Journal of Animal Husbandry and Dairy Science
Volume 3, Issue 4, 2019, PP 1-11
ISSN 2637-5354

Veterinary Clinical Diagnostic Guidelines

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ABSTRACT

Animal disease problems have been investigated by veterinarians through undertaking a careful and clinical examination with the objective of recognizing the nature of the affection. So, that effective treatment and control measure is adopted. Clinical examination is one of the fundamental for diagnosing animals which are presented to clinic. Veterinary clinical examination relies on knowledge of Anatomy, Physiology, Pathology and Animal behavior, skills in the methods and techniques of clinical examination, clinical sign and pathogenesis of the diseases which are the basic requirements for clinician in his/her good diagnostic approach. The diseased animals which are presented to veterinary clinic can be analyzed by veterinarian or clinician, the clinician approach through asking the owners complaint, which request for professional assistance by giving animal history. The accurate and complete history of patient may get from focusing on collection of patient data, present, past and environmental history in appropriate to patient animals. The veterinarian can approach to animals by the method of restraining in order to handle in safe condition. Physical examination is the examinations that apply to animals by general inspection, palpation, percussion and auscultation methods used to detect clinical signs of abnormalities. Clinical examination can be undergone by taking vital sign, general clinical examination and systemic examination of animals. In conclusion, the veterinary clinical diagnostic approach is the core and the most important to generate accurate clinical examination, investigation of animal's disease problem and guide how to handle the animals and the methods of restraining of animals. The objective of this review paper is helps to understand and know how the procedure of veterinary clinical diagnostic undergoes and treatment of animals takes place, to guide and give knowledge on systemic and general examination of domestic animals

Keywords: *History taking; Restraint; Physical examination; clinical examination; Adet*

INTRODUCTION

In the investigation of any animal disease problem, the veterinarian must, of necessity, under take a careful and thorough clinical examination with the object of recognizing the nature of the affection, so that effective treatment and, where practicable, control measures are adopted. The situation is rendered complex by the necessity to deal with a variety of species of domestic animals and birds. Increasing specialization on the part of practicing veterinarians will resolve some of the apparent problems thus presented. In general, however, the same principles may be applied in all cases to deal with the diverse difficulties that clinical diagnosis presents.

The organs or systems involved, the location, type of lesion present, the pathophysiological processes occurring and the severity of the disease can be deduced from the information gained during the clinical examination. The success of clinical examination relies heavily on the knowledge of the clinician and usually assumes a single condition is responsible for the

Veterinary clinical examination relies on knowledge of Anatomy, Physiology, Pathology and Animal behavior, skills in the methods and techniques of clinical examination, clinical sign and pathogenesis of the diseases which are the basic requirements for clinician in his/her good diagnostic approach [3]. The diseased animals which are presented to veterinary clinic can be analyzed by veterinarian or clinician, the clinician approach through asking the owners complaint, which request for professional assistance by giving animal history. The clinical examination ideally proceeds through a number of steps. The owner's complaint, the history of the patient, the history of the farm and the signalment of the patient are usually established at the same time by interview with the owner or keeper of the animal [4]. The following points are going to be taken before diagnosing presented animals abnormalities. Many clinicians begin their

examination by performing a general examination which includes a broad search for abnormalities [1,2]. The system or region involved is identified and is then examined in greater detail using either a complete or a problem oriented examination. For this sound knowledge of Anatomy, Physiology, Pathology and Animal behavior, skills in the methods and techniques of clinical examination, knowledge of etiology, clinical sign and pathogenesis of the diseases are the basic requirements for clinician to make diagnosis.

History taking is important for the following reasons

Owner is the first person to notice the illness and he will have noted the clinical symptoms, which will give us some important for the diagnosis

First technique during history taking

- Start by introducing yourself and the usual greetings of the day
- Be polite while asking questions to the owner.
- Use simple language, if possible it is best to speak the language of the owner.
- Be emphasis and try to show that you are concerned about the owner's problem.
- Avoid being rude to the owner, do not be authoritative and shout, and
- Always avoid leading question.
- Be care
- Some owners may give wrong history / information
- To hide their mistakes
- Fear of being scolded for the mistake they committed
- To hide their negligence
- Some owners may be talkative and may talk about what is not relevant to the history
- Some owners may not know anything about the problem.

