

# Reproductive Resources

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Report of exam of Lucy 'Skanik' a 49 year-old female Asian elephant  
September 15-16, 2024

**History** – Lucy has not been pregnant to the knowledge of her care team. She was sent to another zoo many years ago, during the winter, for breeding, at least two times. Since Lucy has not been around other Asian elephants for many years and it should be assumed that her antibody levels to EEHV 1a and 1b are very low or they are not measurable. There is no test in Canada available to measure antibody levels of EEHV 1a or 1b. Lucy was diagnosed with possible leiomyoma's present in her reproductive tract a few years ago and is currently being treated with an anti-GnRH vaccine to prevent cycling. Last year's exam by PeoGenY confirmed that the leiomyoma like lesions in the uterus were not growing larger. Earlier this year the elephant care team reported some ventral edema associated with lower than normal for her protein levels that have responded to increased protein consumption but not completely to her previous levels. The care team reported that earlier this year the left breast did have some fluid which could be expressed with manual manipulation. In addition, two nail defects were noted and under adequate veterinary/elephant team care. Lucy is provided adequate space and a sand mound to lie down and rise on her own. Lucy has been maintained as a solitary elephant since her herdmate (an African elephant) was moved to another facility ~16 years ago, for behavioral issues and breeding. Lucy is herd bound to the elephant staff who provide her social and behavioral choices to her benefit. Lucy primarily mouth breathes rather than primarily through her trunk. On exercise, last year, it was determined using blood gases that it results in higher CO<sub>2</sub> levels than normal and lower O<sub>2</sub> levels.

She is managed in free contact with safety of her and her handlers in mind. She is a calm and gentle elephant who is food motivated and compliant with the requests of her handlers. Lucy is given choice and control in her daily activities as I witnessed on the first day of examination.

**Visual exam** – Lucy is an active healthy older elephant and is considered Geriatric at 49 years of age. During the early morning exam, she did exhibit some reduction in the flexion of her left elbow which quickly resolved with normal movement during a short walk. She did not exhibit any pain or reluctance to walk a good distance either uphill or downhill. The left front leg does appear to be slightly enlarged below the elbow. The right foot has two healing lesions (one on the front of a nail and another nail with a small sole defect) under adequate veterinary supervision. The lesions are not infected and appear to be on the way to complete the healing process. The foot pads are in excellent condition,

although the conformation of her rear ankles results in a mild lateral to medial roll of her foot when walking. Also, she had very mild short stride of the left rear leg while walking straight. I did not request a repeat of exercise to obtain blood gas levels as this would not have changed over the past year, unless she demonstrates an increase in difficulty breathing resulting in reduced compensation for very mild exercise.

. Her eyes were clear, and vision appeared normal. There are three mild depigmentation areas under treatment with emollients to keep the areas soft, there are no erosions of the areas currently. They are located near the hip, the elbow and the cheek area of one side. The elephant staff reports that Lucy usually lays down on her left side when in the night stall on a sand mound and that she prefers to lay down on her right side when in the Peat Moss mound in the dome area.

The staff noted that the mammary gland had previously had fluid that could be expressed manually, for a short period this last year. On palpation of the breasts, the right gland was normal, and the left mammary gland was enlarged but firm with no nodules or lumps that would indicate a previous mammary infection. No fluid was expressed on palpation, nor was any fluid areas able to be palpated.

Lucy's was asked to open her mouth for an oral exam, and she is currently on her last set of molars. The left upper molar is small with most of the laminae having been shed and it is somewhat twisted from its normal position. The right molar is mostly intact and appears on exam to be oriented normally. Lucy when being fed hay would place it in her mouth and move it to either side with her tongue, to be chewed and swallowed. Her cheeks are slightly enlarged which allows some feedstuffs to be retained between the gums and the cheek. Elephant staff flush and remove the material daily and no odor was detected which would indicate there is not an infection of the area. The bottom molars are difficult to directly examine in any elephant, but a picture was obtained with a phone camera held in the mouth, and the bottom molars appeared to be intact and not displaced to either side. During the visual exam Lucy defecated and urinated normally. The fecal boluses expelled were normal with appropriate fiber length noted in the boluses nor was there any indication of pica consumption (sand, clay, rocks, etc.). The urine was clear with some evidence of a small number of normal crystals expelled towards the end of the micturition.

