

# Disease of Wild Felines I

# Main Differences Among/Properties Of Wild Felidae Species

- **Big cat species share the same genus “Panthera” and this genus includes the following felids: lion, tiger, jaguar, leopard, snow leopard**

# Lion (Panthera leo)

- Lives in savanna, not forest
- [Charles Darwin](#) himself used the lion's **mane** as an example of evolution. He explained that it developed as a means of protection during fighting. He was quite correct that lions fight much more than other cats. Manes make males look larger and may serve to intimidate rivals or impress prospective mates
- Lions are **unique** among cats in that they live in a group, which is also called as '**pride**'. A pride consists of several generations of lionesses, some of which are related, a smaller number of breeding males, and their cubs. The group may consist of as few as 4 or as many as 37 members, but about 15 is the average size.
- **Second in size among wild cats.** They have a powerfully built body with relatively **short legs**.
- Lions **roar to communicate** their position to **other prides**. A lion's roar is **the loudest** of any big cat and can be heard up to 8 km away
- Roaring is made possible by a special two-piece hyoid bone in the throat.  
All of the non-roaring cats have a one-piece hyoid bone. A lion's loud roar is made possible by the cartilage in their throat having ossified into bone (referred to as the Hyoid structure)The eyes are proportionately larger than in other comparable-sized animals, and possess **round pupils**
- The lion's tail is the only one in the cat family with a **tassel at the tip**
- This tassel conceals a spine, which is the **last few tail bones fused together**
- The Lion **has a skull that is longer and flatter** than other felines
- Lion has a small heart. This means that they aren't able to continue a chase for very long at all
- Female lion is called lioness

# Tiger (*Panthera tigris*)

- Tigers are the largest of all cats. Siberian tigers, the largest of all tigers, can reach a length of 13 feet from tail to nose and weigh 800 pounds.
- Tigers are regarded as **the strongest and most dangerous** of all cats. They can knock down animals four times their size and have **the largest canine teeth or any terrestrial carnivore**
- **Not only the fur but also the skin of tigers is striped.** The pattern of stripes, evident in their coat, is **unique** in each specimen, and the background coloration varies according to the subspecies, that is, it may be lighter or darker orange, and the stripes may appear broader or narrower
- They can climb and swim, **they like being in water** despite the fact that they are members of the cat family.
- Tigers can kill animals four times their size but will eat locusts, termites, rats, other rodents, lizards, fish and frogs if they are desperately hungry
- They have a big skull with a rounded shape and powerful jaws. In fact, the lower jaw is almost straight. They have seven vertebrae in the neck, seven lumbar vertebrae, 13 thoracic vertebrae and three sacral vertebrae. Its clavicle is small, which favors the execution of larger movements. They have a broad, short head over a rather thick neck. they have the hind legs longer than the front legs which also help to increase the jumping ability
- White tigers have **pink pads**.
- Tigers **can roar**.

# Jaguar ( Panthera onca)

- Long, thin, but powerful legs
- The most powerful jaw among the mammals, can pierce through the skull to the brain **in one bite**. (which is the method they use in hunting animals that are either bigger than themselves or that have shells and hard skins)
- They are considered to be **the most powerful** members of the big cat family despite being much smaller than tigers and lions
- Their body allows them to **swim well**. They use swimming to cool their body. They can also hunt in water.
- **Can roar**

# Leopard (*Panthera pardus*)

- Shortest legs in the big cat family
- 11 subspecies identified
- The smallest in the big cat group
- They emerged to their modern form as recently as 500,000 years ago.
- The most adaptable and widespread of big cats
- Can roar

# Cheetah (*Acinonyx jubatus*)

- Closely related to puma genus
- The cheetah (*Acinonyx jubatus*), the last surviving species of the genus *Acinonyx*
- a slender body, deep chest, spotted pelage, a small rounded head, black tear-like streaks on the face, long thin legs and a long spotted tail.
- The face and the jaw are unusually shortened and the sagittal crest is poorly developed, possibly to reduce weight and enhance speed. In fact, the skull resembles that of the smaller cats. Another point of similarity to the small cats is the long and flexible spine, in contrast to the stiff and short one of other large felids
- The cheetah has a relatively long snout, long legs and deep chest, tough foot pads and blunt, semi-retractable claws

