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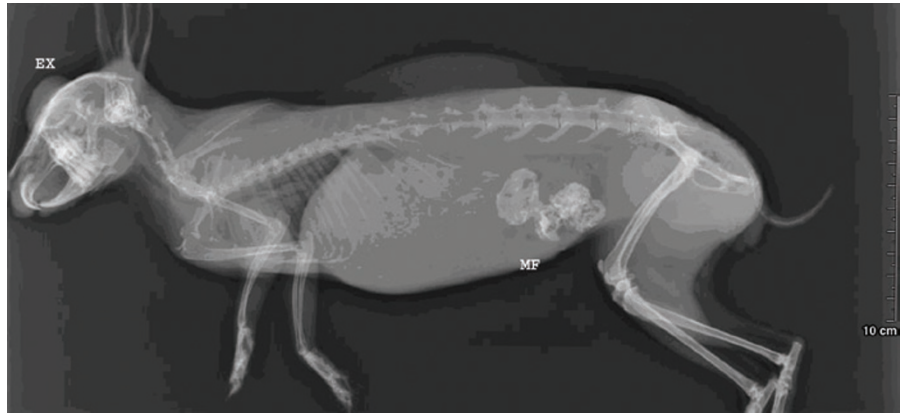
## An unusual abdominal mass in a rabbit

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A 14-month-old, 1.05-kg, intact female mixed breed house rabbit (*Oryctolagus cuniculus*) was presented to Tufts Small Animal Hospital's Exotic Medicine service for acute onset of unilateral exophthalmia. The owner had obtained the rabbit one year previously from a breeder and kept this rabbit in a backyard hutch by itself. There were no other rabbits in the household. On presentation, the rabbit was eating and drinking normally, passing normal amounts of feces and displaying normal behavior.

Physical examination showed an enlarged right eye with severe conjunctivitis and copious mucopurulent secretions. We rinsed the right eye with sterile isotonic saline and then used fluorescein to stain both the left and right eyes. The left eye did not take up stain, but the right eye showed severe corneal ulceration. The rest of the physical examination findings were normal, except for a 4.0-cm round, hard, non-painful, intra-abdominal mass consistent with and interpreted as hard fecal pellets in the intestinal tract.

We admitted the rabbit to the small animal hospital for proposed acute management of the right corneal injury and investigation of the exophthalmia. We gave the rabbit buprenorphine (0.25 mg per kg body weight every 8 h subcutaneously) to control pain and took lateral and dorsoventral radiographs to assess the involvement of anatomical structures (such as the teeth) surrounding the eye and to evaluate the rest of the body (Fig. 1). The radiographs showed a protruding right eye. There were no other cranial abnormalities that might suggest an anatomical cause. We also observed a radiopaque structure in the abdomen that was suggestive of mineralization or metal (Fig. 1).



**FIGURE 1** | Right lateral radiograph of a 14-month-old, 1.05-kg, intact female rabbit. Note the protruding right eye (EX) and the radiodense mass within the abdomen (MF).

At this point, we contacted the owner to inform him of the unexpected abdominal findings. Our diagnosis for the corneal ulcer was keratoconjunctivitis secondary to exophthalmia. Our differential diagnoses for exophthalmia in a rabbit included retrobulbar mass (cheek teeth root abscess, lymphoma), glaucoma (primary or secondary) and thymoma. We considered treating the corneal ulcer with a conjunctival flap but recommended additional diagnostic tests beforehand to investigate the cause of the exophthalmia further. Our aim in proposing these additional tests was to rule out diseases that may require enucleation of the eye before proceeding with a conjunctival flap. These diagnostic tests included a dental examination under anesthesia, Schirmer tear test, intraorbital pressure measurement and ultrasound examination of the eye with potential guided retrobulbar aspiration for cytology and culture. We also proposed an

exploratory laparotomy to diagnose and potentially treat the radiodense mass seen on the survey radiographs. Because of the cost involved, however, the owner elected to euthanize the rabbit. The owner gave us permission to carry out a necropsy. We found a retrobulbar abscess of the right eye. We then proceeded to open up the abdomen.

Given this rabbit's history, presenting signs and survey radiographs, do you agree with our plan to investigate the abdominal mass? Would you suggest additional imaging studies, such as more radiographs or ultrasound? Would you request additional diagnostic tests, such as hematology or biochemistry? Do you think the retrobulbar abscess and the abdominal mass are related? What are your differential diagnoses for the radiodense abdominal mass?

**What's your diagnosis?**

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