

IVA Kannur Unit-

CPD Programme on Clinical reasoning in Feline Practise

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Short Notes

Introduction

Cats began to live among humans when agriculture began in the Fertile Crescent (modern-day Western Asia and the Middle East) approximately 10,000 years ago. The relationship between cats and humans likely began because it was mutually beneficial, with cats killing rodents attracted to stored grain. The earliest direct evidence of cat domestication occurred 9500 years ago, when a kitten was buried with its owner in Cyprus.

As of 2019, *The International Cat Association (TICA)* recognizes 71 standardized breeds, the *Cat Fanciers' Association (CFA)* recognizes 44, and *Fédération Internationale Féline (FIFe)* recognizes 43. As of 2017, the domestic cat was the second-most popular pet in the U.S. by number of pets owned, after freshwater fish, with 95 million cats owned.

Popularity of cats as pets in urban Kerala has rapidly increased since the last 5 years mostly because of space constraints to keep dogs as pets, convenience and acceptability of cats in apartments and flats, cultural reasons, life style changes etc.

Top 6 most popular Cat breeds in Kerala – 2019 (*Purebreds- Kerala Cat Fanciers Association data*) (1)Persian cats (2) Traditional long hair (TLH) (Traditional Persians) (3) Himalayan (4)Exotic Shorthair (5)Bengal Cats (6)British Short Hair(7)Siamese Cat

Special things to consider in cats:

They are true carnivores – cats are completely evolved to hunt and kill (whereas dogs have evolved to be scavengers). Even fully domesticated cats maintain their hunting instincts by jumping on rodents, birds, reptiles and insects even when we provide food in plenty.

Territory range of a home cat is approximately 1 acre.

Cats can see very well in dim light. Their most active time of the day is dawn and dusk.

Cats can quickly sense rapid movements as an adaptation to catch prey. Avoid rapid hand movements during physical examination. Thumb rule is to be “Slow and steady”.

Cats are four times more sensitive to sound than humans. (while doing physical examination, avoid uncomfortable loud noises and cell phones)

Familiar smells often comforts cats: advice cat owners to place a towel or toy something in the basket that smells like house when cat is brought to the clinic.

Staring directly in cats direction often induce stress in cats. Blink slowly in cats direction, don't stare.

Feline infections tend to be chronic. It stays with them.

Cats wear two coats- Top coat has strong guard hairs which provides weather proofing, colour and pattern. Undercoat has shorter hairs providing insulation.

Cats have barbed tongue- they have backward directed papillae on the tongue- this works like a comb for grooming their coat, also used to rasp the meat from animal bones. Hollow papillae stores and holds saliva. Cats normally spend approximately 4 hours per day in self grooming. So, it is comparatively difficult for an infective agent to gain access to the cat's skin than dog's skin. Feline skin infections commonly start at ear margins, face or areas where cat's can't groom well with its tongue.

Matting of the hair can indicate decreased grooming habits, commonly resulting from chronic underlying medical conditions.

Retractable claws are the primary attacking, climbing and marking weapon. This can be clipped off.

Vestigial collar bones give highly mobile forelimbs (which helps the cat to land safely while falling from height) and flexible loose backbone (vertebral disc diseases are rare in cats, occurs with very severe backbone injury). When presented with a cat with hindlimb weakness, check for hypokalemia, megacolon, obstipation etc before suspecting vertebral disc disease.

Most active part of the day for a cat is dawn and dusk.

Cats have a muscular body with high proportion of lean body mass- adapted for high activity in short bursts !!

Try to take clinical parameters only when the cat is relaxed. Clinic stress can induce tachycardia, increased respiratory rate, dilated pupils, Increased body temperature, sudden urination or defecation. In such cases, repeat physical examination.

Unique nutritional need of cats:-

Cats cannot taste milk because cats cannot taste the milk sugar lactose. Adult cat drinking milk will lead to chronic osmotic diarrhoea because no lactase enzyme after 3 months.

Enzymes in stomach set to digest high level of dietary protein.

Always offer food at body temperature.