History (Anamnesis)

History taking or anamnesis is the process of obtaining information on the animal patient about its illness, onset of illness and feeding practice through careful questioning of the owner. Disease problems in veterinary medicine are invariably presented to the clinician through the medium of the owner's complaint, which is a request for professional assistance. This provides the opportunity to obtain all the essential information relating to the circumstances of the immediate disease problem. This procedure is termed 'taking the history' and it is a very important—if not the most important—facet of the whole procedure of clinical examination. By means of appropriate questions, phrased in the minimum of technical terms, the veterinarian must try to obtain from the owner or attendant of the animal all the information that will assist the examination and ensure the accuracy of the diagnosis. When a history is being obtained, allowance should be made for the personality, knowledge and ability of the informant to communicate. Generally speaking, the better educated the person concerned, the more likely it is that only accurate observations will be reported. It is advisable for the clinician to check the validity of the history as related and, when possible, to evaluate and supplement it by making a detailed, systematic examination. An incomplete history can be misleading, and even stock owners themselves may attempt to excuse their neglect to obtain professional help at an earlier stage by grossly understating the length of time the animal has been ill. Whenever possible leading questions should be avoided, and an attempt should be made to establish good rapport by instilling confidence in the person concerned by exhibiting a friendly manner. The confidence of animal owners is most readily gained when the veterinarian is known by repute to provide a prompt and highly efficient service. The ability to obtain a satisfactory history depends upon a thorough knowledge of how animals react to disease, and increases with widening experience. If, at a later stage during the particular clinical examination of the animal, evidence emerges which appears to throw doubt on any aspect of the history, further enquiries should be made in order to clarify the situation. It is not possible to specify all the questions that must be asked in individual cases, but, in general, routine conformity is achieved and all aspects likely to be of significance are covered by applying them under the headings of immediate, past and general history, the latter to include consideration of the environment.

Immediate History

This relates to the sequence of events associated with the period of time that the animal has been ill. It is important to determine the chronological order in which the more important changes in behavior and in physiological functions were observed. Specific questions should therefore be centred on such aspects as appetite for food or drink, defecation, urination, respiration,

sweating, physical activity, milk production, growth, gait, posture, voice, odour, etc. The questions should be designed to ascertain the degree and nature of any departure from normal in any of these functions. When a proportion of a group or flock of animals is affected, a typical case should be selected as a basis for establishing the history. Significant information may be obtained, in this situation, from laboratory examination of specimens from a proportion of the living, affected animals, or autopsy investigations in a few selected cases. Information relating to any preceding surgical, therapeutic or prophylactic procedure such as docking, castration, shearing, vaccination or administration of anthelmintics, parasitic ides or other chemotherapeutic substances may be important. The nature of the disease might be indicated by assessing the morbidity rate (expressed as the proportion of animals clinically affected compared with the total number at risk) and the mortality rate (the proportion of affected animals which die). It is important to realize that a proportion of animals, in a herd or flock affected by disease, may not themselves manifest overt clinical signs; in the majority of such instances productive capacity is impaired. Particularly in those countries where therapeutic substances are freely available for treatment of animals, but also elsewhere, it is essential to determine whether any treatment has, in fact, been given and, if so, the nature and dose of the preparation used. Due allowance must be made for the effect of such treatment in modifying the clinical signs of disease. Many of the therapeutic substances now in common use are capable of producing clinical signs (iatrogenic disease) in animals when they are administered in too large doses or for too long a time. It should be remembered that unless the client is known to him, the veterinarian must satisfy himself that he has not been presented with a case that is already receiving professional attention, thus avoiding supersession.

PAST HISTORY

- This includes the previous history of the animals such as
- Whether the animal/s is/are newly introduced from other sites so that ask the place where the animals came from
- Ask the clients whether such kind of disease was occurred in the surrounding areas before or not
- History of treatment of the animals and the types of drugs used to treat the animals is also very crucial
- Pregnancy of the animals (if its is female)
- Past feeding and watering history and other associated things should be considered in the past history

