
The common diseases of goat, their symptoms, treatment, and methods used in Sindh-Pakistan.

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Introduction.

The goat suffers with various disease, which are caused by bacteria, viruses, parasites and other non-infectious agents. The diagnosis of the goat diseases not only based on the clinical symptoms is most difficult, as many diseases reassemble one another. The important clinical symptoms of common diseases have been given, only to help the farmers to detect the sick goat at the earliest. Treatment is not complete and many drugs may cause toxicity, in cases of the serious disease problem of the goat. The farmers may take some steps, as recommended, to prevent further deterioration in the condition of animal, till it is brought under the supervision of goat health specialist. It is observed that the seriousness can be prevented or minimised if timely preventive health care has been adopted in goat farming.

Common diseases of goats are explain as under:

Abortion.

Mostly occur from 6-8 weeks of pregnancy, veterinary treatment is needed to control infertility. This could be occurs due to drinking water contain salmonella typhimurium. Abortion can occur in goat fed on rich clover or trefoil.

Acetonemia.

Is also called Ketosis. This metabolic imbalance caused due to goat fed large quantities of concentrated food.

Anaemia.

Anaemia covers groups of conditions characterised by paleness of skin and membrane. Symptoms can be seen nictitating membrane of the eyes, mucous membrane of the mouth, skin around the udder and valve. Treatment can be done by the use of iron injection 5ml Dexavin (Pfizer) or Ferrofax (Duphar).

Rinderpest.

Clinical symptoms: There is mild thermal reaction and diarrhoea. Ulcerative lesions appeared on inside the lower tip and gums.

Preventive care: Tissue culture rinderpest vaccine S/C could be used in pocket of infection.

Anorexia.

It is a loss of appetite it could be voluntary Anorexia or Pathological Anorexia.

Arthritis.

In goat kids it may be Navel infection arthritis caused by corynebacterium pyogenis, streptococci, staphylococci, while non-suppurative arthritis is by birth, caused due to deficiency of vitamins and minerals.

In old age, swollen joints from mycoplasmosis, occurs at 3-4 weeks of age.

Anthrax (Bacillus anthracis).

Clinical symptoms: Sudden high temperatures (108°F), loss of appetite, sudden death, in less peracute form, goat may live for a day and develop bloody diarrhoea.

Preventive care: Keep the affected animal separate. Annual vaccination of goats in endemic area is recommended. Massive doses of penicillin 1/M may response in goat.

Bronchitis.

This occur due to lung worm infection or the feed place in drum, some time goat gets irritation and bronchitis that can be controlled by dampening the mixture with water or molasses water, this way dust in the feed will be reduced. Chronic coughing also occurs in mycoplasmosis.

Brucellosis (Brucella organisms).

Clinical symptoms: Abortion in late pregnancy is the feature of the disease, retention of placenta and metritis are common. In male goat, infertility, orchitis and swollen joints are seen.

Preventive care: Goats should be tested for brucellosis and isolated or cull the positive animals.

Big-head.

This occurs when goat heavily infested with worm, pale of mucous membrane, along with protruding nictating membrane and scouring, swollen head with Jaundice is seen in leptospirosis, but the mucous membrane Jaundice often seen with yellow serum exudes from facial skin.

Bloat.

This bloat occurs due to use of Lucerne hay, so goat becomes distressed, stamps its feet, bleats, urinate frequently, walk with stilted action. To prevent bloat, always use dry hay or dry pasture when ever feeding fresh legumes. Goat feed should be prepared by the combination of dry pasture with leaves of legumes. To avoid bloat, peanut oil sprinkled on feed is always helpful.

Cystitis.

Symptoms: It is an inflammation of urinary bladder, which show swelling of vulva, staining of perineum, frequent straining with small amount of urine, pus and blood in the urine, also show depression, anorexia and excessive thirst.

Treatment: With antibiotic plus use of 2 litre of warm water 1 spoon of hibitane or Dettol.

Contagious Ecthyma.

Clinical symptoms: Pustular and scabby lesions develop on the muzzle and lips. Bronchopneumonia and gastroenteritis have been observed in goat kids. Morbidity rate is very high 50-60%, but mortality rate may be 5% in goat kids.

Preventive care: To check the spread, infected goat kids should be isolated. The lesions should be treated with antiseptic drugs. In generalised or systemic infection antibiotic should be given to prevent secondary bacterial complication.

Collibacillosis/collisopticaemia (E. coli).

Clinical symptoms: Goat kids under one month of age are commonly affected. Important symptoms are fever, diarrhoea or dysentery. Loss of appetite, dryness of hair and skin coat in later stages temperature became subnormal.