Cats usually have 7 to 8 little meals per day.

Cats require 41 essential nutrients in diet- includes Vit A, Taurine, Arachidonic acid, Niacine etc (most of which are from meat sources).

Cats cannot be maintained in a vegetarian diet for more than 6 weeks.

Variety of packet commercial foods are available in non vegetarian flavours.

An example of a standard homely cat food is 3 portion of rice : 1 portion of either chicken or eggs or paneer or fish. When a dog may love the same food all 365 days, cats love variety. Change the non-vegetarian part of the food often.

Kitten stage:

Cats usually have two to three litters per year with commonly 3 to 6 kittens per litter. Thus an adult female cat is capable of producing 15 to 18 kittens in a year.

The female kittens may attain puberty even as early as 5 months of age and male kittens as early as 7 months. It is difficult to confine the cat in heat because of strong pheromonal signalling to the male cats in vicinity. If the cat breeding is unwanted, advice to spay or neuter the cats immediately.

The typical kitten birth weight is 90 to 110 g. High-risk time points for kitten morbidity and mortality are at birth, in the first 2 weeks of life, and around the time of weaning. Low birth weight is a common cause of mortality, with kittens weighing less than 75 g at birth at highest risk.

Developmental Milestones for Kittens:

- (1) Umbilical cord falls off: 3 days of age
- (2) Eyelids open: 10 days of age (range 2 to 16 days)
- (3) Menace/pupillary light reflexes: 28 days of age or later

- (4) Normal vision: 30 days of age
- (5) Adult iris color: 4 to 6 weeks of age
- (6) Functional hearing: 4 to 6 weeks of age
- (7) Walking: 14 to 21 days of age
- (8) Voluntary elimination: 3 weeks of age
- (9) Deciduous incisors/canines erupt: 3 to 4 weeks of age
- (10) Deciduous premolars erupt: 5 to 6 weeks of age
- (11) Normal kittens gain 50 to 100 g per week (10 to 15 g/day) and should double their birth weight by 2 weeks of age.

In kittens, a rectal temperatures less than 94° F are associated with depressed respiration, impaired function of the immune system, bradycardia, and paralytic ileus causing abnormalities like bloated abdomen and indigestion. Never attempt to feed a hypothermic kitten, because aspiration pneumonia is a significant risk. Hypothermic kittens should be re-warmed slowly, during 2 to 3 hours to reach a maximum rectal temperature of 38.3° C (101° F). For severely hypothermic kittens, fluids warmed to 35° C to 37° C (95° F to 98.6° F) may be administered by the intravenous (IV) route. Veins can be catheterized with a 24-gauge (violet) catheter. Lactated Ringer's solution is ideal for rehydration of neonatal kittens. Clinical hypoglycemia occurs when the blood glucose is less than 3 mmol/L (50 mg/dL) and is a common problem for sick neonates because of immature liver function and rapid depletion of glycogen stores. Hypoglycemia may be caused by vomiting, diarrhoea, sepsis, hypothermia.

Respiratory tract disease can cause significant morbidity and mortality in young kittens. Clinical signs in acute upper respiratory tract infections include fever, sneezing, depression, anorexia, and bilateral nasal and ocular discharge (mucoid, serous, or purulent). Most infections involve feline herpesvirus (FHV-1), feline calicivirus, *Mycoplasma* spp., and/or *Chlamydomydia felis*.

The most common causes of diarrhea in kittens are infectious agents, primarily parasites like *Toxocara cati* and viruses like feline panleucopenia or feline parvo virus.

Pyrantel pamoate (5 to 10 mg/ kg, PO) can be started as young as 2 weeks of age to prevent *Toxocara* infection.

Pathogens that may be associated with neonatal sepsis include *E. coli*, *Staphylococcus* spp., *Pasteurella* spp., *Enterobacter* spp., *Clostridium* spp.,

Salmonella spp., and Streptococcus spp. Neonatal sepsis is a significant cause of death in kittens.

