PRESENTATION NUMBER

**Subtle Signs: Senior Dental Care (Feline)**

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Overview of the Issue

Cats are experts at hiding subtle signs of disease – until it gets so bad that the problem is significant, and this includes issues with the oral cavity. While some common dental problems can occur at any age, once the senior cat has oral issues, then comorbidities, frailty and declining health can make timely therapy very important. Challenges in getting that senior cat into the practice on a regular basis can help delay getting appropriate care.

Objectives of the Presentation

1. Understand the additional complications aging cats can have, including dental and oral issues.
2. Be able to provide effective communication to cat owners about regular care for even their senior cats.
3. Integrate complete oral examination as part of wellness and disease management of older cats.
4. Be able to assess the level of oral/dental problems and determine appropriate management

FELINE LIFE STAGES

With better health care, cats are living longer these days, and an estimated ¼ to 1/3 of cats are over the age of ten. Unfortunately, there is a decrease in vet visits in maturing cats, and often they aren’t brought into the clinic until there is significant disease and even weight loss. Being proactive in providing a continuum of care throughout the life stages can greatly improve a patient’s healthspan, not just lifespan.

Using life stage guidelines from AAFP, determining the relative age of a cat is straightforward, but dealing with the multiple issues they can have is more challenging. Early detection of disease through enhanced owner awareness and regular medical screening can help in identifying problems at potentially manageable stages.

**What is Aging?**

Aging implies a reduction in physiological reserves, as well as a decrease in cellular and organ function and ability to heal Included in these declines is the immune system (immunosenescence), vitality and vigor changing to frailty and even chronic inflammation that impacts the morbidity and mortality of patients (inflammaging). Clinically we hope not to just increase the lifespan of our patients (longevity) but their healthspan as well, that period of time with health aging, prior to debilitating diseases at the end of life. Life expectancy in cats has been evaluated in terms of body condition (BCS of 4 has highest LE; BCS of 1 and 2 have the lowest LE). But it ultimately depends on the individual, and the care that we can provide.

**Evaluating Senior Cats**

With a potential decrease in cat visits due to longer intervals for preventive care, it is important to educate cat owners of the importance of regular wellness visits, at least yearly for mature cats, and increasing to every 6 months or more for the senior and geriatric set. With input from the client and routine screening, it may be then possible to identify early stages of diseases and even trends of clinical parameters as they start to change.

Open-ended questions and prepared questionnaires can be used to alert the pet owner to subtle changes that may be occurring, such as any changes in the routines or behaviors, any weight changes, bad breath, changes in elimination, interactions and activity. The physical examination should start with a general observance of the cat, letting it adjust to the room environment. Overall condition, breathing patterns, gait and coordination can be evaluated before starting a more comprehensive physical exam. A considerate approach to examining the body systems includes approaching the patient quietly and from the side or behind, with gentle touch and slow progression from area to area. The most stressful areas should be examined last, and that might include painful joints, oral cavity, or taking the temperature. Regular preventive or wellness programs should be continued as well.

Auscultating the thorax for heart rate, rhythm or murmurs and lung assessment can be followed by gentle palpation of the abdomen, spine and limbs; taking care where patient reaction may alert you to painful regions. The head and oral cavity can be challenging to examine in some cats, so approaching slowly, with gentle facial and neck rubs can allow you to assess the thyroid gland, lifting the lips for a peek at the teeth and even progressing to an open mouth and sublingual assessment in some. Examination of the retain may also be challenging but can be an important aspect of detecting hypertension. Obtaining an accurate blood pressure measurement may be even more challenging but can provide vital information that relates to several disease conditions.

*Body and Muscle condition scores*

A critical area of assessment should not just be the body condition score (BCS) but also the muscle condition score (MCS - lean body mass LBM) as well as the general condition of the skin and hair coat. While young to mature adult cats may have issues with increased body weight and condition, at age 11, their MER (metabolic energy requirements) increase, and digestion and absorption of protein and fats can decrease, often leading to weight loss. Some of this loss is lean muscle and can lead to sarcopenia, the progressive decrease of skeletal muscle mass, strength, and function with age, in the absence of disease. Without adequate protein (exercise can help as well), this loss can increase. Sarcopenia Obesity (SO) is an age-associated obesity and muscle atrophy (sarcopenia) that are intimately connected. When a patient has excessive adipose tissue with a seemingly high BCS but moderate to severe muscle loss, that is termed Overcoat Syndrome.

