Abstract

"Exotic" (essentially non-domesticated) species can be considered to constitute nearly 90% of living animals. Large numbers of different mammals, birds, reptiles, amphibians and fish – even invertebrates - are now kept in captivity and veterinary attention for them is increasingly sought.

In order to deal competently with exotic patients the veterinary surgeon needs to have some understanding of biology and natural history, adequate facilities and equipment, ready access to information about specific diseases, including zoonoses, and awareness of relevant legal and ethical restrictions. Thus armed, the practitioner should feel confident to examine and treat an exotic patient, at least initially.

Very few veterinary drugs are licensed for use in exotics. Important considerations in treating patients, therefore, are contra-indications (some familiar agents can prove dangerous to certain species), dosage and frequency of administration (exotics vary in size and metabolic rate: allometric scaling may be needed) and route of administration. In addition, whether an animal is endothermic (most mammals and birds) or ectothermic (reptiles, amphibians, fish and invertebrates) influences how and when a patient is treated.

A full history is always useful. Whenever possible, this should be supplemented with a visit to the premises where the animal is kept because many diseases of exotic species are largely attributable to poor management and/or a suboptimal environment.

Competent handling and restraint of exotic patients is an essential prerequisite to diagnosis and treatment. Nets, bags, forceps, "grabsticks", immobilising equipment and anaesthetic chambers may need to be part of the practice's armoury.

Veterinary treatment for exotic species usually consists of one or more of the following: a) administration of medicinal agents, b) surgery, and c) attention to management. The last of these is often the most important.

In many countries exotic species are subject to statutes relating to domesticated animals but, in addition, there may be specific legislation concerning the legality of keeping such animals in captivity. Ethical issues may also arise relating to welfare and conservation. The veterinary surgeon should be aware of these points and be able to advise clients accordingly.

Introduction

"Exotics" can be defined in various ways. In this presentation the term is used to mean those species that are less familiar to the veterinarian than are the standard domesticated mammals and birds that constitute the basis of teaching on the undergraduate course. Exotics therefore comprise thousands of vertebrates and millions of invertebrates – the majority of living creatures!
The Approach

There are four important sets of questions that veterinary surgeons must ask themselves if presented with an exotic animal:-

1. What species is this? Do I know sufficient about its biology and natural history? If not, am I aware as to how to obtain such information or to seek suitable advice?

2. Do I have adequate facilities, equipment and expertise/confidence to examine and treat the animal?

3. Do I have access to information about the diseases of this species, including any zoonotic infections to which it may be susceptible?

4. Are there any special legal or ethical considerations with which I should be familiar?

An understanding of the biology and natural history of a species can be of great value to the diagnosis and treatment of disease. To a certain extent an appreciation of the taxonomic classification of the animal will assist in this respect. Thus, for example, if one knows that a patient is a tree frog, in the Class Amphibia, this will immediately provide certain basic information – for example, that the animal is likely to favour a damp environment, has a soft sensitive skin and will probably become torpid if the temperature drops.

The best way of learning about the habits and requirements of any species is to keep it oneself. Veterinary surgeons and their staff should give serious thought to maintaining a collection of exotic animals, such as small rodents, cagebirds, tortoises and fish, either in the clinic or at home, so that expertise can be gained in routine procedures - for example, restraint, sexing, feeding and cleaning. If this is not feasible, visits to private and public premises where such animals are kept will prove of value, especially if an opportunity is taken not only to look at the creatures, but also to handle them.

Relatively few specialised items are needed for work with exotic pets. This is on the assumption that the veterinary surgeon has basic facilities and equipment for work with dogs and cats. Most exotic species can be examined in the surgery but there is often merit in visiting the owner’s premises in order to see caging and environment. A useful general tip, particularly when capturing or examining birds and small mammals, is to remember that many of these species become more subdued if the light intensity is low. Clinical examination is therefore facilitated if carried out in a darkened room or if the patient’s eyes are covered with a cloth.

The ease with which many exotic species can escape has also to be borne in mind: windows and doors in the practice must be closed and boxes and nets secured.

Laboratory facilities are often needed for a definitive diagnosis. It may be best to send swabs, blood samples and biopsies to a reliable and experienced laboratory for processing but some simple and straightforward procedures, such as cytology and examination of faeces for parasites, can and should be carried out in the practice.