**Ultrasound exams (next morning)** – Transrectal and transcutaneous ultrasound imaging was performed with a 3-5 MHz transducer. The caudal urogenital tract in the pelvis was examined Transrectally with the transducer being hand-held. The anterior reproductive tract was examined with a transducer extension to increase the reach of the examiner another ~45cm (18 inches) following a thorough enema with water to remove fecal material.

The urethra was normal, and the bladder was full of urine with normal crystals and mucus observed in the bladder. The vaginal mucus appeared normal with the anterior vagina having some fluid accumulation. The transverse image revealed a triangular shape of ~4x6cm. The cervix was not well visualized as the uterus was drawn down from the front edge of the pelvis. However, there was evidence of a small lesion consistent with

a leiomyoma at the area of cervical fornix about 1.5cm in diameter. Due to the uterus being drawn down immediately anterior the cervix it could not be visualized either with the hand-held or the transducer extension. However, the right ovary and tip of the right uterine horn was visualized. The right ovary had several small fluid-filled structures consistent with small follicles. They were less than 1cm in diameter and none were close to being mature follicles. The tip of the right uterine horn had two 2cm structures consistent with leiomyomas. Just caudal to the tip of the right uterine horn was an area with fluid filled small spherical structures in the endometrium. These are consistent with endometrial cysts. They are not often seen in Asian elephants but do occasionally detected. They are common in African elephants with a similar history. The left ovary and uterine horn were not able to be visualized due to rectal contractions preventing rotation of the transducer. There was a normal amount of fluid in the pelvic flexure consistent with a normal elephant. The kidneys were not able to be visualized due to the same limitation noted above.

The transcutaneous imaging areas were flushed with water and alcohol applied to remove the surface tension of the water in the skin wrinkles. Then ultrasound gel applied to the imaging area for a better transcutaneous image. The left rear abdominal area was normal with small and large intestinal walls. The gas in the large intestines prevents imaging contents but normal contents of the small intestines were noted. An attempt to image the liver and between the ribs was limited and no diagnostic images were obtained from the left side. The left breast was imaged and there were hypoechoic areas of fluid in the mammary tissue. This would indicate there was no mastitis causing production of fluid to be expressed. The buccal areas were imaged and there was no fluid present in the buccal swellings on either side. Palpation indicated that the tissue was soft and pliable, and the jaw could be palpated deeper to the tissue. The right caudal thorax was examined for an edge of the spleen although no images were diagnostic. The last transcutaneous area imaged was the upper right abdomen for evaluation of the cecum. The cecal wall was within normal limits and contents not able to be imaged due to the gas present in a normal cecum.

**Records reviewed** – Together with Dr. MJ Limoges I reviewed both her medical records for the past couple of years and the recent foot radiographs obtained with a digital radiograph. Lucy's weights varied somewhat but were within the normal range for an elephant of her size and age. The blood work noted the changes in her protein levels and appropriate actions were taken to raise the protein level. It is not unusual for an old elephant to exhibit slightly lower protein levels as they age. The ventral edema was well documented and diet changes and hydrotherapy initiated by the elephant staff as recommend by the attending veterinarian. The minor foot lesions are currently healing and are not infected.

Dr. Limoges and I reviewed the foot radiographs and There are no significant changes in the bony or soft tissues of the feet noted.

**Summary** – Lucy is a healthy active geriatric 49-year-old female Asian elephant with the normal issues often seen in elephants of her age. She is receiving excellent care from a team of elephant care and veterinary staff. However, I would not recommend moving her

to another facility with elephants or moving elephants to be with her. This is due to high to the likelihood that she has no innate protection to prevent succumbing to EEHV within 6-12 months of exposure to other Asian elephants. The swollen left mammary gland is within normal limits, except for the hypoechoic areas noted and I have no concerns with it status currently.

Lucy exhibits choice and control in her care and environment at the Edmonton Valley Zoo. I recommend that she continue to remain in her current facility until she passes, which could be several more years.

Submitted by,

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