Cat physical examination:

While getting an appointment, tell the owner to bring the cat in a familiar carrier along with a towel or cloth which already has a cat smell or even smell of the owner. Familiar smell comforts cats in clinic.

The cat should be allowed time to exit the carrier on its own before the examination when possible. Vet should not introduce hands into the carrier.

The least restraint is always the best restraint. If the cat is positioned comfortably and handled minimally, it will be less likely to fight to get away or protect itself. Fast or abrupt movements may alarm the cat. Use only steady hands and once the cat is touched, try maintain a continuous contact with one hand. Losing physical contact may increase the cat's level of anxiety and lead to difficulty in completing the examination.

Sometimes, the cat is fearful and is much more comfortable with its head covered with a towel. Many towel-handling techniques can be used to successfully examine both fearful and fearfully aggressive cats. Covering the cat from the neck downwards is convenient. Covering the head with a towel to eliminate visual cues may also work well if the cat is aggressive.

Before touching the cat, observe for changes in gait, evidence of pain, types of respiratory pattern, areas of swelling, asymmetry.

Begin the examination from the nose tip. Examine foreign body, such as a blade of grass, can be more easily detected by shining a light on the nostrils. Ulcers on the nasal commissure may indicate an upper respiratory virus infection (e.g., feline calicivirus, feline herpesvirus) . Unusual sounds can denote obstruction or upper airway disease- Use a glass slide to see if obstruction is unilateral or bilateral. Sneezing cats can have nasal irritants or foreign bodies.

Gentle pressure in the intermandibular space elevates the tongue, allowing discovery of linear foreign bodies. Check the colour of the mucus membrane: Jaundice, anemia, cyanosis etc . The teeth are assessed for periodontal disease, tooth resorption etc. Common causes of jaundice in cats are hepatic cholangitis, FIP, toxoplasmosis, cholelithiasis, hepatic lipidosis, mycoplasma hemofelis infection. Common cause of pale anaemic mucous membranes may be toxocara or other parasites, chronic renal failure, blood loss, mycoplasma haemofelis etc.

Next, the patient's eyes should be examined for pupil size, response to light, ulcerations etc. The conjunctiva and sclera should be observed for signs of

jaundice, anemia, and inflammation. Uveal lesions may be the result of trauma, infectious disease (e.g., feline infectious peritonitis (FIP), feline immunodeficiency virus infection), or neoplasia.

A cytologic examination of abnormal wax content or discharge can confirm preliminary diagnoses of ear mites which is very common in cats (*Otodectes cyanotis*). *Demodex* sp., bacterial infections, or yeast overgrowth can also occur in ear canal. Untreated otitis media and interna can lead to head tilt and peripheral vestibular disease. The surface of each pinna is examined for areas of alopecia or other skin lesions, including inflammation, ulceration, color changes, and crustiness. Most infective feline skin infections start in the ear pinna.

Auscultation of the heart and lungs is a critical component of a complete thoracic examination. The veterinarian should position the cat so that it is facing forward and listen for rate, rhythm, and possible murmurs, using both the bell and diaphragm of the stethoscope. Auscultation is most effective in a quiet room. The normal respiratory rate is 20 to 40 breaths per minute.

Prolonged expiration, an expiratory or abdominal push, or other increased respiratory efforts are indicators of lower airway disease caused by narrowing or obstruction of smaller airways.

Abdominal Palpation is very important and is accomplished by moving front to back and from each side, using the tips of the fingers of one hand or both hands close together. Palpate the intestinal loops, kidney, spleen etc systematically. Soft ballottement of the abdominal wall may indicate the presence of fluid or enable the veterinarian to detect other causes of abdominal distention. The liver is usually not palpable, but if hepatomegaly is present, the edge of the liver will be palpable past the costochondral arch.

Raise the tail and check for anal glands. Impacted anal glands at 4 o'clock and 8 o'clock position can cause constipation. Take the rectal temperature along with this.

There can be dermatitis below tail in obese cats. Check for both the testis in scrotum. If no testis- check the penis for spines. Penile spines present means there is a source of testosterone and retained testis. Castrated cat has no spines.