Management and environmental history

In this case

- History of the surrounding areas associated with whether condition is very essential which includes
- The housing condition of the animals (Intensive, semi-intensive, extensive)
- Presence/absence of ventilation
- The presence/absence of good hygiene
- Nutrition
- Livestock at pasture
- Drinking water
- Feeding methods/practice
- House space, satisfactory ventilation
- Proper management of milking cow and milking machine to avoid udder injury
- Stocking rate/population density
- Presence of marshy/ poor drained areas (associated with different disease for example the presence of snails might be the predisposing factors for different parasite disease/ waterborne diseases
- The presence of wind might be associated with different wind born disease
- The presence /absence of any predisposing factors related with the environmental conditions

Restraint involves limiting the movement of a patient so a medical procedure can be performed. The veterinary assistant will often restrain the patient to increase the ability of the veterinarian and/or technician in completing vital procedures. A calm, rational, self-assured demeanor is required for all members of the staff, as the patient's conduct would be influenced by the attitudes of the handlers. The handler's body language, tone of voice, mental state, eye contact, and physical movements can influence the patient's behavior greatly. In order to adhere to this standard, the veterinary assistant must be well trained and skilled in the art of restraint. Animal patients can harm handlers, and the handler can likewise harm the patient if they are not careful and sufficiently trained. Animal Handling Skills-Professionalism and Safety

- The public watches us to learn how to properly handle animals.
- Being professional means being SAFE and HUMANE.
- Good animal handling skills prevent staff from being injured.
- Good animal handling skills reduce stress for the animal.

Examples of Safe Animal Handling:

- Be aware of the special stressors for animals in the clinic setting.
- The clinic is extremely chaotic for any animal-there are an incredible number of smells and other stimuli and animals are likely to be confused and distressed.
- Many of our patients have lived entirely outdoors and have not been handled or examined before. They may not have any experience on a leash and may panic in response.
- Even the most social animal may exhibit aggression toward other animals, particularly in a strange environment and may redirect to nearby people when over-stimulated.
- Never put your face directly into the face of a dog or cat.
- Do not move in behind or crowd around a dog.
- Concentrate on the animal you are handling without being distracted by other activities.
- NEVER sit on the floor while handling/examining a dog. If the animal becomes aggressive or aroused you will be unable to move away or protect yourself and risk serious facial bites.
- Always be prepared to protect yourself or move awayquickly in the event an animal becomes aggressive unexpectedly.

There are three major types of restraint:

- Psychological – this is the least restrictive type of restraint and would be used in combination with other types of restraint. Using a soft, soothing voice while gently stroking the patient will help calm and sooth them.
- Physical – this is the primary method of restraining an animal and involves using the handler's hands or body along with muzzles, ropes or other equipment.
- Chemical – this method utilizes drugs such as sedatives, tranquilizers and anesthesia to alter the patient's mental state, allowing the animal to stay immobilized and/or without pain, and causing the patient to be cooperative during procedures. Chemical restraint would be used if the patient is particularly difficult to handle, if the patient is in pain, or if the procedure requires stringent stillness such as surgical procedures. The veterinarian will decipher whether or not the patient requires chemical restraint, and will also determine the type, dosage and route of administration of drug.

Restraining Techniques For Ca Ttle

Cattle restraint techniques are designed to divert attention from where you want to treat and prevent kicking and make possible some special procedure

- Nose Lead technique Lift the animal' s head fairly high and pull towards the side opposite that on which you intend to work. Apply pressure on the bridge between the nostrils to cause temporary pain in the sensitive tissues between the nostrils.
- Heads Restraint technique
- Manually grasp the bridge between the nostrils with the thumb and forefinger of one hand and hold it firmly . With the other hand, hold the horn rear.
- Ear twitch technique
- Ear twitches are easy to makeand are very effective. On a one foot length of a strong bar tie the lose end of 1.5 feet length of soft rope. Apply and twist the twitch on the ear lobe carefully and firmly to exact little pressure on the ear lobe. Apply enough pressure only to elicit pain that can divert the animal's attention. Always treat the ear lobe with caution so as not to damage the ear cartilage
- Milking Hopples technique
- Hock twitch is the milkers delight. It prevents a cow from raising the rear legs and thus prevents kicking. It is simple and effective. Get a rope made of heavy cotton between 18-22 inches around the hind legs just above the hock joint crossing between the two legs. A strong stick or piece about a foot long is put through the eye by turning the stick, the rope is twisted until it binds the legs tightly and presses the tendon down

- Legs raising technique
- First apply a nose lead. Grasp the legs at the pastern with the left hand, With the left shoulder push the cow' s flank to shift her leg to the other near legs, at the same time raise the rear leg.
- T ail restraining technique

Restraint using the tail; Rough handling easily breaks the tail. The best method is to "jack" the tail, which will distract cattle from painful procedures. In order to do the jacking, place the animal in a chute or stanchion with the base of tail seized by both hands so that it is turned upwards and forwards. Procedures such as rectal and vaginal examination, coccygeal venipuncture and udder examination are best done with the tail twitch.

