OVARIECTOMY IN A *CANDOIA BIBRONI AUSTRALIS*.

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SUMMARY

An adult, female *Candoia bibroni australis* (Pacific boa), showed a large swelling at the ventral abdominal wall. On surgery the swelling proved to be due to enlargement of both ovaria caused by retention of large egg follicles. Both the left and the right ovary were removed. Premedication was with metomidate. Anaesthesia was performed with the aid of halothane in oxygen and nitrous oxide, administered by endotracheal tube.

INTRODUCTION

In snakes, different disturbances are known in the process of reproduction. Ranging from mild disease as false pregnancy (Vinegar et al., 1970), difficult labour (Marcus, 1981; Frye, 1981, egg retention (Marcus, 1981; Frye, 1981; Bakker, 1987; Maas & Gerritsen, 1987), to the more severe salpingitis (Zwart, 1988) eventually complicated by peritonitis. To the best of our knowledge a case of retention of egg follicles within the ovaria has not yet been described. This paper aims to contribute to the gynaecology of reptiles.
An adult, female *Candoia bibroni australis* present-

ed the following signs. The present owner had recently acquired the animal and noticed immediately that the animal rested in an abnormal position, the posterior half of the body fully elongated. The animal was lethargic, did not eat, and at its ventral abdominal side a swelling, which appeared to enlarge over the time, was visible. Clinical examination revealed the animal in moderate condition. The skin colour was dull. Breathing produced a light hissing sound. Inspection of the mouth did not show any alterations. The swelling at the ventral abdominal wall was fairly well delineated and could be moved cranially and caudally in the body cavity, it seemed not to be attached to the skin or abdominal musculature. When punctured a clear, slightly yellowish coloured fluid could be obtained. Bacteriological examination of the fluid was negative.
One month later the situation of the animal had not changed, apart from a little enlargement of the swelling. It was decided to perform an exploratory coeliacotomy eventually proceeding to surgical intervention.

ANAESTHESIA
The animal was premedicated with methomidate (Hypnodyl, Janssen Pharmaceutical), 8 mg/kg bodyweight intra-coeliacally. After about 20 minutes the animal was completely sedated. The tracheal aperture was sprayed with xylocaine (Xylocaine spray, Bayer). An endotracheal tube (Mallinckrodt) of 2 mm diameter was introduced. This was connected to the anaesthetic apparatus through a Philip Ayre T piece system. Introduction of the anaesthesia was achieved by 3% halothane (Trofield surgicals AG) in a flow of oxygen (500 ml per minute) and nitrous oxide (250 ml per minute). A steady surgical plain of anaesthesia was maintained with 1% halothane in the same flow of oxygen and nitrous oxide.

The frequency of breathing of the animal was very low during anaesthesia, its heartbeat remained regular (44 beats per minute).
About 30 minutes before finishing surgery the flow of nitrous oxide was stopped and that of oxygen was doubled. At the end of surgery the administration of halothane was stopped.
About 30 minutes after surgery spontaneous respiration occurred. This gradually deepened over another 30 minutes. The application of oxygen was now stopped and the animal was extubated.

SURGERY

The distended area, about 40 cm cranially to the cloaca was disinfected with Betadine scrub and ethanol 70% and covered with sterile plastic (Buster steril J.K.).
The abdominal swelling was now very well visible, it was decided to make the incision, 1 cm next to the midline, over the swelling. The muscles underneath were bluntly cut. The abdominal fat bodies were separated alongside the vena cava abdominalis, thus giving entrance to the abdominal cavity. Then the cause of the swelling became clear. It appeared that the left ovary was enlarged due to the presence of 4 large, aberrant follicles (diameter about 15 mm). The left ovary weighed 9.7 g. The right ovary showed a comparable picture, however with only one large follicle and some smaller ones, variable in diameter. The right ovary weighed 5.5 g.
The bloodvessels leading to the left ovary were ligated (Vicryl 3-0, Ethicon), taking care that the adrenal gland was not included in the ligature. The ovary was then removed. The same procedure was performed on the right ovary.
The right as well as the left salpynx did not show any sign of illness. There was a surplus of lymphatic fluid in the abdomen, but signs of peritonitis were not seen.

The abdominal musculature was closed together with the skin with single, intra-dermal, knot sutures, one under each scale.

POST OPERATIVE CARE

Immediately after surgery the animal was put in a warm (30^0C) and clean cage.
Because of the light hiss of respiration and some small haemorrhages in the animals mouth (discovered when intubating the animal) it was decided to administer an antibiotic (Tobramicine, 2 mg/kg bodyweight) every third day, for 15 days.
The first 24 hours after surgery the animal appeared to be still unconscious. The reactions to stimulation were minimal. It was after 48 hours that she regained consciousness and drank for the first time. Such a reaction of prolonged unconsciousness caused by anaesthetics has been described in animals premedicated with Ketamine-HCl (Glenn et al., 1972). The *Candoia* showed a comparable reaction, although metomidate was used as a premedication.
At this moment in time, about six weeks after surgery the animal is very alert to everything happening in its surroundings. She has regained strength and keeps her body in a normal coiled up position. One problem remaining is that she refuses to eat. Thus forced feeding with mice has been performed several times. Since the normal diet of *Candoia* consists of birds and chickens, these preys have been offered now.