Drugs Not recommended in Cats

- 1) Paracetamol- even a dose of 100 mg is toxic for a 2 kg cat
- 2) Cypermethrin, Deltamethrin, Amitraz etc.
- 3) Potassium Bromide (anti epileptic agent)
- 4) Cisplatin, Azathioprine, Benzocaine etc
- 5) Hexachlorophene in soaps and shampoos.

6) Apomorphine

Anti-inflammatory drugs and pain killers used in Cats

1) Single use

Carprofen- 2-4 mg/kg SC,IV

Ketoprofen- 2mg/kg SC, IM

Meloxicam- 0.1 to 0.3 mg/kg SC

2) Regular Use

Meloxicam – 0.1 to 0.2 mg/kg SC or orally once in 24 hours on first day followed by 0.05 to 0.1 mg/kg for next 3 days followed by 0.025 to 0.1 mg/cat 2 to 3 times per week.

Tramadol- 2-4 mg/kg orally TID or 1-2 mg/kg IV, SC

Emetic that can be used in cats – Xylazine

Appetite Stimulants

Benzodiazepene derivatives

Diazepam (0.2 mg/kg IV)

Oxazepam (0.5 mg/kg PO BID or OD)

Herbal preparations- Digytone drops (Himalaya), Herbatake Pet suspension (Sky EC) , Gutwell powder (Venkeys)

Butorphanol- 0.2 mg/kg SC

Cyproheptidine- 0.2 to 0.5 mg/kg orally BID

Metaclopramide- 0.2 to 0.4 mg/kg SC or PO

5 HT3 receptor antagonist- Mirtazapine 3.75mg/cat Q 48 h – 72 h PO (Mirtaz 7.5mg tab)

Vaccinations

- (1) MCV- (MULTICOMPONENT LIVE ATTENUATED FREEZE DRIED VACCINE CONTAINING 3 CORE FELINE VIRUS) – Compulsory core vaccine

(First shot between 8 to 9 weeks of age, second shot after 1 month of taking first shot and then single annual booster every year)

This vaccine is against three diseases (1) **Feline Panleucopenia** also called feline parvo virus or feline distemper virus which is a major cause of highly infectious acute bloody gastroenteritis in kittens similar to parvo viral outbreak in dogs (2) **Feline Herpes virus** which causes nasal and ocular discharge, sneezing, fever, depression, conjunctivitis, corneal ulcers and other upper respiratory tract symptoms (3) **Feline Calici virus** which causes oral ulcers, ocular discharge, nasal discharge, sneezing, hypersalivation, fever and sometimes pneumonia.

Both feline herpes virus and feline calici virus are together called ‘feline flu’ and are clinically indistinguishable.

Vaccines are available as Feligen CRP (by Virbac), Felocell 3 (by Zoetis), Nobivac Tricat Vaccine (by MSD Animal Health)

- (2) **RABIES VACCINE** – Compulsory core vaccine–
First shot after 3 months age (second shot after 1 month) and then annual boosters

- (3) Optional vaccines- FLV, FIV, FIP, Chlamydomphila Felis, Bordetella.

Common Dewormers used in Cats

Cats showing distended belly , loss of condition, worm in the poop and vomitus, nervous signs etc are a common clinical presentation.

Regular deworming is a must in Cats

Safest and effective- Fenbendazole 50mg/kg OD for 3 days (Panacur 150mg tab)

Pyrantel palmoate (Nemocid) – 10 mg/kg single dose is effective against toxocara in kitten stage. Epsiprantel, Flubendazole, Ivermectin, Selamectin can also be used.

Feline respiratory system- Basics

In diseases affecting the upper respiratory tract (URT) –(areas including nose, pharynx, larynx, trachea), The affected phase of respiration will be inspiration because of obstruction to flow of air through upper airways, the cat will show an obstructive breathing pattern. Length of inspiratory phase will be greater than expiratory phase. There will be increased inspiratory depth or effort. There can be upper respiratory noise like stertor (snoring sound when pathology is in oropharynx or nasopharynx, stridor (harsh high-pitched noise) and whistle when the pathology is in larynx or trachea. Cough will be dry cough. Examples- URT infection; viral most common (feline calici and herpes), bacterial pharyngitis, laryngitis, inspired foreign body, neoplasia, nasopharyngeal polyp, laryngeal paralysis.

