

dolphin are influenced more strongly by pregnancy than by administration of FSH. Females in late gestation showed striking differences in the plasma levels of these hormones when compared to nongravid females; differences between non-gravid females and females in early and midgestation were less apparent. The sudden increase in plasma levels of these hormones during late gestation may indicate an extramaternal source of steroid hormones.

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FIBROPTIC GASTROSCOPY IN AN ANAESTHEZISED WALRUS (*Odobenus rosmarus*)

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Introduction

Keeping walruses in Carl Hagenbecks Tierpark is a tradition since its founding. Eight young walruses could be seen in 1908 in the recently completed polar-

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panorama, and in 1911 Carl Hagenbeck was painted with his favorite walrus by H. Lovis Korinth.

Since then the methods of rearing and keeping improved a lot, so that a 1948 born young male walrus „Raudi”, which arrived here on November 9th, 1949, lived in the Park until August 21st, 1964, which is to our knowledge one of the longest records for a walrus in captivity.

Case history

When in May 1975 a female walrus, which arrived here as a baby in October 1972, went ill, showing vomiting and inappetence we thought this could be due to a swallowed foreign-body. We knew from former bad experiences that these animals swallow all kinds of things. After a 14 days unsuccessful antibiotic therapy we made up our minds to try a fiberoptic gastroscopy under anaesthesia in order to get a correct diagnosis. A. G. GREENWOOD (1975) has reported about fiberoptic gastroscopy in dolphins with good results.

We used Ketamine (Vetalar, Parke-Davis u. Co., München) for narcosis. According to the experience of GERACI (1973) in several seals we started with a relatively low dose of 3 mg/Kg. We estimated the body-weight to be 200 Kg and so injected 600 mg Vetalar i.m. in the hip-region. The induction of the anaesthesia took 10 minutes. For about 60 seconds one could see slight clonic-tonic tremors.

The animal was carried in a sling to the investigation table, where the instruments could be passed in without difficulties.

After 10 minutes another 400 mg Vetalar were given i.m. After 50 minutes from the beginning of the first injection the animal started to move. After 60 minutes from the beginning of the first injection a stomach-tube could not be inserted. Recovery was uneventful. After two hours the animal was fully conscious.

The animal was laid in the left lateral position. The examiner stood at the top of the animal. Two attendants opened the mouth and the instrument (Olympus Colonfiberscop CF-LB 2 with an operating length of 187 cm) was inserted. No pathologic findings showed in the oesophagus. The oesophago-gastric junction of the walrus is marked by an uneven line in the shape of a „Z”, the so called ora serrata. In the stomach, on the greater curvature, the well known typical big folds were observed. On the posterior wall erosions could be seen. Then the instrument was easily inserted into the duodenum without observing any more pathologic findings. The erosions on the posterior wall could not explain the illness of the animal.

Six days after gastroscopy the animal died. At necropsy in the ileum a section of 80 cm of the intestine was found to be filled with about 200 stones up to the size of a walnut. The wall of the intestine was in this region hyperaemic and histologically showed a chronic enteritis. A colisepticaemia as a result of these alterations caused the death. The animal had not taken any food for 21 days and had a weight of 191 Kg, measuring 180 cm from snout to tail.

Conclusions

After this experience it can be said that Ketamin was a safe anaesthetic in this walrus and that the fiberoptic gastroscope is a very helpful instrument for the investigation of the upper digestive tract.

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INVESTIGATIONS ON THE VIABILITY OF LARVAL HELMINTHS AFTER FREEZING *

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Summary

Viability studies carried out on larval helminths, particularly those of the phylum Nematoda, under freezing conditions, have yielded a variety of results. PARFITT (1971) and CAMPBELL, et al. (1973) using liquid nitrogen (-196°C) and quick freezinn methods found a high infectivity in sheep nematodes after prolonged freezing times (up to 44 weeks). TURNER (1953) ran year-round field trials on *Nematodirus spathiger* larvae and found a 37% survival rate after 10 months at 28°-30°F.

This study was conducted on four species of fish (*Allosmerus elongatus*, *Thaleichthys pacificus*, *Clupea harengus*, *Trachurus symmetricus*) and one species of squid (*Loligo opalescens*) taken from the frozen food locker at the NUC bioscience facility, San Diego, California. All five species are currently being utilized as food for marine mammals at the facility. Larval helminths were recovered and observed for viability from a sample of each of these species to elucidate the possibility of research animals being infected in captivity under present feeding procedures.

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