

Emergency care of badgers

A short practical guide for veterinary surgeons



Introduction

British wildlife species will commonly be presented to veterinary surgeons for emergency care. Under RCVS guidelines all vets are obligated to provide such emergency care. The memorandum of understanding between the British Veterinary Association (BVA) and Royal Society for the Prevention of Cruelty to Animals (RSPCA) additionally covers the provision of initial emergency treatment for wildlife species and the RSPCA may contribute to costs when out of hours or involving the larger species.

Badgers (*Meles meles*) are not an infrequent species to be presented for emergency veterinary care, especially in the South West of Great Britain. Many veterinary surgeons express concern when first asked to deal with these animals, due to a lack of confidence in dealing with a reasonably large wild mammal, unfamiliarity with common medical conditions and drug usage, and concerns about bovine tuberculosis. In the past many badgers have been kept alive for protracted periods of time in captivity or have been transported large distances prior to necessary euthanasia, whilst others have been euthanased unnecessarily. This advice sheet aims to provide vets in general practice with basic information and tools to provide emergency care to badger casualties successfully.

Legal considerations

Badgers are protected under the *Wildlife and Countryside Act, 1981* and *Protection of Badgers Act, 1992*. Both these acts protect badgers from being illegally taken from the wild or killed, but make provision for the treatment of 'disabled' animals with the intention of releasing them back to the wild. Appropriate euthanasia is also permitted under the legislation. Veterinary treatment of badgers is controlled by *Veterinary Surgeons Act, 1966* (including schedule 3) and *Veterinary Medicines Regulations, 2011*. These acts limit the treatment of wildlife species, including badgers, to veterinary staff.

Basic badger biology and ecology

Badgers are mustelids - the subcaudal gland under the base of their tail produces a musty smell. They are omnivorous - so will eat a variety of things in captivity. They are social and territorial - so they must be kept isolated from other badgers in captivity and returned to the exact location in which they were found. Fighting between badgers is common (see below) and frequently leads to wounding which under most circumstances heals naturally in the wild. Badgers are induced ovulators and delayed implanters so mating can occur all year, however there are two peaks in breeding activity in the spring and autumn and wounding and road traffic accidents are more common at these times of year. Adult badgers weigh anything up to 16kg but most are in the 7-10kg range. From a clinical point of view their anatomy and physiology is otherwise not greatly different to that of dogs, making veterinary

examination and treatment relatively easy.



Several colour variants are seen in badgers, including albino, melanistic (right) and erythristic (left).

Reasons for the presentation of badger casualties to veterinary practices

Adult badger casualties commonly come to the attention of the general public in one of two ways; as RTA animals that have been hit or found at the roadside, or as animals wounded in territorial disputes and subsequently found in gardens, domestic or farm buildings. It is rare for adult badgers to be found in the open in fields.

Dependant Cubs

Badger cubs may be found above ground after they have been abandoned or orphaned, these animals are often hypothermic and dehydrated and require immediate first aid. Cubs may present very young and require specialist rearing and rehabilitation. Badger cubs don't begin to wean until 8wks and will not eat solids properly until 10-12 wks old. Please contact us for further information as soon as a cub comes into your care.



PLEASE PHONE US IF YOU ARE UNSURE ABOUT DEALING WITH A BADGER CASUALTY, WE ARE HERE 24/7 TO PROVIDE HELP AND ADVICE ON 01278 783250

Road traffic accidents

RTA badgers are much like RTA dogs and cats in the type of injuries they sustain, these include; orthopaedic injuries especially pelvic and long-bone fractures, soft tissue injuries especially friction injuries, diaphragm rupture and lung, liver and splenic contusions.



Some RTA cases will be alert and conscious and require sedation before any treatment or examination can take place. Other cases will be unconscious allowing immediate examination and first aid treatment to be given as indicated (see below).

Bite wounds

Conspecific or 'territorial' wounds are a common feature of normal badger social behaviour. The wounds commonly occur around the head and neck (especially in females) and on the rump (especially males). The wounds may look dramatic (below left), but almost all heal well with simple topical treatment. Some may have secondary myiasis. Badgers with wounds should be heavily sedated in order for a full clinical examination to take place and the wounds to be cleaned (below right). Some badgers with wounds (around 43%) will have other concurrent injuries or medical conditions and these may affect the overall prognosis. Wounds should be cleaned with saline or dilute chlorhexidine. Avoid excessive clipping of hair, as this can delay release. There is no need for extensive debridement and no attempts should be made to suture the wounds (unless involving flaps of ear or lip). Topical hydrogel products appear to help speed healing and it is possible to re-apply these safely in a conscious badger.