In the presence of disease, the state of cachexia can occur, which is an unintended loss of more than 5 percent of body weight over 12 months or less, in a patient with a known illness. This may be accompanied by loss of muscle strength, decreased appetite, fatigue, and inflammation. Refractory cachexia applies to individuals with cancer, with weight loss, muscle loss, loss of function, plus a failure to respond to cancer treatment. Precachexia can be defined as a loss of up to 5 percent of body weight while having a known illness or disease, accompanied by appetite loss, inflammation, and changes in metabolism.

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**Nutrition**

Providing optimal nutrition for aging patients on an individual basis can be challenging but is an important part of their overall care. Adjusting diets due to treatment recommendations may be met with resistance. Even changing from dry food to canned food or changing flavors can be difficult, if a cat had not been introduced to such diet variations at a younger age. Using high quality, high digestible diet components (especially proteins) and feeding small meals frequently can enhance digestive availability (3-4 small meals a day). Making any dietary changes should be made gradually, and attention should be paid to diarrhea, vomiting or inappetence if the intestinal flora is altered. Serum cobalamin (B12) concentrations can be monitored to determine if parenteral supplements are needed.

Water intake should be increased in many older cats since they can be prone to dehydration and even constipation that can lead to another host of problems. If switching to canned food for moisture intake is unsuccessful, supplementing oral intake with tuna juice ice cubes or water fountains may help. Correcting medically significant levels of dehydration through subcutaneous or intravenous fluids is often a component of geriatric cat health and disease management.

**Minimum Database (MDB)**

For both mature and senior/geriatric cats, the MDB includes a CBC, biochemistry profile and urinalysis, with T4 and blood pressure measurement ‘optional’ for those in the mature category. Obtaining a sufficient blood sample to ‘add-on’ a T4 is not a difficult decision but obtaining urine may be more difficult in some patients. However, it is nearly impossible to fully evaluate renal function with just biochemistry, and accurate interpretation for IRIS (International Renal Interest Society) requires UA parameters. Common conditions found in ‘apparently healthy senior cats, (Paepe) everything from hypertension, heart murmurs, hyperglycemia, proteinuria and azotemia were found in these patients. Starting regular screening from healthy adult values will allow a practitioner to identify early changes and trending data that can result in early disease detection and intervention. Specific conditions will be addressed later in the lecture.

**Routine Wellness Care**

Unless otherwise contraindicated due to individual adverse events or sensitivity, regular preventive measures should continue throughout the senior years. Parasite detection and prevention, appropriate vaccination, weight management and dental care can be provided to optimize their health-span.

**Managing Common Diseases for Anesthesia**

*Hypertension*

For anesthetic consideration, evaluation of systemic blood pressure is critical, and for any patient on hypotensive agents, these should be stopped for 24 to 48 hours prior to the procedure. Blood pressure monitoring is essential, with management if variations occur.

*Chronic Kidney Disease (CKD)*

Routine screening can be beneficial to monitor trends and changes as renal function gradually diminishes with age and disease. From the IRIS (International Renal Interest Society), guidelines for staging and treatment can be helpful once the diagnosis is made. Evaluation of azotemia and urine concentrations offer additional parameters, as well as palpation and imaging. Creatinine consistently greater than 1.6 with urine specific gravity persistently less than 1.035 are likely to indicate renal disease

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| IRIS Staging | 1 | 2 | 3 | 4 |
| Blood creatinine mg/dl | <1.6 | 1.6 – 2.8 | 2.9-5.0 | >5.0 |
| SDMA µg/dl | <18 | 18-25 | 26-38 | >38 |

Sub-staging can also be done by UP/C (urine protein to creatinine ratio, other causes ruled out) and systemic blood pressure as well as attention to phosphorous levels.

Anesthetic considerations include evaluating hydration, providing fluid therapy as needed, monitoring blood pressure and avoiding any drugs that require renal clearance or may affect renal performance. Post-operatively, hydration should be maintained and renal values re-assessed in 2 to 4 weeks.

