Managing Dystocia in Snakes

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Abstract: Breeding snakes for fun and/or profit is becoming commonplace for reptile enthusiasts. Complications with laying eggs or giving birth to young are common sequelae of breeding snakes. Dystocia in snakes can be multifactorial and may be the result of inappropriate nesting sites, stress, dehydration, malnutrition, obesity, salpingitis, malformed eggs and abnormal reproductive anatomy. The consulting veterinarian should be familiar with the literature on the common methods for initiating breeding activity and cycling, gestation, fecundity, and incubation techniques for the various species of snakes seen in practice. This paper will discuss the general clinical presentation and commonly used medical and surgical options for the treatment of dystocia in snakes.

Clinical Presentation

Dystocia is seen more commonly in the egg-laying (oviparous) snakes than in the live-bearing (ovoviviparous) snakes.1-3 Oviparous snakes include pythons, colubrids (rat snakes, king snakes, milk snakes, hognose snakes, green snake, etc.) and elapids (cobras, coral snakes, etc.). Ovoviviparous snakes include boas, colubrids (garter snakes, water snakes, ring-neck snakes, etc.), rattlesnakes, copperheads, and other vipers (gaboon, tree, eyelash, etc.)

Historical Information

In oviparous species, the snake may have laid a clutch of eggs and the owner notes what appear to be eggs still in the snake. Or the snake has not laid any eggs but is past her due date and the owner can see or feel eggs in the snake.

In ovoviviparous species the owner may present the snake knowing the snake has been bred, noting that it appears gravid but is well past its due date. Or the snake may have produced an abnormally small clutch size and the owner is concerned there are still babies present. Often with live-bearing snakes owners may not be aware they are gravid and may present them for anorexia or another problem.

Clinical Assessment

In oviparous snakes, retained eggs are often palpable on physical examination. They may be distributed unevenly throughout the lower 1/3 of the body or they may be “bunched up” at the cloaca. The eggs may be misshapen on palpation, they may be free moving, or they may be immobile. Use caution when palpating not to force eggs to move. The oviduct is extremely fragile and may tear easily. Radiology or ultrasonography can be used to confirm egg numbers, abnormalities, and comparative egg size but may not be necessary, as eggs are usually readily palpable.
In ovoviviparous snakes it is more difficult to palpate developing fetuses in these live-bearing snakes and radiology and/or ultrasonography may be necessary for confirmation. Ultrasound can be very useful in determining whether fetuses are alive. In late gestation snakes can be seen moving (often in a tight coil) and a heartbeat may be seen. Sometimes determining a true dystocia versus a normal pregnancy is difficult in live-bearing snakes.

Management

Medical

In this author’s experience the use of oxytocin for dystocia in snakes is limited. It is often difficult to determine if a dystocia is obstructive or non-obstructive and if obstructive oxytocin is contraindicated. Snakes are generally presented well past there “due date” and thus have likely become an obstructive dystocia. Ova or fetuses that are retained past normal oviposition or birth often become adhered to the oviductal mucosa. Once adhered, the use of oxytocin may result in torsion and or rupture of the oviduct. Therefore there is a small window of opportunity for oxytocin to be effective. If used for a non-obstructive dystocia where some portion of the eggs (fetuses) have been laid or obvious nesting or straining is occurring, the oxytocin is best initiated within 48-72 hours of such activity.2,3 A dose range of 5-20 IU/kg intramuscularly is used by this author starting with the lower end of the dose range and increasing the dose on subsequent doses if no response is initiated. Dosing can be repeated in 6-12 hours. If two doses have been given with no response then medical therapy will likely not be effective. Arginine vasotocin, which is the natural reptile oxytocin-equivalent hormone, is likely a more useful drug than oxytocin but it is available only as a research drug at this time.4

Egg manipulation

General anesthesia with propofol (PropoFlo 10 mg/ml; Abbott Animal Health) at 5-10 mg/kg intravascularly (tail vein or intracardiac) and/or isoflurane gas may be utilized to achieve muscle relaxation which may allow eggs to be gently manipulated toward the cloaca and removed. In some cases, the egg can be manipulated to the cloaca but still remain lodged. In these cases if the egg can then be visualized through the cloaca with a speculum it may then be aspirated. Often the deflated egg then can be easily manipulated out (and the procedure can be repeated for the next egg) or the snake can be allowed to try to pass the deflated egg on its own.

