

IT'S YOUR CASE

Species: Lizard **Breed:** Gecko **Sex:** Female Entire **Age:** 3 years

Clinical History:

anorexic X 6 days, still drinking, lethargic X 3 days, losing weight, approx 1 and a half months overdue for eggs

Details of study and technical comments:

The following images are available for interpretation:

- Whole body: dorsoventral projection

The image quality for the exam is good.

Diagnostic interpretation:

There are two, sharply margined, egg-shaped, peripherally thin mineral rimmed structures, measuring up to 2.7 cm in greatest dimension within the mid-to caudal coelom. The patient has a subjectively thin body condition. The caudal vertebrae are absent approximately 2.0 cm caudal from the pelvis, suggestive of prior caudal autonomy (Figure 1). Subjectively, the mineral opacity of the axial and appendicular skeleton is normal.



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Figure 1. Dorsoventral image documenting the mineral opaque egg -shaped structures within the (blue arrows). Note the absent caudal vertebrae (green arrow).

Conclusions:

1. Probable egg binding.

Additional comments:

Considering the clinical history and imaging findings, egg binding for this patient is the primary differential.

Clinical note:

Egg binding or egg dystocia indicates a delay in normal oviposition. All gecko species reproduce through oviparity (egg laying) and deposit one or two eggs. Oviposition is controlled by hormonal controls, environmental cues, photoperiod, access to appropriate substrate and normal systemic calcium (plasma ionized calcium) for normal muscle contractions to expel eggs.

Caudal autotomy, the regrowth of tail tissue, is a large energetic demand on a gecko. Geckos that lose their tail as juveniles may not reach full size at maturity. This small size may predispose those females to egg binding.



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The oviducts in geckos are paired tubes, one on each side of the dorsal body wall, lateral to each ovary. The cranial portion of the oviduct remains open as an ostium; ova are shed into the body cavity and move to and through the ostium into the oviduct. The posterior part of the oviduct is expanded into a broader organ similar to a uterus which is where the shell is placed on the egg. Gecko eggs typically have a soft/flexible shell that hardens after it is expelled through the cloaca and exposed to air.

Some species of geckos have calcium stores called endolymphatic sacs located near their ears in the skull. The endolymphatic sacs are reported to swell in size prior to egg development, shrinking as the eggs are shelled. There are no endolymphatic sacs visible in the radiograph of this gecko, but the species is also not listed.

Evaluation of plasma ionized calcium can indicate if this gecko has adequate calcium for oviposition.

- Vitt LJ, Caldwell JP. Herpetology: an introductory biology of amphibians and reptiles. Academic press; 2013 Mar 25.
- Giuseppe MD, Silvestre AM, Luparello M, Faraci L. Post-ovulatory dystocia in two small lizards: leopard gecko (*Eublepharis macularius*) and crested gecko (*Correlophus ciliatus*). Russian Journal of Herpetology. 2017 Jan 1;24(2):128-32.



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