is made cranial to the umbilical incision and just to the right of the midline allowing the vein to exit the abdominal cavity directly ventral to the liver. The external rectus sheath is then either incised in a circular fashion or simply in a linear manner and bluntly enlarged to facilitate the affected vein. The vein is usually sutured with minimal tension to the external rectus sheath with 10 to 12 simple interrupted absorbable sutures. A second layer of suture secures the vein to the skin, again with simple interrupted sutures using non-absorbable or delayed absorbable material.

The most commonly infected umbilical remnant is the urachus. The calf is less likely to have a patent urachus draining urine like some other large animal species. Any abnormal urachus in the calf is nearly always an abscess. Some calves may present because of pollakiuria and this is often diagnosed after 6 months of age. The frequent urination of small volumes is
related to the urachal remnant not allowing the bladder to fully decompress and therefore the animal has the frequent urge to urinate. Another urachal condition involves uroperitoneum in older cattle (frequently yearlings) that is due to a perforation in a persistent urachus.

References: