Comment on Bitch Dystocia Dilemmas by Peter Howe
C&T No. 4997, (Issue 255, June 09)

C&T No. 5028

Courtesy of
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This is a great case and one that even with ‘retrospective knowledge’ I don’t think could have been handled any better.

How many of these cases do practitioners see?
In my personal experience, very few. Unlike other species (especially the cow and mare) uterine torsion in the bitch does not occur commonly. Furthermore, unlike large animals, uterine torsion can occur in non pregnant bitches. Often these bitches have uterine pathology, in particular fluid build-up secondary to cystic endometrial hyperplasia and mucometra or pyometra but sometimes they do not – thus the underlying pathophysiology of uterine torsion in the bitch is poorly understood.

Peter Howe’s reflection - “Should all dystocia cases where there is an absence of Ferguson’s reflex, go straight to C-section? My delay in this case, giving oxytocin, clearly cost the lives of the retained pups”.

The most important diagnosis to make when presented with a dystocia is: ‘Is the underlying cause obstructive or non obstructive’? i.e. Is Ferguson’s reflex present or not? Placement of a tubular vaginal speculum/vaginoscope into the vagina is a very simple but valuable diagnostic procedure in any dystocia case. This procedure assists in not only determining the presence or absence of Ferguson’s Reflex but allows visualisation of the cervix (during whelping is the only time a bitch’s cervix can be visualised unless an endoscope is used) and whether it is open (or not) or an obstruction is present (or not).

The absence of Ferguson’s Reflex or the presence of an obstruction in the birth canal (i.e. an oversized or mal-positioned/ mal-presented pup) is indicative of uterine inertia which can be described as either primary or secondary. Primary uterine inertia is an intrinsic insufficiency of uterine contractions which can occur after the onset of parturition and delivery of 1 or more pups but uterine contractions are insufficient to deliver the entire litter (partial primary uterine inertia) or when the onset of stage 2 of labour does not even begin (complete primary uterine inertia). Secondary uterine inertia is when a gradual exhaustion of myometrial contractility occurs usually secondary to an obstruction of the birth canal.

In these cases of dystocia, medical management can be very effective. Treatment involves a single low dose of oxytocin and slow IV administration of high doses of calcium. In the period immediately prior to, during and after parturition the number of uterine oxytocin receptors is at its maximum so high and multiple doses are not indicated. Treatment of uterine inertia with oxytocin alone or with calcium gluconate and oxytocin is still controversial – mostly because we do not fully understand the pathogenesis of uterine inertia (see Bergstrom et al. 2006; Klarenbeek et al. 2007). Personally I feel that calcium plays an important role, if not possibly a more important role, in the pathogenesis of uterine inertia than oxytocin so I treat these cases with the slow IV administration of high doses of 10% calcium gluconate followed by a low dose of oxytocin (0.5-2.0 I.U./bitch). I also treat with calcium despite an iCa measurement that may be within the ‘normal reference range’ (especially with iSTAT readings which have been shown not to be accurate when compared to pathology laboratory measurements). Furthermore, I do not think that blood iCa measurements reflect what is occurring at a uterine level (Hollinshead et al. 2009). Submitted to Theriogenology. Uterine inertia is a multifactorial disease (i.e. hormonal, genetic, behavioural, mechanical, physical) and the roles that oxytocin, calcium, prostaglandins and other hormones such as PTH play are still not completely understood. Hence response to medical treatment is not always predictable.

Generally, if uterine contractions and the delivery of a pup have not occurred within 30 minutes of medical treatment I elect to carry out a C-section.

I do not repeat medical treatments (oxytocin and/or IV calcium) if there has not been a response within 15-30 minutes. Placental separation and detachment has most likely occurred and the risk of foetal hypoxia is high. We do not fully understand the mechanism of placental detachment in the bitch but oxytocin is assumed to enhance this process. Additional oxytocin only makes the situation worse and wastes precious time. In these situations C-section is the most effective method of maximising the likelihood of delivery of viable pups. Before embarking on medical treatment of dystocia I try and discuss all possible scenario’s and outcome’s with clients including going to C-section.

Uterine rupture, uterine torsion or ‘non uterine’ causes of inertia such as an undiagnosed diaphragmatic rupture or uterine adhesions from a previous peritonitis can also present as ‘non
obstructive’ dystocia. Unfortunately, unlike the majority of non obstructive dystocia cases they will not respond to medical treatment (calcium and oxytocin). However, given the very low incidence of these non obstructive cases of dystocia in the bitch I do not think that one should therefore adopt ‘go to C-section for all non obstructive’ cases. Furthermore, uterine inertia is the most common cause of dystocia in the bitch (incidence reports vary from 70-90%) therefore adopting a C-section policy for all dystocia’s with the absence of a Ferguson’s Reflex will result in, as Peter said, ‘a lot of Saturday afternoon’s doing C-sections!’