Preventive care: Rectal swabs to have E. coli and sensitivity test depending upon sensitivity, dose all newly born goat kids with a specific antibiotic. Darzin with neomycin chloromycetin, Septran and quixalin bolus etc., are commonly used.

Chlamydiosis.

Clinical symptoms: Pneumonia, sometimes diarrhoea is present in goats. The pregnant goats may also abort in early stage of gestation. In young goat kids arthritis is developed.

Preventive care: Treatment with penicillin is effective.

Cheesy gland.

It also called yolk boils, its scientific name is Caseous lymphadenitis is caused by the bacterium coryne and bacterium pseudotuberculosis. This bacterium causes the abscesses are boils usually visible as swollen lumps under the jaw or on the neck. In goats, the head is most commonly affected, so the most likely point of entry of this infection is through abrasions on the head or in the mouth. For treatment five different brands of cheesy-gland vaccines are available: Glanvac, cheesyvax, cydectin, Eweguard, Guardian and Websters 6-in-1.

Coccidiosis.

Clinical symptoms: Diarrhoea, anaemia, weakness and death have seen in coccidiosis of goat kids, in old animal milk production is reduced with foetid smell, develops.

Preventive care: Faecal Examination is needed. Sulphamezathine or sulphadimidine 0.2 gm/kg body weight. Amprosol 20% solution 100 mg/kg body weight 4-5 days are effective or zoaquin (May and Baker).

Dermatitis.

It could be many types, severity and symptoms depends on the cause and sites affected like:

- I. Labial dermatitis: This occur due to remains of milk residue around the mouth of pan-fed goat kids, skin becomes hard, cracked, leave disfigured area. Treated with Betnovate cream (Glaxo) or gell, correct the situation.
- II. Labial and interdigital dermatitis: This developed after eating plants like, nettles, ragwort azaleas or may be due to Tromboild spesces mites attacks. Lanoline and petroleum jelly helps, in case of mites Malathion 0.5% spray will helps.
- III. Pustular dermatitis: This occurs on the teats and udder so udder covered with pus-filled eruption of staphylococcus aureus, it is treated by Phisohex which will break the pustules, clean with dettol, also Betamethasone cream helps to heal the damage skin.
- IV. Allergic dermatitis: This happen due to mosquito or wasps bites to the skin area like udder and vulva. Treatment with protective cream application.
- V. Mange mite: Demodex and psoroptes results into intense itchy dermatitis. Treated with malathion and diazinon 10:1 as 1% solution.

Eye conditions.

- I. Blepharitis: In this case inflammation of the eye lids have seen , with continual ocular discharge, eye should be washed with sodium sulphacetamid 2% solution, twice a day. Blepharitis occur with entropion, that is a hereditary defect, it can be cured by survey.
- II. Conjunctivits: This situation occur due to foreign body like seeds, grass, thorns touch the cornea, which become swollen and reddish. This can easily be cure by washing the eye with normal saline solution (1 level teaspoon of salt plus 600ml of worm water).
- III. Pink-eye. Is a contagious ophthalmia, animals affected by mycoplasmosis, then ocular discharge also be seen. First eyes are washed with saline water, then treatment with 2% sodium sulphacetamide or Terramycin aerosol drops used in large herds. Individual animal is given Gentamycin drops, 2 drops twice a day.

Dysentery.

This show presence of blood diarrhoea, it may be a symptom of enterotoxaemia coccidiosis and some plant poisoning.

Enterotoxaemia.

Is caused by toxin of clostridium perfringens type D.

Clinical symptoms: Severe pain in the abdominal region, excitement, kids jump in the air and fell down, and sudden death is there.

Preventive care: Kids of 3 months are should be vaccinated with 2.5 ml vaccine S/C and repeated after 14 days. Annual vaccination is required or sulphaguanidine tablets, 2-3 hours, total 30 tablets, plus 5ml chlorodyne for a hours.

Food and Mouth Diseases Virus (O, A, C and Asia one type).

Clinical symptoms: This disease have shown mild effect in adult goats. Vesicles on the tongue, lips, checks, gums, dental pad and on the skin between claws, occasional blisters on teats and under. Lameness is also seen in adult goats, Deaths have been observed in young goat kids.

Preventive care: Isolate the sick goats and vaccinate the herd at the face of outbreak. Wash the mouth of infected goat with mild disinfectants like Alum, Potassium permanganate. Apply boroglycerine on the ulcers.

Foot rot in goat.