PATHOLOGY

The wall of the enlarged, affected follicles was rather firm. The bloodvessels over the surface were congested. Microscopically it appeared that the envelope of connective tissue surrounding the follicles was thickened compared to a normal one.

There was an increase in the number and size of bloodvessels. Locally numerous clefts caused by crystals of cholesterol were visible in the wall. In addition there was some deposition of proteinacous material. A theca of endocrine cells failed in the altered follicles. The eosinophilic cell membrane, which normally covers the theca at the inside, also failed. In fact the envelope of connective tissue was in direct contact with the contents of the eggcell. This has led to a process of resorption of the vitelline. There was an ingrowth of bloodvessels in the vitelline. These vessels were surrounded by a thick layer of macrophages phagocytising the vitelline. The vitelline itself was degenerated in that it was no longer homogenous but desintegrated into small droplets. In two altered follicles, which were smaller in size, the process of regression had proceeded in that in the centre only remnants of vitelline were present. There still was a layer of macrophages covering the outer wall only partially, while in other areas a distinct inflammatory reaction was visible in the form of lymphocytes and heterophils invading into the remnants of the follicle.

DISCUSSION

In boids the ovaries generally are rather elongate. Due to the relatively compact state of the ovaries in the *Candoia*, the coeliacal cavity had to be opened for a short distance, to facilitate surgery. The consequence of the operation for this animal and her owner is however, that she cannot take part anymore in reproduction. This may be a problem for some snake keepers, as their aim is reproducing snakes in captivity. Otherwise concerning the animals health, the fact that it has been ovariectomised does not appear to present any problems.

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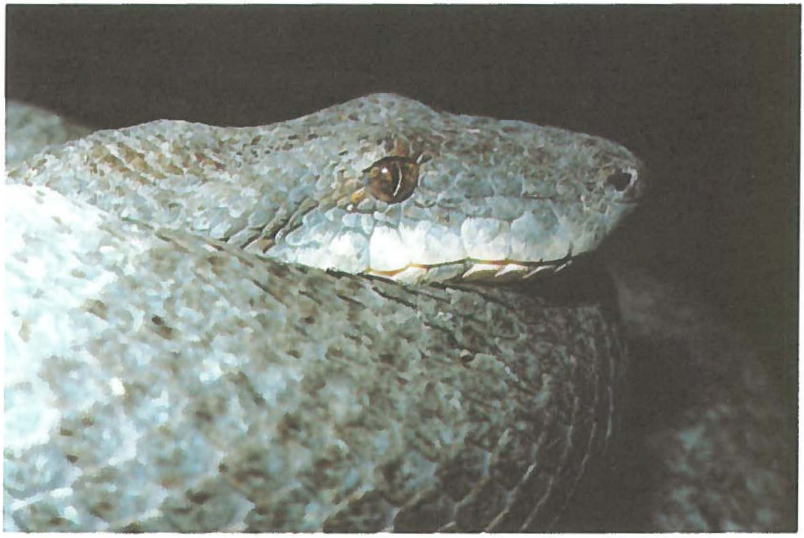

Foto 1. *Candoia bibroni australis*. Foto: C.A.P. van Riel.

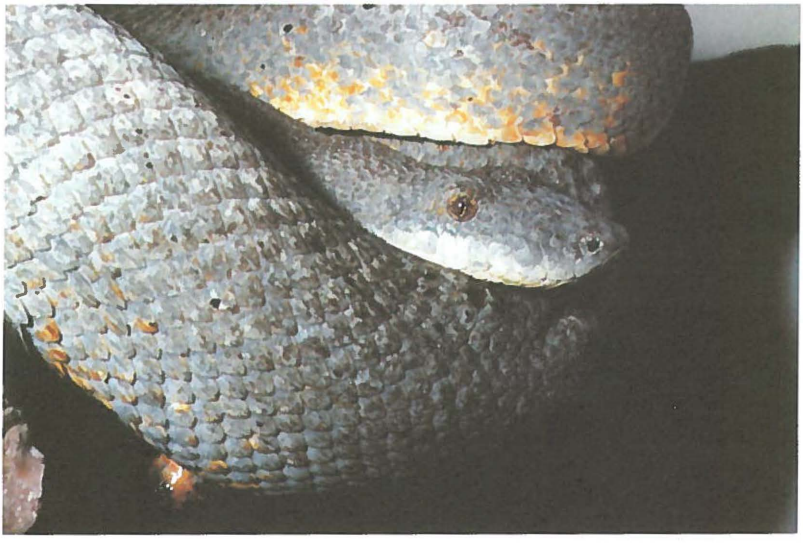

Foto 2. *Candoia bibroni australis*. Foto: C.A.P. van Riel.