It is important to mention also that when presented with an obstructive dystocia medical treatment is contraindicated apart from manipulation per vagina to correct a mal-positioned/ mal-presented pup. Manipulation of dystocia presentations in the bitch is generally not easy or very successful. Emergency C-section in these cases is important for not only the survival of the foetuses but the bitch.

After a vaginal examination I also would have carried out a transabdominal ultrasound to determine foetal viability. If any of the foetuses had a heart rate less than/equal to 150 bpm then I would be very concerned about foetal stress and for me this is an indication to go to C-section immediately to try and maximise the number of live pups born/delivered. Medical treatment, even in a case of inertia, is not indicated if the pups are stressed.

It is interesting that on clinical examination there was no indication of vascular compromise that you would assume you would see with a torsed uterus. This has also been noted in other canine uterine torsion cases.

Take care when using longer acting opioids agonists for pain management post C-section as they can interfere with prolactin secretion which may affect initial milk let down/ production especially in a maiden bitch.

But more importantly, the dissociative effect that can occur with some bitches can cause significant mis-mothering problems for up to 48 hours post recovery. It is a fine line between keeping the bitch pain-free post operatively but also alert and aware enough to effectively feed, care for and accept her puppies. In some breeds mismothering caused by either pain post operatively OR too much opioid analgesia can, in extreme cases, result in the bitch killing and eating her pups.

‘What imaging techniques could have been employed to diagnose the uterine torsion? Are there any other pathognomonic signs that should have been recognised? Ultrasonographic examination in my hands gave no real clue.’

I think all the imaging techniques we have available in practise would not allow the definite diagnosis of ‘uterine torsion’. Colour doppler would have indicated areas of poor or congested blood flow and therefore indicated uterine compromise but I would have to ask an imaging specialist how difficult this would be to determine in a gravid uterus as the huge placental changes occurring at this time coupled with uterine involution may make it very difficult to differentiate pathology from a normal physiological process? I do not know of any ‘pathognomonic signs’ of uterine torsion (unlike in large animals) apart from doing an exploratory laparotomy!

Figure 1. (from C&T No. 4997) The left uterine horn was ischaemic. Portion of the normal right uterine horn is exteriorized.

Figure 2. (from C&T No. 4997) Excised ovaries and uterus. The left uterine horn had torsioned 360 degrees at the bifurcation of the uterine horns.

Editor’s note: My executive summary would be – for bitches with dystocia, after vaginal exam and quick abdominal ultrasound
1. hospitalise
2. secure an IV line
3. give Ca gluconate slowly IV
4. Give oxytocin. If get no pup in 30 minutes, induce anaesthesia for emergency C-section

References
Comment on uterine torsion in a cat by Kerrie Lay

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C&T No. 5029

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I read with interest C&T No. 4992 (What we found up a nose one fine day in the Himalayas) by Catherine Schuetze who described her experience in the Indian Himalayas removing a leech from the nose of a dog. I would like to describe an approach to solving this perpetual challenge developed in Rauwa, one of the 75 districts of Nepal, located 6000ft above mean sea level and 150km from Kathmandu. Hill cattle (Bos indicus) are the predominant livestock species in this region. Beside infectious diseases like foot and mouth disease and haemorrhagic septicaemia, ectoparasites and leeches are the major problems faced by livestock owners.

One day I visited a village and asked about the major livestock health problems. The villagers replied ‘leeches lodging in the nose’. Leeches suck blood and make the infested animal uncomfortable leading to loss of body weight, productivity and reluctance to work. I soaked a pad of cotton wool with the volatile anaesthetic agent ether and placed it inside the ‘Muhalo’ (a cattle muzzle made of bamboo and used to prevent grazing while working) (see FIGURE). After about 10 minutes anaesthetised leeches began to fall out of the nasal cavity and into the muhalo. The farmer was very happy and decided to adopt this procedure. This method has been modified successfully to infested sheep and dogs though they do not appear to tolerate the smell of ether as well as cattle.

Removal of leeches from Himalayan cattle of Nepal

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Though the use of a volatile anaesthetic solution is a very effective procedure it needs to be done under the supervision of a veterinarian or paraveterinarian. Traditionally, here in Nepal some people put a saturated salt solution into the nose of cattle as leeches cannot protect themselves from hyperosmotic conditions. The leeches disgorge their blood meal and tumble out from the nose, often along with blood. Other people make the animal thirsty and when it is drinking leeches also come to drink water, giving people time to catch the leeches. However, these methods are cumbersome and time consuming.

Identification of leech in the winning pic from ‘What we found up a nose one fine day in the Himalayas!’ (Article by Catherine Schuetze from Vets Beyond Borders, Issue 254, March 2009)

The CVE would like to thank Jan Slapeta PhD MVDr (Lecturer – Veterinary Parasitology, University of Sydney) for kindly identifying the leech as the aquatic Myxobdella annandalei [the type species of the genus and first described by Oka in 1917 [Oka A (1917): Zoological Results of a Tour in the Far East. Hirudinea. – Mémoires of the Asiatic Society of Bengal 6: 157-176].