Tail tying: To prevent cows from swinging their tail into your face, and even spraying dirt on the surgical site with the switch or obstructing your view when working on the hindquarters, you can tie the tail using the method described for the horse tail tie.

Raising of the fore leg: This can be done by hand in the same way as in the horse. The fore leg can also be raised using a rope attached to the fetlock or metacarpus, passed over the withers and held on the other side of the animal by an assistant or tied to an overhead beam.

Restraints of the equine: Equipment used for restraint and handling should be effective without causing stress to the horse and should be designed for maximum safety of the handler and horse. A horse should be approached from the front and slightly to the left (near) side because they are accustomed to being handled on that side. They become nervous when handled from the right side [5]. Any restraint method used to assist normal management or treatment of the horse should be the most mild and effective method available, and should be applied for the minimum amount of time necessary to carry out the task. A halter and lead rope is the most common form of restraint. Generally, the safest knots are those that can be quickly untied even if the horse has pulled on it. When used by knowledgeable handlers, other acceptable forms of restraint include hobbles, twitches, lead chains, stocks and chutes. Tethering is a form of restraint that brings a high risk of injury to horses unless used correctly. For the purpose of this Code, tethering means attaching a long rope or chain to the halter or leg hobble so the horse can graze. Tethering does not refer to tie stalls or briefly tying a horse to a fixed object [6]

Restraint using a crush: A crush can be used to restrain many animals at a go. It can be constructed of posts or planks or steel tubing. However, the internal surface should be free of sharp edges or projections that can injure the animal. So, it should comprise of an assembly area with a funnel ending in a closed pen with the final run being just wide enough for one animal and sufficiently high enough to prevent it from jumping. Backward movement is prevented by a transverse bar inserted just behind the animal [7]

Restraint of sheep and goat: Sheep have an intense instinct to remain with the flock and as such, it is best to handle them as a flock initially before isolating the animal you want to perform certain procedures on. When disturbed, they will stamp their front feet and will use the head to attack. Hence, always work gently, calmly and with assurance around them. Sheep have very fragile bones that can easily be broken and heavily woolled sheep may become hyperthermined if chased around [7]

Capturing a sheep: The sheep can be captured by driving the flock into a small pen or enclosure and then approach an individual animal slowly. Swing your arm around the neck and front quarters and quickly wrap your other hand around the hindquarters or grasp the tail if present.

Shepherds crook: Hook a rear leg at the hock, quickly immobilizes sheep as above.

Halters: Can be used but remember sheep have a short nose and should be careful not to block the nostrils.

Restraint of goat: Goats do not tolerate rough treatment and will struggle violently if not properly handled. Therefore, restraint time should be as short as it is necessarily possible

Walls and fences: Push the goat against the fence or wall with your legs and hip and leave your hands free for other procedures. You can also push the hindquarters against a wall and then put your hand around the neck to keep it still for temperature taking or injection.

Restraint on lateral recumbency: The goat is placed parallel to your legs; the jaws are grasped with one hand while the inside rear leg is grasped with the other hand. Bring the leg forwards. The goat will be thrown off balance and fall on the ground.

Restraint of the Head: This is best when the goat is pushed in a corner and the body held against a wall. Procedure: Grasp the beard (if bearded) with one hand and encircle the neck with the other arm to stabilize the head. Use of horns: This should only be for a short time as goats react violently when horns are held. Moreover, horns should not be used in very old goats as they break easily.

Cheek hold: Place one hand on either side of the cheeks and wrap fingers around the mandibles to hold firmly. You can examine the eyes or take blood from the jugular.