Foot rot is a contagious disease, caused by a mix of different bacteria with the essential one being *Dichelobacter nodosus*. There are two main forms of foot rot - virulent and benign, they are caused by different strains of the bacterium *Dichelobacter nodosus*. The bacterial infection cause varying degree of damage to the horn of the foot, leading to lameness and significant loss of body weight. The foot rot disease are two types, benign and virulent. Both have been started as inflammations seen as moisture, reddening and loss of hair between the toes. This disease is checked by the gelatin gel test (protease) measure the activity of enzyme protease, which are help to destroy the soft horn and tissue of the hoof.

Type of foot rots

- Benign foot rot (U strains including mild U5 strains).
- Virulent foot rot (mild "S" strain also hot U5 strains).
- Virulent foot rot (more virulent "S" strains).

Ectoparasitic infestations (Ticks, Sucking lice).

Clinical symptoms: This disease cause irritation, also helps in transmit of many diseases, causes anaemia and poor health.

Treatment: Cythion at monthly interval or whenever needed. Seven dust 5% is also used for lice.

Goat Pox.

Clinical symptoms: Slight fever, congested area and vesicles, appear on ear, nose and udder. After vesicles containing pus, dry crust are formed. In goat kids, high temperature is seen, but death occurs before development of skin lesions.

Preventive care: Isolate the sick goat and daily washing the lesions with hydrogen peroxide dilute with equal part of warm water followed by antibiotic cream. Milkers hand scrubbed in non-irritant antiseptic solution.

Haemorrhagic Septicaemia (P. multocida).

Clinical symptoms: High fever, difficulty in respiration, coughing and sudden death may occur.

Preventive care: Vaccination with H.S. Adjuvant vaccine is recommended before onset of rains.

Heat stress.

In Sindh normal temperature in the day during summer month reach up-to 55°C, while goat normal temperature is 39-40°C. The high heat stress cause stroke and death of animal.

Hypocalcaemia.

This also called 'milk fever', this occur the day following kidding, affected goats are unable to stand, breath slowly with force, fall into comma, may die unless treated with injection of calcium barogluconate with magnesium sulphate -60ml has to be given to the goat.

Hoof trimming.

It is necessary, otherwise hooves grow to any shape, which brings extra pressure on leg ligaments and tendons which cause pain and distortion. This cause difficulty in walking, if the portion of hooves curled, then outer horn may accumulate mud and dung, which results into putrefication and foot-rot. Always maintain correct proportion of toe to heel on the ground. This varies in the front and hind feet. Hooves should be trimmed every 3 months.

Hydrocyanic Acid (Jawar, Baru).

Clinical symptoms: Nervous symptoms and sudden death of the goat.

Preventive care: Blood is bright red in colour, Sodium thiosulphate 2 gm in 15 ml of water s/cut and sodium nitrite 1 gm are to be given.

Indigestion.

It could be occur due to eating of azaleas, mangrove in flowers and fodder sprayed with insecticides. The indigestion result into loss of appetite, excrete flinty or small dropping, goat became lethargic. This need Epsom salts like 120g, 80g, 60g and 30g on successive days. Heavy doze of magnesium carbonate 30g daily or Mylata 120g, three times a day used to neutralise excessive fermentation. New and fresh food should be given along with a mineral tonics like Ferri -Phos- Co (Parrishes food), and Metatone (Park Davis) 30ml twice a day to restore appetite. Clove tea (use 12 cloves in 500ml of water, boil for 10 times, when cool divide into three parts) use as 3 times a day help to restore appetite.

In case of anaemia after illness, then use 5ml concentrated iron (Dexavin - Pfizer) or FerroFax 2ml Parentrovite (mixed) 1ml. Vitamin B12 for 3 days.

Johne's Disease (M. Paratuberculosis).

Clinical symptoms: The symptoms are goats show loss of body weight, weakness and emaciation. Frequent diarrhoea in some adult goats also be reported . The clinical disease observed after 1-2 years of age in goats.

Preventive care: Consultant the goat health specialist for testing of your goats. Segregate and cull the positive goat. There is no reliable test to detect J. D. in very initial stages.

Insecticides (Aldrin, Endrin Chlordane and Dieldrin).

Clinical symptoms: Uneasiness, dizziness and tremors, convulsions. Death occurs due to respiratory arrest during coma are the important symptoms.

Preventive care: A saline purgative may be given. To control convulsion Phenobarbital or Iargactil may be given. Calcium gluconate 10% may be given 1/V followed by antidote.

Liver Fluke (Faciola gigantica).