Very few medicines (drugs) are licensed for use in non-domesticated animals (Meredith and Redrobe, 2002) but this does not mean that they may not be prescribed or dispensed. Nevertheless, it would be a mistake to assume that one can automatically extrapolate from small (or large) domesticated animals. Often such as approach proves successful and safe but this is not invariably the case.

There are four considerations insofar as medication of exotic animals is concerned:-

1. Contra-indications Some drugs can prove toxic or dangerous to certain species – for example, certain antibiotics can prove lethal to rodents and the procaine group may be hazardous in birds.
2. Dosage Many of the exotic pets are considerably smaller than dogs or cats; this does not mean, however, that the dose of a drug for these species can be safely based on that for larger animals and then scaled-down in a linear fashion. Many biological parameters, including metabolic rate, show a curved relationship when plotted against bodyweight and therefore a different approach to drug dosage is needed. This is the principle of "allometric scaling" (Kirkwood, 1983a,b).

3. Frequency of administration The metabolic rate (MR) of exotic species varies. In small birds and rodents the MR is usually considerably higher than that of larger mammals, reptiles, amphibians and fish. The resultant differences in speed of drug absorption, metabolism and excretion mean that the frequency of administration must be carefully determined (Kirkwood, 1983a,b). This, clearly, is related to the total amount of drug given. Work on reptiles has shown that, when calculating the frequency of administration of a number of compounds, the animal’s ambient temperature must be taken into consideration.

4. Route Although the oral route has much to commend it, especially when the owner is carrying out administration, it is often far from ideal. In small mammals and birds the gut transit time is rapid: as a result, medicines given orally are often incompletely absorbed and the blood and tissue values attained may be inadequate. This can be overcome if the agent is given by injection but the frequency of administration also has to be considered. Injections should always be given with as small a needle as possible and the volume of inoculum kept to a minimum. The choice of site is important: intramuscular injections in particular can cause significant tissue damage.

Methods of clinical examination for exotic animals depend to a certain extent upon the species involved. As a general rule much is gained by visiting the patient at home or hospitalising it rather than having the animal brought to the surgery. This is because very many diseases of exotic species are associated with husbandry factors and the latter can only be properly investigated on the owner’s premises.

An accurate clinical history is of value. All owners of exotic species must be encouraged to keep careful hand-written or computerized records and to pass these when required by the veterinarian. Regular weighing and measuring of animals is wise as these figures will help serve as a guide to the animal’s health, development and response to veterinary care.

Observation of the patient is always essential as a prelude to a full clinical examination. The latter necessitates proper handling and/or restraint. The ability to hold an exotic patient correctly is something that can only be achieved by experience. Protective clothing may be needed – for instance, gloves for monkeys – and specialised equipment may need to be employed – for example, tongs or grabsticks for snakes, nets for fish, transparent pots for invertebrates, anaesthetic chambers for any species.

There are numerous aids to the clinical examination of exotic species. The stethoscope can be usefully employed when examining most species of mammal, bird, reptile and amphibian. Radiography and ultrasonography are often of value, as is endoscopy.

Veterinary attention can be provided to exotic species in a variety of ways. The three main methods are a) administration of medicinal agents, b) surgery, and c) attention to management. The third of these is often the most important, especially in fish, amphibians and reptiles in which disease is very frequently attributable to, or precipitated by, an adverse environment.

In most countries exotic species are subject to health and welfare laws relating to domesticated animals but, in addition, specific legislation may be applicable – for example, that concerning the conservation of wildlife (Cooper, 1987).

Ethical questions may also arise when dealing with exotic animals. These mainly concern welfare and conservation. Although many species are now ‘domesticated’, in the sense that they have been
bred in captivity for several generations, others continue to be taken from the wild and/or imported from overseas. The veterinary surgeon may well disapprove of this situation but can probably best contribute towards the wellbeing of such animals by ensuring that they are properly managed and receive optimum veterinary attention. In experienced hands, the keeping and breeding of exotic species can contribute to conservation and release programmes.

Conclusions

There are strong indications that trends in pet-keeping are changing and that in future, in most countries, the profession is likely to see more, rather than fewer, exotic animals (Meredith and Redrobe, 2002). In these circumstances it is prudent for veterinary practitioners to foster a greater interest in, and confidence with, such species and, rather than having to depend entirely on experienced colleagues, to develop expertise to deal with such animals themselves.

References and Further Reading