Collars: Leather collar or neck chain can be used in dairy goats to lead or restrain them. They may be temporary or permanent (collars). Neck chains should be made of small, flat links, which don't catch easily as the goat rubs against a fence

Chemical Restraint of Animals

Chemical restraint may be defined as the use of drugs to bring about sedation or neurolepsis, neuroleptanalgesia, neuroleptanaesthesia or short duration general anaesthesia. This is a reversible process whose purpose is to produce convenient, safe, effective and inexpensive means of restraint so that clinical procedures may be carried out with minimum of stress, pain, discomfort, and toxic effects to the patient, the anaesthetist or the clinician.

Indications for chemical restraint

Chemical restraint of animals is required to facilitate the following among other things:

- Radiography;
- Cleaning, grooming and dental prophylaxis;
- Sample collection, bandaging, splinting, and cast application;
- Capture of exotic and wild animals;
- Transportation;
- Manipulation of patients including catheterisation, endoscopy, closed reduction of luxations or fractures, wound care and obstetrics;
- Smooth induction and maintenance of general anaesthesia and ensure a quiet and uneventful recovery.

Terms

Analgesia: Means loss of sensitivity to pain.

Anaesthesia: Total loss of sensation in a body part or in the whole body, generally induced by a drug that depresses the activity of nervous tissue either locally or generally.

Local anaesthesia: Analgesia limited to a local area. Insensitivity (anaesthesia) to painful stimuli (analgesia), heat, pressure and other peripheral sensations achieved through selective blocking of structures of the peripheral nervous system without affecting functions of the CNS.

Regional anaesthesia: Analgesia limited to a local area, generally an extremity.

General anaesthesia: A state of unconsciousness produced by a process of controlled, progressive and reversible drug-induced intoxication of the central nervous system (CNS) in which the patient neither perceives nor recalls noxious stimuli. This ideally includes hypnosis, hyporeflexia, analgesia, and muscle relaxation.

Hypnosis: Artificially-induced sleep or a trance resembling sleep from which a patient can be aroused by stimuli.

Narcosis: Drug-induced stupor or sedation in which the patient is oblivious to pain, with or without hypnosis.

Neuroleptanalgesia: Hypnosis and analgesia produced by a combination of a neuroleptic (ataractic) drug and an analgesic.

Sedation: Mild degree of CNS depression in which the patient is awake but calm and from which a patient can be aroused with sufficient stimuli. Sedatives produce a dose-dependent depression Restraint of Domestic and Laboratory Animals of the cerebral cortex. The term sedation is often used interchangeably with tranquilization.

Tranquilization; ataraxia; neurolepsis: A state of tranquility and calmness in which the patient is relaxed, awake, and unconcerned with its surroundings and potentially indifferent to minor pain. With sufficient stimulation, a patient can be aroused from this state. Tranquillizers act by depressing the hypothalamus and the reticular activating system.

(Acepromazine (Acp), Xylazine, Pentobarbitone, =Diazepam (Valium…..)

Physical Examination Methods

General inspection: It is done some distance away from the animal; sometimes go round the animal or herd/flock, in order to get the general impression about the case •Attention should be paid to the following items: (Behavior, Appetite,

Defecation, Urination, Pasture, Gait, Body condition, Body conformation)

Lesions on outer surface of the body can be observed: (Skin and coat, Nose, Mouth, Eyes, Legs and hoofs, Anus)

Palpation: To detect the presence of pain in a tissue by noting increased sensitivity

Method: Use fingers, palm, back of the hand, and fist, in order to get the information about the variation in size, shape, consistency and temperature of body parts and lesions, e.g., the superficial lymph nodes.

The terms, which can be used to describe the consistency of parts during palpation, are:

- Resilient, when a structure quickly resumes its normal shape after the application of pressure has ceased (e.g., Normal rumen)
- Doughy, when pressure causes pit ting as in edema
- Firm, when the resistance to pressure is similar to that of the normal liver (e.g., neoplasia/tumor)
- Hard, when the structure possesses bone-like consistency (e.g. Actinomycotic lesion)
- Fluctuating, when a wave-like movement is produced in a structure by the application of alternate pressure (e.g., hernia, hemorrhage/ hematoma)
- Emphysematous, when the structure is swollen and yields on pressure with the production of a crepitating or crackling sound (e.g., Black leg)

Percussion: To obtain information about the condition of the surrounding tissues and, more particularly, the deeper lying parts. Percussion can examine the area of the subcutaneous emphysema, lungs, rumen and rump

Method: By means of striking a part of the body to be percussed

The quality of the sounds produced by percussion is classified as:

Resonant: which is characteristic of the sound emitted by air containing organs, such as the lungs?