In diseases affecting lower respiratory tract (Bronchial tree)- Affected phase of respiration will be expiration because of trapping of exhaled air in lower airways. Breathing pattern is obstructive with abdominal effort. Length of expiratory phase is greater than inspiratory phase with abdominal effort. Mildly increased to rapid rate. Exaggerated abdominal effort on expiration ('abdominal push'). Musical sounds that indicate narrowed airways- wheezes (eg. Feline asthma) .Discontinuous sounds like bubble wrap popping; due to airways snapping open after closure by fluid (chronic bronchitis). Cough will be mostly dry.

In diseases affecting pulmonary parenchyma- there will be increased resistance to lung inflation on inspiration and reduced lung compliance on exhalation. Breathing pattern will be restrictive. There will be characteristic shallow rapid breathing or breathlessness. Length of inspiratory phase is equal to expiratory phase. Crackles or Wheezes can be seen over the pulmonary fields. Conditions affecting lung parenchyma include pulmonary oedema (cardiogenic or non-cardiogenic), bronchopneumonia, pulmonary haemorrhage, thromboembolism, acute lung injury/acute respiratory distress syndrome etc. Cough will be moist and soft cough.

Suitable antibiotics that can be used in feline respiratory diseases- Amoxicillin-clavulunate (upper respiratory infections, pneumonia), cephalexin (upper

respiratory infections, pneumonia), clindamycin (chronic rhinosinovitis, toxoplasmosis), metronidazole (anaerobic respiratory infections, pyothorax), doxycycline (mycoplasma infection, cough due to bordetella), marbofloxacin (gram positive and gram negative bacterial infections).

Drugs used to dilate bronchus, reduce bronchospasm and help in air flow and lung clearance- salbutamol, terbutaline, theophylline, atropine, adrenaline.

Glucocorticoids are used to stabilize the airways and reduce inflammation- dexamethasone, prednisolone, hydrocortisone, fluticasone.

Hypokalemia in Cats

Hypokalaemia is a very common electrolyte disturbance in cats. Overt clinical signs, including skeletal muscle weakness causing a plantigrade stance and neck ventroflexion. Even mild to moderate hypokalaemia can result in inappetence and lethargy. Hypokalaemia can be life-threatening if untreated. Reference range of serum Potassium - 4–5 mmol/l .Moderate to severe hypokalaemia (<3.4 mmol/l) requires immediate intravenous supplementation.

Common causes of Hypokalemia: Inadequate potassium intake – inappetence, anorexia, low-potassium diet Gastrointestinal loss – vomiting and/or diarrhoea, Chronic kidney disease (CKD) – usually results in mild to moderate hypokalaemia. Hypokalaemia may also result in further renal damage (hypokalaemic nephropathy), Endocrine disorders - hyperaldosteronism (Conn's syndrome) and hyperthyroidism (mild), Iatrogenic – treatment with potassium-free intravenous fluids exacerbates mild, pre-existing hypokalaemia in dehydrated/ hypovolaemic patients, Furosemide treatment. Injections of Ringer Lactate or Oral Electrolytes with Potassium can be used in mild conditions. Potassium chloride added to Normal saline is used in moderate to severe conditions . Intravenous route preferred but can be given subcutaneously with crystalloid fluids if rapid correction not required. Any cat with chronic anorexia and G.I disease should be supplemented with Inj. Ringer Lactate either IV or subcutaneously to avoid risk of Hypokalemia.

Causes of free abdominal fluid in Cats:

Diagnosis based on the type of fluid obtained by abdominocentesis.