Badger baiting injuries

Badger baiting involves badgers being dug out of their setts and having dogs set upon them. Baiting is illegal under the *Protection of Badgers Act, 1992* and other UK animal welfare legislation. The welfare of dogs involved is also often seriously compromised. Badgers presented following dog attacks will have generalised bite wounds, typically including bites to the head and limbs, which may include fractures. Other injuries such as fractures may also be present. These wounds are very different from those sustained from fights with other badgers and require much more intensive treatment, where this is possible, including fluid therapy, analgesics and antibiotics. Badger baiting should be reported to the police.

This terrier attack on a badger shows the severe wounds sustained, these differ from conspecific wounds described above.



Snare traps

Badgers may be illegally snared or become caught up in legal snares set for other species. Snare wounds should be removed under general anaesthesia and the badger fully examined for other injuries. Snare wounds may be sutured but are prone to dehiscence as a result of ischaemic necrosis. Badgers should be kept in captivity for at least a week post snaring to ensure wounds have healed fully.



Snare wound across the abdomen of a badger that had become trapped at its pelvis.

Gunshot injuries

It is illegal to shoot badgers (except potentially under Defra licence). It is unlikely that badgers with gunshot injuries will survive. There is the added complication that it may be considered unethical to release animals back into areas where shooting (especially licenced shooting) is taking place. Members of wildlife groups may ask veterinary surgeons to complete recording forms for gunshot injuries, such investigative procedures should always be secondary to clinical care. Reporting forms are available at: www.secretworld.org/documents/Shotbadgers.pdf

Handling of badgers

Health and safety concerns. Veterinary employers should have a H&S policy including SOPs for staff dealing with wildlife casualties. Badgers are large strong mammals with a dangerous bite and sharp claws; they should be handled with care. Chemical restraint is required in almost all cases before examination but this is easily achieved (see below). Gloves should be worn when handling and examining badgers, cleaning wounds or cleaning up their faeces.

Cages. Many members of Badger Trust groups will have large size crush cages in which drugs can easily be given through the bars of a cage. If the badger is in an alternative container gently tip it into a suitable cage. Alternatively using a heavy blanket to cover and restrain the badger's head, intramuscular sedative drugs can be safely administered into the rump area.



Crush cages should be pre weighed. Blankets or other bedding should not be placed inside the cage, as this limits the mechanism.

General handling. It is best to assume that all badgers will bite, however unconscious or sedated they might appear. Baskerville type muzzles (see p3) should be placed carefully before examination of any animal and removed only for a careful examination of the mouth.

Bovine tuberculosis

Badgers, in common with many British mammals, are susceptible to infection with *Mycobacterium bovis* (Bovine TB). In an active TB case bacilli may be shed in badger saliva, urine and faeces and badger bite wounds may be contaminated. Inevitably a small number of clinical TB cases will be seen in veterinary practices, these are usually emaciated animals with other obvious clinical signs such as lymphadenopathy, lung lesions and focal lesions in other body sites such as the growth-plates of the spine or long-bones. Suitable H&S precautions should be taken when handling all badgers, in common with all wildlife. Post-mortem examinations of badgers should never take place in veterinary practices, laboratories with suitable facilities should always be used. A commercial test for *M. bovis* infection in individual badgers (Brock-TB Stat-pak®) is available from AHVLA at Starcross but has limited sensitivity (around 49%). Rescue centres work to a strict protocol for release of badgers to avoid any possible spread of TB to other animals and man. Adult badgers must always be kept isolated in captivity and released at EXACTLY the location in which they were found. Badger cubs must be reared in specialist centres where stringent multiple testing regimes for TB are followed. Further information is available on request.



The Brock-TB Stat-pak® for infection detection in badgers.

First aid and stabilisation

The principles of first aid and stabilisation are exactly the same as for dogs and these have been applied successfully at SWWR for many years. Fluid therapy is easily administered when necessary via the cephalic vein (mild sedation with diazepam at 0.25mg/kg and the use of a Baskerville type muzzle may be necessary to keep i/v lines in place in some cases). Crystalloid fluids (e.g. Hartmann's solution) are commonly used at 'shock' rates, but longer acting colloid preparations such as Hetastarch are particularly useful where appropriate. Analgesia should be provided, and both opioid and non-steroidal drugs have been used without complication at standard dog doses.



Suitable heat provision, where indicated, using incubators (for badger cubs), blankets, insulating materials and heat lamps etc. should be part of the first aid process.