Tympanic: The sound produced by striking a hollow organ containing gas under pressure, e.g., tympanic rumen or caecum.

Dull: Sound emitted by a solid organ like the liver or heart

Auscultation: To listen the sounds produced by the functional activity of an organ located within a part of the body. This method used to examine the lung, trachea, heart and certain parts of the alimentary tract.

Routine for Clinical Examination of the Patient

- The examination of the patient should include investigation of all organs or tissue.
- Examination should follow a routine pattern, the order of personal choice.

General Examination Including General Inspection

2. Regional or systemic examination

General clinical examination, including general inspection

- Distinguishing marks ,Physical conditions ,General appearance and characteristics ,Posture, Gait(walking style), Abnormal behavior, Body temperature, Pulse, Respiration

Regional or systemic examination

- Coat and skin ,Head and neck, Thorax, Abdomen, Urinary system, Reproductive system, Blood and blood forming organs, Nervous system, Musculoskeletal system

Diagnosis and Sample

Hematology

Blood sample Collection site

Site: The following lists of veins are the most appropriate blood collection sites from different species of veterinary importance

Jugular vein- the most commonly used site in the horse, cattle, sheep, goat, camel and large wild mammals: used occasionally in small animals. Vacutainer tube, vacutainer needle, syringe, needle, needle holder, and disinfectant should be used for blood sample

Cephalic vein - The most commonly used site for collection of small amount of blood in the dog. By constricting the area on the dorsal aspects of the fore limb at the level of the elbow which can be raised beginning just above the carpal vein.

Ear vein- can be used in small dog, pig, cat and small lab animals (small dog, rabbit, guinea pig, and monkey).

Toe or Toe nail – can be used in small dog, puppy, guinea pig etc

Tail – can be used in pig, cattle, sheep, rat, and mouse

Heart – may be used in animals like bird, fish, and others

Femoral or Tibial vessels – used in dog, cat, small mammals, rat etc

Mammary vein – used for dairy cattle

The vein appears at the anterior border of the mammary gland lateral from the line a Alba and runs forward passing through a foramen in the abdominal wall posterior to ribs

Vacutainer Tubes

- Red-stopper tubes – are for tests requiring clotted blood
- Lavender stopper tubes – contain EDTA in concentrated liquid or desiccated powder form
- Green stopper tubes – contain heparin and are used for blood gases, PH, (CO2, O2)….
- Gray stopper tubes – contain oxalates, fluorides, or citrates
- Yellow stopper tubes – available with Acid Citrate Dextrose (ACD) solution or physiological saline solution

Dehorning

Dehorning/disbudding means the arrest of horn growth at an early age when the horn button is in the form of a 'bud'. The main reason for dehorning, of course, is to eliminate the risk of injury to other animals in the herd or to people working with buffaloes/cows. Dehorning can be carried out upto one month's age in calves. Dehorning calves under thirty days of age with a commercial electric dehorning iron is currently the most popular method in several countries. The caustic potash (or caustic soda) stick method is equally satisfactory. It is inexpensive, easy to do and does a neat job. For better results, caustic potash stick may be used when the calf is three to ten days old.

Procedure

The calf is held securely and hair is clipped from around the buttons. The region of each horn bud is rubbed with a piece of cotton wool soaked in surgical spirit to defeat the skin, since fat lessens the action of the caustic. Surround the area with a ring of grease or vaseline to protect the eyes against the chemical. The stick of caustic is wetted and briskly rubbed over the buttons until blood appears, protecting the hands while doing so. In 24 to 30 hours, a scar of dead tissue is seen and this gradually sloughs off and if properly done no horn tissue is left. In a few cases, a second application two or three days after the first is required to any horn cells that have not been killed and show no scar from the first application. The hot-iron method of dehorning consists of the application of a specially designed hot iron to the horns of young calves. The use of electric hot-iron is preferable since it keeps an even temperature without getting too hot or too cold. For older calves, yearling heifers and in milk animals, the veterinarian will anaesthetize the area around base of horns and remove the horns with minimal bleeding and discomfort to the animal. However, the appearance of the poll will be less attractive in those animals which are dehorned at advanced ages.