Clinical symptoms: Diarrhoea, emaciation and oedema of throat, are commonly observed.

Preventive care: Faecal examination is essential. ZaniI (ICI) @ 10-15 mg/kg body weight and Distodin 20 mg/kg body weight are effective.

Mycoplasmosis (M. agalactiae, M. capri, M. capricollum).

Clinical symptoms: The goat develops high rise in temperature along with respiratory trouble. In some cases arthritis, mastitis in lactating goats have been reported...

Preventive care: Treatment of affected goats with tylosin or erythromycin was found to be effective in early stage. Oxtetracyclin was also effective in reducing severity of disease.

Mastitis (Staphylococci, streptococci, E. coli, Mycoplasma agalactiae, M. arginini, Yeast and Fungi).

Clinical symptoms: Fever in acute mastitis, udder is enlarged, hot painful, milk become watery, inconsistency often with flakes of blood, udder become hard, milk secretion very much reduced. In M. agalactiae, the affected quarter become atrophic or agalactic.

Preventive care: After washing with KMnO₄ solution, this solution, remove the milk carefully from the affected quarter. Introduce antibiotic 1/mammary infusion, leave for 24 hours and repeat for 3 days. But goat should be tested regularly to detect sub-clinical mastitis.

Mastitis.

It is an inflammation of udder tissues it divided into acute infection, chronic infectious and miscellaneous causes.

- I. Acute infection: Udder become swollen, hot, tense, milk become watery or blood-stained, may contain clots or pus. Antibiotic injection is used to cure the situation.
- II. Chronic infection: The systems are milk become sours soon, curdles, unpleasant, it need Rapid - Mastitis Test, it need treatment of terramycin, orbenin L/A or aureomycin, avoid to use chlora mpehncal because it reduces the milk production.

Melioidosis.

Is caused by bacterium *Pseudomonas pseudomallei* (*Malleomyces pseudomallei*), found in soil and surface water, it affects goat through ingestion, cut or wounds, biting insects, this bacterium infects lungs, spleen, lymph nodes and then legs. This disease is diagnosed by serological blood test. The only cure is slaughter the animal.

Metritis.

Occurs after kidding or after false pregnancy. Symptoms are unusual discharge from vagina with less of appetite. Cured by sulphanilamide by mouth, sulphamezathine, sulphapyridine or sulphanidine tablets 2g twice a day for 4-5 days.

Two types of lice are common in goat biting lice (*Damalinia Caprae* and *Damalinia-limbata*) and sucking lice (*Linognathus stenopsis*). In both cases goat rub herself against fences, walls and trees. treated by use of Malathion or Diazinon or pouring of 5-10 ml of Tiguvon (an oil based insecticide).

Mange (Sarcoptes, Demodatic and Psoroptes).

Clinical symptoms: Flakey scurfy dandruff on the skin, severe itching, hairlessness develops and the skin becomes thick, hard and corrugated.

Preventive care: Skin scraping examination is essential. Clip hair and wash with warm water and soap. Apply 0.5% malathion or 0.5% Seven or 0.06% Lindane as spray, Swab or dip thrice at the interval of 7 days. Diptrex ointment 1% is effective.

Nitrate/nitrite Poisoning (Nitrate/nitrite rich fodder-maize/bajra).

Clinical symptoms: Respiratory difficulty staggering gait, falling sudden death and urine positive for nitrate/nitrite are the usual clinical manifestations.

Preventive care: Blood become chocolate brown in colour, treat the sick goat with Vit. C and Methyline.

Parasitic gastroenteritis (Haemonchus, Trichostrongylus, Oesophagostomum etc.)

Clinical symptoms: Diarrhoea severe anaemia (white eyes), emaciation and watery swelling under the jaw (Bottle Jaw) are the common symptoms.

Preventive care: Faecal examination is necessary. Nilverm ICI @ 15 mg/kg body weight or Panacur @ 5 mg/kg body weight and Thiobendazole 50 mg/kg body weight should be given.

Parasitic winter diarrhoea (Paramphistomiasis).

Clinical symptoms: Occurs from October to March, loose to watery diarrhoea, bottle jaw condition in advance, clinical cases are the main features.

Preventive care: the disease is caused by immature stages. Postmortem of the affected animal is necessary for diagnosis. Zani @ 10-15 mg/kg and Nilzan 10-15 mg/kg body weight are very effective.

Parasitic - worm infestation.

These are divided into four groups, parasites of true or fourth stomach, parasites of small intestine, parasites of blind gut (Caecum) and parasites of large intestine. Treatment by the use of broad spectrum anthelmintics.