Transudate : Hypoproteinaemia, portal hypertension, right-sided heart failure

Modified transudate: Right-sided heart failure, portal hypertension, inflammatory disease (e.g. pancreatitis, lymphocytic cholangitis). Infectious diseases (FIP)

Exudate: Inflammatory (e.g. pancreatitis, lymphocytic cholangitis, septic peritonitis), infectious (including FIP but this is a low cellular exudate, peritonitis)

Urine : Trauma and rupture of a diseased urinary tract.

Collect fluid by abdominocentesis to distinguish between transudate and exudate.

Transudate is clear, colourless to pale yellow with specific gravity less than 1.017, total protein content less than 25 g/l and cells less than 1000 cells/ μ l.

Modified transudate is clear, pale yellow with specific gravity between 1.015–1.025, total protein between 25–50 g/l and cells between 1000–7000 cells/ μ l range.

Exudate Usually turbid, purulent or serosanguineous with specific gravity greater than 1.025 , total protein greater than 30 g/l , cells greater than 5000 cells/ μ l Septic or non-septic depending on whether bacteria are present.

Feline Gastrointestinal system- Basics

Causes of Vomiting in Cats

Vomiting is a common clinical sign in feline practise and involves retching with active expulsion of gastric and/duodenal contents that may be bile stained. The key point in managing vomiting is to find out the cause of vomiting and whether it is gastro-intestinal or non gastro-intestinal. Palpate the gastro-intestinal tract and check for foreign bodies, intussusception etc.

Gastro intestinal causes: Gastritis, Food intolerance, Food allergy, Gastro-intestinal foreign body, intestinal obstruction, Lymphocytic plasmacytic gastritis, infectious diseases of GI tract like feline panleucopenia, toxocara cati, motility disorders, cough induced vomiting, inflammatory bowel disease.

Non gastro intestinal causes: renal failure, azotemia, uremia, hyperthyroidism, brain disease, vestibular disease, hepatic disease, pancreatitis, peritonitis.

Diagnose the cause and treat the cause. Stop vomiting episodes. Correct electrolyte abnormalities. Do not give anti-emetics when GI obstruction is suspected

Anti-emetics- Maropitant @ 0.5-1 mg/kg sc or oral q24h, Metaclopramide-0.2 - 0.5mg/kg IM /SC BID or TID (Consider continuous rate infusion in saline drip/ wrap the fluid), Chlorpromazine, Ondansetron , Mirtazapine @3.75 mg/cat Q1-3 days – anti-emetic + appetite stimulant.

Approach to Indigestion and Diarrhoea in Cats:

Palpate the gastro-intestinal tract, abdomen and check for inconsistent size, hardness etc . Check faecal consistency, frequency etc. Analyse the sample for parasites. It is very important to distinguish between small intestinal and large intestinal diarrhoea to effectively manage diarrhoea.

The main constituents of food like protein, carbohydrates and fats have to be broken down for their absorption – If they are not broken down, it leads to indigestion. If sugars are not digested- lot of bloating and flatulence can be present. If fat is not digested- large frequent fatty stools, greyish white and owl smelling. If Proteins are not digested- there will be emaciation, weight loss and failure to thrive.

Small intestinal diarrhoea- loose/watery with increased volume of faeces, vomiting may also be present due to defective peristalsis, digested blood may be present resulting in fowl smell, defecation frequency is mildly increased, weighloss is common, appetite may be decreased, activity of cat often decreased greatly.

Large intestinal diarrhoea- semi solid or solid faeces, volume of faeces passed in each defecation is less, but frequency of defecation greatly increased. Presence of mucus is very common, fresh blood may be present. Weight loss, vomiting etc are uncommon. Appetite and activity of cat are often normal. Tenesmus may be present. Urgency is common.

Causes of diarrhoea:

(1)Indigestion (most common) , dietary sensitivity and intolerance, food allergy
(2)Bacteria: Escherichia coli, Clostridia, Salmonella (spoiled fish) (3)Protozoa: Toxoplasma gondii, Giardia, Tritrichomonas foetus, Cryptosporidium (rare), Cystoisospora (4)Virus- Feline parvo/ panleucopenia virus (FPV), Feline Leukeia Virus, Feline immunodeficiency virus, Feline Infectious Peritonitis (5) Parasitic- Toxocara (6) Inflammatory immune mediated bowel diseases like Lymphocytic–plasmacytic infiltrates (7) Maldigestion: exocrine pancreatic insufficiency.