*Hyperthyroidism*

Early identification of hyperthyroidism often occurs through routine diagnostics, such as total T4 values (plus free T4 by equilibrium dialysis). Once the signs of weight loss, polyphagia, polydipsia and others are evident, the disease has already progressed. Evaluating hypertension and kidney disease gives a better evaluation of the whole patient, and advanced imaging can further delineate the extent of the disease, especially prior to 131 therapy. Oral or transdermal methimazole may be effective in some patients, with regular monitoring.

Anesthetic considerations include continuing all medications, monitoring heart rate and blood pressure and avoiding any contraindicated drugs (epinephrine, etc).

*Diabetes Mellitus (DM)*

With the prevalence of obesity comes the increase in DM, especially in older males. Early glycemic control with diet may help delay the need for insulin administration in some cats, and longer acting glargine can be helpful. Home monitoring may eliminate the stresses of trying blood glucose curves in the clinic. Concurrent diseases that impact inflammation, such as pancreatitis and periodontal disease should be addressed, and the use of corticosteroids should be avoided.

Recent developments for hyperglycemic cats before they use insulin include the use of oral sodium-glucose cotransporter 2 (SGLT2) inhibitors. These promote removal of glucose via the urine by inhibiting the reabsorption back into the bloodstream to help improve glycemic control and improve clinical signs while reducing the risk of clinical hypoglycemic events.

Anesthetic considerations include providing a small meal (up to 4 hours prior to procedure) with ½ dose of insulin. Constant glucose monitoring systems may be applied prior to the procedure for perioperative blood glucose assessment and even in the post-operative period at home, in conjunction with watching food consumption.

*Inflammatory Bowel Disease (IBD) and associated disease*

Adult to aging cats with poor appetites or increased vomiting show these non-specific signs that need a rule-out diagnosis to evaluate digestion/absorption issues. Measuring feline pancreatic lipase immunoreactivity (fPLI), feline trypsin-like immunoreactivity (fTLI), and B12 and folate concentrations can help with treatment planning. Full-thickness biopsies are needed to rule out lymphoma, though treatment for both is the same (prednisolone). IBD, pancreatitis and cholangiohepatitis may occur together (triaditis).

Anesthetic consideration include managing any elevated stress levels (pre-operative pharmaceuticals), pain management and continuing any medication with a close observation of post-operative nutrition.

*Dental Disease*

While many practitioners (and owners) may be cautious about anesthetizing older cats for appropriate dental care, correction of significant oral and dental issues can not only improve the QOL for the patient, but in some cases the reduction of oral inflammation can impact systemic health and conditions such as diabetes. Advanced periodontal disease, while likely not as prevalent in cats as in dogs, can cause significant discomfort, inappetence and tooth mobility and displacement.

Chronic Alveolar Osteitis (or buccal bone expansion BBE) is not uncommon in older cats. The buttressing and expansion of the buccal bone is often accompanied by periodontal pockets, tooth resorption and super or over-extrusion of the tooth. Extraction is often necessary, but elevating a flap of the extremely thin gingiva overlying the buccal bulge can be challenging, as an be closure.

While older cats can have tooth resorption or stomatitis (FCGS – feline chronic gingivostomatitis), these are often prolongations of issues happening in younger cats. Oral tumors will be covered in the oral tumor lecture but squamous cell carcinoma is by far the most common malignancy in cats, occurring in the gingiva, tongue and tonsils.

**Quality of Life (QOL)**

As an integral part of patient care, pain control and nutrition have been designated as critical aspects of senior and geriatric cats. There are several QOL questionnaires or scales available that can help the owner and practitioner make decisions about the patient’s comfort. Level of pain, the ability to eat, navigation, cognition, mobility and regular routines are evaluated to compare the ‘good days’ with the ‘bad days’. Home care services that provide hospice care and euthanasia are available in many areas to help decrease the stresses of clinical visits.

Summary including 5 KEY “TAKE HOME” POINTS

1. Senior cats need to be seen on a more regular basis
2. Muscle condition score is important to assess in senior cats
3. Oral and dental disease in senior cats can impact their QOL and appetite.

Summary

Good senior and geriatric feline care begin at the beginning: providing a continuum of care throughout the cat’s life educates the owners about the importance of maintaining the ‘health-span’ of the patient during the different life stages. With regular preventive and wellness care and owner awareness, early detection of any disease can enhance the ability to manage the patient’s care.