Rinderpest.

Clinical symptoms: There is mild thermal reaction and diarrhoea. Ulcerative lesions appeared on inside the lower lip and on the gums.

Preventive care: Tissue culture rinderpest vaccine S/C could be used in pocket of infection.

Rabies.

Clinical symptoms: The disease develops usually after 20-60 days of bite, but not less than 10 days of bite. The goat becomes strange in behaviour and there is frothing and salivation. The goat does not eat or drink, slowly becomes paralysed and dies within 10 days of onset of disease.

Preventive care: Vaccinate the goat soon after dog bite.

Ring worm (Fungus).

Clinical symptoms: Inflammation of hair follicles, falling of hairs, lesions are circular on the face, shoulder, neck, eyes, irritation and rubbing, thick crusts or scales may appear.

Preventive care: After clipping hair and scrubbing with water and soap, apply acid salicylic or benzoic acid ointment 2.5% or tincture of iodine once daily till lesions heal or zephirin.

Salmonella infection (Salmonellosis).

Happen due to the use of contaminated drinking water, results into loss of weight and milk production.

Scabby mouth.

It is viral disease, highly infectious, this virus is from pox family its symptoms are scabby-pustular sores on the muzzle, tips and feet is also called labial dermatitis symptoms occur 38-40 hours after contact, it follows some minor injury caused by grass seeds or thistles, Lips infected, there is soreness between the toes, sores around the scrotum, eye, ears and valva. The only treatment is vaccination.

Tetanus.

Caused by anaerobic bacterium called as clostridium tetani This bacteria develops in absence of air. Such wound occur in dehorning, disbudding, tattooing, castration, hoof trimming or accidentally from nails, tins, dog-bites, fighting bucks or grass seeds. Treated with tetanus antitoxin (100ml multi-dose CSL anti-toxin) or toxoid vaccine at 3-4 weeks, repeat 6-10 months after and then year.

Tuberculosis (M. tuberculosis).

Clinical symptoms: Irregular low grade fever of long duration, coughing, difficulty in respiration, anaemia, progressive emaciation and loss of body weight are the common clinical manifestations.

Preventive care: Consult goat health specialist and get your goat tested with tuberculin.

Tape worm (Moniezia etc.)

Clinical symptoms: Diarrhoea and constipation, segments of tape worm may be seen in the faeces.

Preventive Care : Panacur @10mg/kg body weight is very effective. Kamala 2-3gm/animal is also effective.

Trace element deficiency.

Goat show symptoms of deficiency in trace elements of copper, boron, iodine, cobalt, magnesium , selenium and zinc. The treatment have been done by adding trace elements minerals in the diet. To cure deficiency symptoms like: silent heat, delayed. Conception, low birth-weight, retarded growth, higher proportion of male progeny and malfunction of fat metabolism.

Tympany/Blost (Acidosis due to green fodder concentrate rich in carbohydrate such as Rice, Wheat, Gwar etc.)

Clinical symptoms: Inappetance, dullness depression, increase pulse and respiration rate are seen. Distended abdomen on left side due to dilated rumen (tight as drum). Froth comes from mouth , animal became restless, repeated lying down and die in short period.

Preventive care: Drench carefully 28 gm soda in 284 ml of hot water. A cup of mineral oil may also relieve the condition. In acute case removal of gas with thick needle is needed.

Urea poisoning (Urea/might have been taken accidentally).

Clinical symptoms: Severe abdominal pain, tremors, dyspnoea and bloat.

Preventive care: Vinegar or 2% acetic acid is to be given orally in repeated doses.

Verminous Pneumonia (Dictyocaulus filaria).

Clinical symptoms: Respiratory trouble with persistent or severe coughing. There is usually a discharge from eye and nostrils.

Preventive care: Vaccination is commonly used against D. filaria. Dictyciden and Diethylcarbamazine are effective.

Warts.

They occurs frequently, can be found in udder, scrotum, lips, face, ear, legs and coronet. The warts can be of many sizes from small to large sizes. If goats have warts on teats, then during milking blood may contaminate the milk. This have been treated by salicylic acid and acetic acid ointments.

CONCLUSION.

The purpose of this paper is that farmer can check few visible symptom and, first-aid which not only prevent the further deterioration of the health of the goat, but it save the life. The farmer should be under stand the complication of disease, and reach to the specialist or health worker as early as possible. In case of danger of spreading contigeous diseases in the herd, immediately, time action of seeking the advice of health specialist can save the greater economic losses.

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