SAVEM
SOUTH AUSTRALIAN VETERINARY EMERGENCY MANAGEMENT Inc.

The Short-beaked ECHIDNA


Backyard Echidna All photos: Rachel Westcott


Echidna diggings in Mallee


Injured Beak

Species

The Short-beaked Echidna *(Tachyglossus aculeatus)* is a usually solitary living monotreme found in all climatic conditions in the Australian bioregion. Echidnas can swim and climb, with home ranges up to or above 250 hectares (3).

Admission and handling

Complete AVA SA *Wildlife Admission Form.* Place in **smooth** plastic tub at least 50 cm in height & add shredded paper or straw. Restrain using (1) towels/ gloves to lift whole animal (2) lift gently beneath ventrum without gloves (3) suspend by hind feet & limbs—this is more stressful for the animal.

SOME NATURAL HISTORY…..

Echidna numbers cannot be estimated by numbers of diggings. Echidnas can enter torpor at any time of year. Echidna "trains" are part of courtship behaviour. Breeding season is between June and September.

Examination

A conscious echidna wraps into a ball when touched, so complete examination requires chemical restraint (see below) (Schultz, pers. comm. 2012). Weigh, assess body condition, wounds, fractures, condition of spines and beak. Cloacal temp is 28-32° C, HR ~110 bpm, RR ~ 10/min. Sex by everting penis. Spurs on hind limbs are not confined to males. Healthy animals should be released as soon as possible to the location of collection.


Fat storage in *Panniculus adiposus* beneath the SC *Panniculus carnosus.*

Blood Collection

Sample from cephalic, jugular (near thoracic inlet), femoral or brachycephalic veins. Some clinicians sample from the beak sinus, but with great care.

Anesthesia & Sedation

Fasting is not required, but avoid anesthesia immediately after eating. Inhalation is method of choice, most commonly Isoflurane. **Induction** chamber or mask at 5%, **maintain** at 1-2% & 1L oxygen. Intubation is not possible. For **non surgical procedures** ketamine/xylazine, ketamine/medetomidine or tiletamine/zolazepam can be used IM. Midazolam (less painful IM) or diazepam are useful sedatives.


The "Milk Patch" to suckle puggles instead of a nipple.

Housing and Diet in Hospital

Smooth plastic tubs up to 2m diameter depending on length of admission, with walls at least 500 mm high. Straw or shredded paper provide security and shelter; soil or leaf litter should be added for longer admissions. Smooth base must be kept dry. Echidnas are very strong and can burrow underneath rubber flooring. House at 20-30°C. Multiple echidnas require 5m² each of space, with sufficient food & foraging to avoid competition. Echidnas eat invertebrates, including grubs, worms, nematodes, soft bodied insects, ticks, beetles, invertebrate eggs, insect larvae, ants and termites. Captive diets should be modelled on natural food—add termites preferably. Adelaide Zoo's recipe is at Right, which replicates energy/protein ratio found in termites. Echidna milk replacer is available from Wombaroo Food Products.

ADELAIDE ZOO's ECHIDNA DIET (1)

Bran	**2.0 kg**
Wheatgerm	**0.1 kg**
Meat & bone meal	**1.0 kg**
Blood meal	**2.6 kg**
Calcium carbonate	**0.4 kg**
Safflower Oil	**20 ml**
Lean Beef Mince	**2.0 kg**

Diseases & Presentations

Healthy **Puggles** may be presented by well-meaning members of the public who find them while the mother is away feeding. If well, these animals should be returned to the location where found as soon as possible. Froth and bubbling from external nares is normal in Echidnas, and should not be mistaken for respiratory pathology. **Trauma** occurs from motor vehicle accidents, animal attacks, low electric fences, bushfire, entrapment and scavenging from open tin cans. Radiographic exam is indicated in all trauma cases. Fractures to other than the beak result from a large force and significant soft tissue injuries should be expected. **Beak** injuries are common and serious. The beak is equipped with tiny electro– and mechanoreceptors. Damage to nostrils, feeding problems, bacterial and fungal infections, rhinitis and glossitis all impact on prognosis. Treatment of beak trauma is fully described by Middleton in Vogelnest, *Medicine of Australian Mammals* CSIRO 2010, p97.

Coccidiosis presents a spectrum of clinical disease which may be fatal. Sick echidnas presenting with fecal oocysts should be treated as an emergency. Poor hygiene, stress and other concurrent disease are factors which predispose particularly the captive population. **Salmonellosis** is relatively common in captive echidnas: treat with antibiotics, antidiarrheals and supportive fluids. Environmental hygiene and stress minimization may reduce the incidence of GIT infections. **Parasites** such as the Echidna tick, *Aponomma concolor,* which often attaches to the external ear canal, can cause anemia and dermatitis. Treat with ivermectin, fipronil (at domestic animal rates) or selamectin. Echidnas with **Dermatophytosis** can present with scaly skin and broken spines.

Intact nasal bones following beak trauma (above). This Echidna made a full recovery.

Echidna tick *Aponomma concolor* near external ear canal. Photos above: Rachel Westcott

DRUGS*	**Dose (mg/kg)**	**Route**
Penicillin LA	1 ml per 10 kg	IM, SC, sid
Amox/Clavulanic acid	12	SC, bid
Tetracyclines	20	IM, eod
Trimeth/sulphur	10/50	IM, SC sid
Meloxicam	0.5	IV, SC, sid
Dexamethasone	0.2	IM, SC, sid
Ivermectin	0.2	IM, SC, q7d, repeat x 2
Fipronil/S-Methoprene	10	TOP, once
Toltrazuril	25	PO
Itraconazole	5	PO, sid
Butorphanol	0.1	IV, IM, bid
Buprenorphine	1.0	IV, IM, sid
Ketamine/Xylazine	5/1	IM
Ketamine/medetomidine	5/0.3-0.5	Smooth short recovery
Atipamezole	x5 Medetomidine dose	IM
Tiletamine/Zolazepam	3-10 (5)	IM
Diazepam, Midazolam	1-5	IM

When is euthanasia indicated?

This is a clinical judgement, but could include:

* Serious injuries to the tip of the beak, and to the tongue.
* Displaced fractures to limbs or pelvis
* Deep skin burns and beak damage from bushfires

REFERENCES

(1) Middleton, D. in Vogelnest & Woods (Eds) *Medicine of Australian Mammals,* CSIRO 2010

(2) Blyde, D. *Wildlife Time On Line*, Centre for Veterinary Education, Sydney 2009

(3) Rismiller, P. & McKelvey, M. Material from field research, 1988-2011 Pelican Lagoon Research & Wildlife Centre, Penneshaw

***Doses** are extrapolated from clinical experience &/or use in domestic animals, and not from pharmacokinetic studies in Echidnas.

Acknowledgements: With special thanks to Drs David Schultz, Ian Hough & Peggy Rismiller for their assistance in preparation of this Treatment Sheet, (First Edition May 2012) which has been compiled by the SA Veterinary Wildlife Group and is published by SAVEM Inc. It is intended to assist veterinarians in the assessment and treatment of injured and ill Echidnas.