# Cheetah (*Acinonyx jubatus*)

- Cheetahs have a high concentration of nerve cells, arranged in a band in the centre of the eyes. This arrangement, called a "visual streak", significantly enhances the sharpness of the vision. Among the felids, the visual streak is most concentrated and efficient in the cheetah
- Their evolution, behaviouristics and hunting methods resemble canines.
- Cheetahs are diurnal (active mainly during the day while the Panthera genus is nocturnal (active during the night))
- Can't roar
- The cheetah is the fastest land animal
- The large nasal passages ensure fast flow of sufficient air, and the enlarged heart and lungs allow the enrichment of blood with oxygen in a short time. This allows cheetahs to rapidly regain their stamina after a chase
- Has 5 subspecies



- The distal esophagus in cheetahs and some members of the *Panthera* lineage (lions, tigers, leopards) have prominent folds.
- This can be confusing especially during clinical procedures to obtain gastric biopsies as the folds in the distal esophagus can be mistaken for gastric rugae.
- Histologically, these folds are composed of stratified squamous epithelium (as for the remainder of the distal esophagus) overlying connective tissue.

# Multiple ocular colobomas

- Are common in snow leopards.
- Ocular colobomas are defects in one or more structures of the eye.
- Those that occur in the eyelids, cornea, iris, ciliary body, choroid, retina and/or optic disc result from failure of the embryonic fissure to close correctly during embryogenesis

# Multiple ocular colobomas

- Typical colobomas of the iris, chorioidea and the optic nerve, well known in human beings and domestic animals are caused **by an incomplete closure of the embryonic eye fissure.**
- A frequent cause for the coloboma complex **is a dominant gene** with a wide range of expression.
- **Chromosomal abnormalities** can furthermore cause the coloboma.

# Multiple ocular colobomas

- The clinical variation of this anomaly is considerable, ranging from little or no effect on the vision to fully developed **microphthalmia** or an **ophthalmia** leading to **total blindness**.
- Other than genetic factors may also determine the failure in closure of the embryonic eye cleft. These include environmental factors, deficiencies and various terato-genic agents.

# Multiple ocular colobomas

- The predominant symptom is the palpebral coloboma.
- The appearance of the palpebral coloboma varies from a very small notch in the eyelid to a total absence of the margin of the outer lateral half of the upper lid.
- The palpebral lesion is found only on the upper lid and is always affecting its central and lateral portion. The lower lid and the medial half of the upper lid are never affected.

# Multiple ocular colobomas

- Histologic lesions include choroid hypoplasia, retinal cysts, retinal dysplasia (retinal folds), and cupping or cystic ectasia of the optic nerve. Multiple hypotheses have been proposed but to date none have been proven

# Spondylosis (spondylosis deformans; ankylosing spondylosis)

- Commonly seen in captive wild cats
- The spectrum of lesions varies from small bone spurs on the lateral or ventral edges of the articular surfaces of vertebral bodies to large, **boney bridges or callus-like proliferations** of bone between adjacent vertebral bodies and sclerosis of vertebral end plates

- Primary factors important in its development include
  - ❖ intervertebral disc degeneration,
  - ❖ disc herniation
  - ❖ intervertebral space collapse,
  - ❖ degeneration of the articular facets of the vertebral bodies.



- Affected animals may be asymptomatic or show
  - ❖ decreased activity,
  - ❖ weakness, ataxia,
  - ❖ proprioceptive deficits or paresis.
- While lesions can occur anywhere along the vertebral column, those in the lumbar spine and lumbosacral junction are most common.
- Axonal damage and Wallerian Degeneration in the spinal cord are associated with *disc herniation* and compression but can be due to *osteophyte formation*, and *compressive lesions may occur in spinal nerves due to **bone expansion***.

# Veno-occlusive disease (VOD)

- Described in cheetahs and snow leopards both in captive and free-range
- Disease is characterized by progressive **accumulation of collagen in perisinusoidal spaces (space of Disse) and subintimal spaces of central and sublobular veins.**
- The result is progressive attenuation or *obliteration of vascular lumens* with collapse of regional cords, atrophy and *loss of hepatocytes* surrounding affected vessels and subsequent fibrosis.

- Subendothelial damage, thought to be the primary lesion, is evident ultrastructurally.
- **Chronic cases** can progress to cirrhosis.
- **In severe acute cases,** centrilobular to massive hepatic necrosis with hemorrhage can be seen.
- Clinically, affected cats can be asymptomatic or have signs of hepatic failure including hypoproteinemia, serous or chylous abdominal effusion, elevated liver enzymes (aspartate aminotransferase, alanine aminotransferase), and icterus.

- In rare cases, cheetahs have exhibited neurologic signs presumably due to [hepatic encephalopathy](#)
- A dietary cause for VOD, including phytoestrogens (a cause of the disease in humans) or elevated dietary Vitamin A, has been proposed but not proven.