Removing Extra Teats

Calves may be born with more than four teats. Usually the extra teats are located posterior to one or both rear teats but they may occur between the front and rear teats on one or both sides of the calf's udder. Since extra teats detract from the appearance of the udder and may interfere with milking, they should be removed at one to two months of age. In most cases a careful and keen herdsman can do it himself.

Procedure

- The calf is made to lie on its side and the hind-leg is drawn forward.
- The udder should be wiped clean with an antiseptic solution.
- Place the fingers of one hand under a fold of skin below the extra teat and gently remove the teat using a pair of curved, sharp and disinfected scissors.
- If necessary, trim the area around the base of teat and apply tincture of iodine.
- When this minor operation is performed properly, there will bevery little bleeding which can be stopped by holding a cotton pack over the wound for a few minutes.
- In case there is a double teat or the base of the extra teat is close to the base of the normal teat, it is recommended that a veterinarian be consulted for performing the operation.

Trimming The Feet

Such animals that are mostly kept in confinement and not provided adequate exercise

often grow long hoofs. This condition is not only unsightly but may also render the animal unable to stand squarely or walk properly. Excessively grown hoofs also bring on various other foot troubles such as foul foot and foot rot. The hoofs should be periodically trimmed otherwise these will break off or disfigure the animal's feet. Hoofs of young animals can be trimmed with a long handled chisel while standing on a hard ground or plank floor. For trimming sole and cleft, large animals need to be well restrained. A pair of pincers-like the one used in shoeing horses is a handy implement for clipping off the toe of the hoofer it can be sawed off with a fine-tooth saw. A shoeing knife can be used to trim the sole and dead hoof, and then a rasp may be used to smooth down the surface. The dewclaws, if grown excessively long, should also be trimmed off fairly close.

Castrating Calves And Lambs

Castration means the process of rendering the animal ineffective for breeding. Unless required for breeding purposes, male calves, ram lambs and buck kids should be castrated early in life; the best age is 8 to 10 weeks for calves and one to two weeks for lambs and kids. The main reasons for castrating are to make the animal docile, to produce more desirable carcass and to increase body weight gain. A number of methods are in use. Castration may be done with a knife, a Burdizzo or an elastrator. Since it is preferable to use bloodless methods, there for, details of only such methods are given below:

Burdizzo Castrator

It has been named after its inventor, Dr. Burdizzo (an Italian). In using this method it is important that the cord does not slip out, that only one cord is clamped at a time and that there should be no interference with the circulation of blood. The testicles are made functionless through destroying their channels of nourishment. Complete atrophy of the testicles follows in about six weeks.

Procedure

Make the animal lie down on its side. Make sure that the place is properly bedded. Control the head and legs of the animal and work the cord to the side of the scrotum. Clamp the Burdizzo about 4 cm above the testicles where it is held for a few seconds. As a precaution repeats this operation on the same cord at a location about ½ to 1 cm removed from the first one. Repeat the same procedure on the other testicle.

Elastrator

The elastrator is an instrument employed to stretch tight rubber-bands used for castrating and docking of animals. The band fits tightly around the scrotum/tail. The circulation is shut off and the testicles/tail gradually dry/dries and drop(s) off.

Procedure

Hold the animal in either a sitting or lying position. Set the specially designed rubber band (ring) on the jaws of the elastrator. Stretch the band sufficiently so that both the testicles can be pressed through it, releasing it there at the base of the scrotum near the abdomen. Within a week or so the process of castration is completed. Watch for extraordinary swelling/wound and fly strike.

Docking

Docking means removal of tail. Although it is a useful practice and is carried out in several countries having developed sheep industry, yet so far it is not in vogue in this country. In large animals such as buffalo and cattle, docking is not normally practiced unless tail becomes diseased or seriously wounded. The chief reasons for docking lambs are:

- Docked lambs are cleaner.
- Long and fat tails interfere with breeding ewes.
- Docked lambs and sheep present a rather blocky appearance.
- The dressed carcass has a more attractive appearance.
- The following methods are used for docking lambs:
- The use of a knife
- The use of a hot iron
- The use of an elastrator

Procedure

The use of an elastrator is not only simple but it also constitutes a bloodless method. The principle involved in its application has been discussed earlier under castration. Lambs to be docked should be 7 to14 days old. The animal is held in a sitting position. A specially made rubber ring is stretched by setting it over the jaws of the elastrator and placed around the base of the tail. The rubber ring cuts off the blood supply and atrophy follows. Within about two

weeks the tail drops off. Docking of lambs having fat-tails has been successfully achieved. It is, however, recommended that steps should be taken to develop such sheep breeds in which fat-tail has been eliminated.