Cloacoscopy

Cloacoscopy can also be utilized in an attempt to manipulate the egg out through the cloaca.3,5-7 The snake is anesthetized as described above for egg manipulation technique. A 2.7-mm rigid endoscope with a 5.0-mm Taylor sheath with ports is used to evaluate the cloaca. A continuous warmed saline drip is used through the port system of the sheath to keep the cloaca dilated. An intravenous fluid bag is hung above the surgery table to facilitate the fluid running through the sheath system.

The endoscope is gently placed into the cloaca and the fluid drip initiated to allow distention of the cloaca. Once the cloaca is dilated a thorough investigation of the cloacal anatomy can be performed. The openings into the oviducts are located dorsally in the urodeum. In some cases the oviducts may be entered and ova or retained fetus identified. Gentle manipulation of the ova or fetus with the endoscope or grasping forceps (along with the infusion of the warm saline) will allow all or portions of the ova or fetus to be removed. The technique is not always successful. In some cases entry into the oviduct via the endoscope is not possible as the opening appears to be “sealed closed”. This is often the oviduct with retained reproductive products and often the other oviduct can easily be entered. Sometimes entry into the oviduct is possible but adhesions are unable to be safely
broken down and the dystocia is not resolved. However the endoscopy allows visualization of the oviduct and the associated obstruction. If severe thickening, hyperemia, obvious infection or abnormal looking ova/fetus is evident then it allows appropriate decisions to be made about the next steps. Treatment with antimicrobials and non-steroidal anti-inflammatory drugs such as meloxicam (Metacam; Boehringer Ingelheim) can be utilized to help with active salpingitis. After medical treatment the endoscopist can repeat the procedure in 10-14 days often with increased success in manipulating the retained ova/fetus.

**Percutaneous aspiration**

If the egg cannot be manipulated to the cloaca or endoscopy and or surgery is not an option percutaneous aspiration can be performed. This procedure does have the inherent risk of leakage of egg contents into the coelom and/or oviduct possibly inducing a ceolomitis. These potential complications should be discussed with owners. The author prefers endoscopy and surgical management as a better option to ensure safe reduction of the dystocia and to attempt to ensure future reproductive potential. However, sometimes these options are not available and percutaneous aspiration must be considered. The snake is preferably anesthetized as for egg manipulation above. The egg is isolated against the lateral body wall. The area is sterilely prepped and a 20-gauge needle is inserted between the first and second row of lateral scales and into the egg. The contents of the egg are aspirated into the syringe using caution to avoid any leakage of egg material into the coelomic cavity. The snake will usually pass the egg within 12-24 hours of aspiration. Subsequent eggs behind the first may also have to be aspirated in turn or they may pass on their own after the first egg is removed. Eggs retained more than two weeks may not be successfully aspirated as the egg contents may solidify. These eggs will have to be surgically removed. Ultrasound can be utilized to determine if the ova have solidified. This procedure cannot be utilized in ovoviviparous snakes.

**Surgery**

Surgery may be necessary if medical therapy, egg manipulation, cloacoscopy or ovocentesis have failed or are not the best options as discussed above.1-3,8,9 After anesthetizing with propofol and/or isoflurane as described above, an incision is made between the first and second row of lateral scales over the retained egg or fetuses. The oviduct is isolated and incised to remove the egg or fetuses. If there is more than one egg or fetus they may be able to be removed from the same incision. However, if they are adhered higher up in the oviduct or in the opposite oviduct multiple incisions may have to be made. The oviduct is closed with a simple continuous pattern using a fine absorbable suture (ie, 4.0-5.0 PDS). The coelom is closed with an absorbable suture and the skin with a non-absorbable suture in an everting pattern.

**References**