Young animals are more prone to dietary, parasitic and infectious causes, Environmental conditions, including overcrowding, poor sanitation and immune compromise, are well recognized risk factors

Middle-aged cats are susceptible to metabolic/ systemic disease, hyperthyroidism, and infiltrative (inflammatory bowel disease, neoplasia) disorders.

In an active and well cat with diarrhoea: No need of antibiotics, Fast the cat for 24 hours if adult, Fast for 12 hours if less than 4 months old, Then feed a bland diet – eg. Plain cooked skinless chicken or low residue diets.

Other recommendations: The diet should be modified and a highly digestible low-fat diet using small frequent feedings (3–6 meals/day) for 5–7 days. High-fibre diets can be useful in cats with colitis. 2) Empirical treatments with anthelmintics (pyrantel 5 mg/kg orally, repeat after 2 weeks; or fenbendazole at 50 mg/kg orally for 5 days) can be tried. 3) Therapeutic trial using metronidazole (10–20 mg/kg orally q12h for 5–7 days) may also prove beneficial, even in cats negative for parasites and other infectious agents (4) Clindamycin is indicated against toxoplasmosis.

Feline urinary system-Basics

Blood in Urine:

Initial hematuria (blood at the beginning of voiding)

(1)Inflammation or disease conditions of Lower Urinary Structures- Urethra, Penis tip, prepuce (\pm bladder) (2)Pro- estrous (3) Metritis (4)Pyometra (5)Urolithiasis

Terminal Haematuria (blood at the end of urine stream)

Urinary Bladder/ Severe cystitis/Bladder stones, Kidneys,Ureters, Urolithiasis (Intermittent bleeding from these structures allows RBC s to settle in bladder, to be expelled with final bladder contents)

Bloody fluid dripping from the penis or vulva independent of urination possible in all cases of bleeding distal to the urethral sphincter.

Other causes of reddish urine:- Haemoglobinuria- pinkish to red colour- darken with oxidation (1) due to intravascular lysis of RBC- immune mediated. Infectious, toxicity Eg. Mycoplasma hemofelis, Haemolytic drugs, IMHA (2)Lysis of RBCs within the urinary system- when urine is hypotonic (Specific

gravity below 1.008) or when urine is too alkaline(Ph>7)- some RBCs may get lysed.

Blocked urinary tract/ anuria mainly due to urolithiasis is an emergency and should be relieved immediately with cat catheter and systemic electrolyte abnormalities corrected. Hyperkalemia is an emergency electrolyte disorder seen in blocked cats causing deadly cardiac arrhythmias. ECG shows typically spiked T waves.

Feline reproduction

Length of estrus: Average 5.8 ± 3.3 days

Length of interestrus: range 2-19 days

Length of pseudopregnancy: 40-50 days

Length of gestation: 65.1 ± 2.2 days (in pedigreed cats)

Pregnancy rate: 73.9%

Kittens per litter: 4.6 ± 1.7 (in pedigreed cats)

Number of litters/year: range 1-3

Age at puberty—male: 7-18 months

Age at puberty—female: 4-18 months

Fever in Cats

(1)Feline Infectious Peritonitis (FIP) - Chronic fluctuating fever (102-106) lasting 2 to 5 weeks, pleural involvement, dyspnea. (2)Feline Panleucopenia-Acute – 104-107, vomiting starts one to two days after the onset of fever, typically bilious and unrelated to eating- diarrhoea begins later (3)FHV and FCV (Feline Upper Respiratory Tract Infection): fever may reach 105, but subsides quickly-frequent sneezing, conjunctivitis, rhinitis, salivation (4)Bacterial infections in any system (also look for cat bite abscess) (4) Non infective immune disorders.