Preparation and Administration of Medicaments

Drug Dosage Form

Oral dosage forms: Refers to administration of drug through the mouth. The most commonly used preparations are solid oral dosage forms such as tablets, capsules, granules, powder, paste and boluses etc.

Parentral dosage forms: the most common parentral dosage forms are stable aqueous solutions and subcutaneous implants.

External Dosage Forms

- Ointment- semisolid preparation for external application.
- Cream- a viscous semisolid, consisting of oil in water emulsion or water in oil emulsion.
- Dusting powder e.g., popular antibacterial agent applied on animal wounds.
- Lotion- an aqueous solution or suspension for local application.

Spray-a drug applied in liquid form by pressure.

Inhalation dosage forms: gaseous and volatile liquid anaesthetic agent (drugs), given by inhalation, e.g., Halothane

Routes of Drug Administration

Oral administration: There are large numbers of pharmaceutical preparations available for oral administration. Solid dosage forms (powders, tablet, capsules, pills, etc.) and liquid dosage forms (syrups, emulsion, mixture, drench, electrolytes, etc.)

Parenteral administration (IV, IM, SC, Id, epidural, subconjunctival): It refers to a drug administration by injection directly in to the tissue fluid or blood without having to cross the intestinal mucosa.

Intravenous route (IV): Gives swift, effective and highly predictable blood concentration and allows rapid modification of dose and is used for emergency treatment. In most animals (horse, cattle, sheep and goat) usually given through jugular vein, in pig-ear veins, in the dog and cat cephalic vein and recurrent tarsal vein.

Intramuscular (IM) route: Absorption occurs either haematogenous or via lymphatic and is usually fairly rapid except for long acting preparation.

Subcutaneous (SC) route: Preferred when slow and continuous absorption of drug is required. The injected drug disperses through the loose connective tissues. They dissolve in tissue fluid before it can enter either capillaries or lymphatic.

Intradernal route (ID): Used for testing hypersensitivity test and for vaccination.

Epidural route: Refers to deposition of drug up on or outside the dura matter.

E.g., Introduction of local anesthetics between the first and second coccygeal vertebra to eliminate straining

Sub conjunctival: Disposition of a pharmaceutical preparation beneath the conjunctiva. Topical or local application: It refers to external application of drug to the body surface for localized action at accessible site, such as skin, eyes, body orifices, body cavity.

Drug dose calculation

Dose is the quantity of the drug to be administered at one time and expressed in mg/kg or IU/kg.

Body weight Dose Rate Dose= Concentration

E.g., A 10 kg dog needs an antibiotic at a dose of 15 mg/kg. The antibiotic comes in liquid form at concentration of 25 mg/ml how many ml do you give?

Solution:

Dose=10kg x 15mg /kg=6ml

25mg /ml

Conclusion

Veterinary clinical examination relies on knowledge of Anatomy, Physiology, Pathology and Animal behavior, skills in the methods and techniques of clinical examination, clinical sign and pathogenesis of the diseases which are the basic requirements for clinician in his/her good diagnostic approach. The diseased animals which are presented to veterinary clinic can be analyzed by veterinarian or clinician, the clinician approach through asking the owners complaint, which request for professional assistance by giving animal history. The accurate and complete history of patient may get from focusing on collection of patient data, present, past and environmental history in appropriate to patient animals. The veterinary

clinical diagnostic approach is the core and the most important to generate accurate clinical examination, investigation of animal's disease problem and guide how to handle the animals and the methods of restraining of animals.

ACKNOWLEDGEMENT

First and for most, blessed be my heavenly father, God, who helped, lead and strengthen me for providing this opportunity and granting me the capability to proceed successfully

I would like to express my heartfelt thanks to all my friends for their moral support, edition and comment during this paper preparation.

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Citation: *Birhanu Tamirat Admasu (DVM),''Veterinary Clinical Diagnostic Guidelines", Journal of Animal Husbandry and Dairy Science, 3(4), 2019, pp 1-11*