Sedation and anaesthesia

Commonly used intravenous and gaseous anaesthetic drugs have been used in badgers using standard canine doses. By far the easiest method of chemical restraint in most circumstances however, is a combination of medetomidine and ketamine together in the same syringe, given by intramuscular injection. A dose of 5.0-7.5mg/kg of ketamine plus 40µg/kg medetomidine is used. This equates to 0.5ml ketamine (100mg/ml) plus 0.4ml medetomidine (1mg/ml) for an average 10kg adult badger. Animals should ideally be weighed in order to calculate accurate doses. Medetomidine should be reversed as soon as procedures are completed using an equal volume of atipamezole (200µg/kg of 5g/ml solution) given intramuscularly, no adverse ketamine related reactions have been observed by doing this.



Adult female badger sedated for examination

Examination

Once sedated all badgers should be fully examined in the same way as a dog or cat. Clinical examination has been shown to be the best form of assessment, although other diagnostic tools especially radiography are useful. Body condition is a useful way of assessment. Badger nail length is hugely variable between individuals and NOT an indicator of medical problems. Blood profiles can be interpreted using published badger reference ranges (see further information). Many in-house analysers can be used for biochemistry but not haematology. Compared to canine values normal badger amylase levels are usually very low and urea levels are frequently high (associated with pre-renal factors such as eating earth worms and/or dehydration).



Blood samples (left) can easily be collected (from jugular or cephalic veins). Clipping of hair should be kept to a minimum.

Teeth (right) should be examined both to give an approximation of age (molar wear occurs with age) and to look for signs of dental trauma or oral disease.



Reasons for immediate euthanasia

The nature of wildlife casualty work means that only around one third of casualties will survive to be released. Where casualties have injuries or chronic disease making their return to the wild unlikely then euthanasia at the first available opportunity is the preferred course of action in order to avoid unnecessary protracted periods in captivity.

In order to be returned to the wild the animal must be able to function normally for that species. In the case of adult badgers the following conditions would suggest that immediate euthanasia is required:

- Emaciation as a result of chronic disease or advanced dental disease, often these animals also have multiple bite wounds
- Spinal fracture, dislocation or other abnormality
- Pelvic or long-bone fractures requiring internal fixation and/or protracted periods (>6weeks) in captivity.
- Skull fractures
- Clinical signs consistent with *M. bovis* infection
- Blindness and/or bilateral ocular disease
- Evidence of chronic neurological problems



Dislocated lumbar vertebrae (left, red arrow) in a young badger following RTA.



Fractured maxilla and mandible in an adult badger RTA casualty (right). Both cases illustrated were euthanased immediately.

Fractures are not usually treated in adult badgers because of the protracted periods of time these cases must spend in captivity, together with the need to ideally remove implants prior to release. In badger cubs fractures may be repaired, provided good quality care can be obtained, as cubs spend several months in captivity during the rearing process and there is ample time for fracture healing.

Euthanasia is easily carried out using intravenous pentobarbital.

Short-term care

Accommodation. Badgers will easily dig or chew their way through insecure kennels. Stainless steel dog kennels with secure latches are the most suitable accommodation. Shredded paper or blankets are ideal bedding as they allow the badger to hide. The door of the kennel should be covered with a heavy blanket or similar. Badgers should always be kept in isolation and ideally away from all sight, sound and smell of other animals (especially dogs). Sensible hygiene precautions should be taken when handling badger urine and faeces (wear gloves) and between patients.

Feeding. In the short-term wet and dry dog food is a suitable diet. Longer-term, day-old-chicks, fruit, seeds, peanuts etc. can also be provided. Fresh water in a heavy bowl should be available at all times. Badgers frequently do not eat in captivity for many days and anorexia should NOT be taken as an indicator of poor prognosis.

Preventative medication. Routine parasite control is not required in adult animals but may be useful in heavily infested cubs. Prescribing guidelines for dogs should be followed.

Subsequent care and rehabilitation

Veterinary practices are not suitable places for any wildlife species to be kept for protracted periods of time. Once they have received veterinary attention, casualties should be moved as soon as is practical, to a wildlife rescue centre with suitable rehabilitation facilities and experience in dealing with badgers. For assistance with this please contact Secret World Wildlife Rescue (24hrs service) who will either collect the casualty badger or put you in touch with a facility near to you.



Badger cubs at a suitable rehabilitation facility prior to release.

Funding for treatment

Basic first aid treatment should be provided during the day free of charge. Log numbers for the initial emergency treatment of wildlife casualties may be obtained from RSPCA for out of hours work and call-outs to larger species (this is more likely with deer than badgers). Further assistance with funding of treatment in individual cases may be obtained from Secret World Wildlife Rescue on request. Please report any badgers found with tattoos and/or micro-chips to Secret World Wildlife Rescue.

Further information on the veterinary care of badgers and other wildlife:

BSAVA Manual of wildlife casualties (2003), E. Mullineaux, R. Best, J. Cooper (Eds.)

BSAVA publications, Gloucester



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