Feline Hypertension:

Systolic blood pressure greater than 160 mm hg. Usually caused by underlying disease like Chronic Renal Failure and Hyperthyroidism

Classic presentation: Middle aged/senior cat suddenly blind and showing nervous signs. Most common clinical presentation is blindness or acute retinopathy(retinal separation/ haemorrhage). Head tilt, ataxia, disorientation.

Most common dermatological conditions in Cats in Kerala:

(1) **Otodectes** – ear mite infection (2) **Notoedres cati** (mite) causing feline scabies (3) **Feline demodicosis** by mites *Demodex cati* and *Demodex gatoi* (4) **Yeast infection**- Feline malassezia (5) **Fungal infection**- Dermatophytosis caused by *Microsporum* (5) **Eosinophilic ulcers/ eosinophilic granuloma complex** (6) **Feline flea allergic dermatitis** (7) **Bacterial infection**- pyoderma (8) **Feline atopy** (9) **Food allergic dermatitis** (10) **Insect bite hypersensitivity** mainly due to mosquito exposure (11) **Persian dirty face syndrome**.

Management of skin diseases caused by mites:

Mites (OTODECTES, NOTOEDRES AND DEMODEX) have a life cycle of 3 to 4 weeks, so all treatments should be planned for a minimum of 4 weeks. Bath cat in luke warm water along with slow massage or combing- this will remove excess scales, eggs, nits from skin. Mite eggs (Nits) can be loosened from body by vinegar wash for a duration of 3 minutes (1 : 4 dilution with water) occasionally before anti mite treatment.

Whole body treatments with Lime sulphur rinses and fipronil spray are effective. Both give excellent results when used twice a week. Spray whole area, do not spray directly to face. Use towel in kittens (Cypermethrin based products are toxic, Amitraz (RIDD) is risky in cats). Lime sulfur dip is a sulfurated lime solution which not only kills mites and other parasites it also works against fungi and bacteria. It smells like rotten eggs but it is easy to use very effective and easy to use. Spot on products containing selamectin, imidacloprid, fipronil etc are also effective against mites.

Systemic therapy with Ivermectin @ 0.2 mg/kg orally once daily for 4 weeks, Milbimycin @ 0.5 to 2 mg/kg once daily for 4 weeks, doramectin @ 600 mcg/kg can also be used. Consider possibility of GI symptoms due to trichobezoar (excess grooming resulting from pruritis)

Management of fungal infections:

Continue all treatment for minimum 4 weeks and assess skin scraping and re-evaluate, taper doses, reduce washing frequency etc and reduce treatment gradually. Check liver enzymes while using fluconazole. While washing, plug the ears with cotton ball.

Lyme sulphur wash – safest and most effective. Other washes:- Chlorhexidine, miconazole enilconazole wash. Systemic therapy can be done with Itraconazole –safe drug of choice @ 5 to 10 mg/kg once daily – 7 days on 7 days off therapy or 4 days off and 3 days on schedule. Other options for systemic therapy are

Terbinafine @ 40 mg/kg once daily and Fluconazole @ 10mg/kg once daily. Griseofulvin @ 50 – 100 mg/kg can also be given after fatty meal. Avoid ketoconazole oral and ketoconazole based shampoos.

Wash the home areas coming in contact with cats with poultry based 13.8 % enilconazole spray after dilution in water or use bleach.

Antibiotics that can be used for pyoderma:

Amoxicillin clavulunate @ 14 mg/kg bid after food, Clindamycin 11 mg/kg OD with food, Cephalexin @ 20 mg/kg. Others: cefadroxil, cefpodoxime, doxycycline etc.

Management of feline eosinophilic granuloma complex

Prednisolone @ 1- 4 mg/kg OD after food, Cortavance spray based on hydrocortisone, antihistamines, cyclosporine @ 5 to 7 mg/kg OD after food, Chlorambucil @ 0.1 to 0.2 mg/kg alternate days.

Management of pruritis

Cetirizine @ 5 mg/kg OD, Hydroxyzine 5 -10 mg/kg BID, Chlorpheniramine maleate 3 mg/kg BID, Prednisolone @ 1 mg.kg, Cyclosporine.