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Case Report

A CASE REPORT ON UTERINE LEIOMYOMA IN AN ASIAN ELEPHANT (*ELEPHAS MAXIMUS*)

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Abstract: Uterine leiomyomas are benign spindle shaped tumors arising from the smooth muscles of the uterus and are commonly reported in both captive and wild animals. The present case describes the accidental finding of uterine tumor in a fifty year old nulliparous female elephant, succumbed to severe impaction after weeks of treatment. The necropsy examination revealed more than the normal expected size of the uterus with multinodular, firm masses. Histopathological examination of the uterus showed wavy pattern of well differentiated, hyper chromatic, spindle shaped cells in a large stroma of interlacing collagenous connective tissue.

Keywords: Elephant, leiomyoma, impaction.

Introduction

Kerala has more than seven hundred elephants in captivity which accounts for a sizeable percentage (nearly 21%) of the estimated captive elephant population in India (Varma *et al*., 2009).Elephants being an endangered species, one of the major challenges is the maintenance of their health includes early diagnosis and treatment of certain health conditions (Miller *et al*., 2015). In domestic animals, leiomyomas are found primarily in the liver, spleen, cecum, small intestine, bladder, uterus and deep soft tissues (Kapatkin *et al*., 1992). Leiomyomas of genital origin are among the most frequently encountered neoplasms of the female reproductive system in almost all domestic animals and occurs more frequently in females. However, leiomyomas were reported to have only a low frequency of occurrence (1% to 2%) of all tumors in sheep, cattle, and pigs (Hulland, 1978). Uterine leiomyomas, histopathologically classified as mesenchymal tumor are spindle shaped benign tumors arising from the smooth muscles of the uterus. Ageing and nulliparity are often ascribed as the reasons and are associated with progressive degenerative changes of myometrium of uterus which may impair fertility. Mostly, the condition is a subclinical one and hence most of the cases were an accidental finding to the postmortem examination of some primary

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etiology (Munday and Stedman, 2002; Siegal-Willott *et al*., 2005). There has been reports on uterine leiomyoma in sow (Mumba *et al*., 2011), sheep (Corpa and Martinez, 2010), uterine leiomyosarcoma in dog (Serin *et al*., 2010) and pathological and immunohistochemical characterization of uterine fibroleioma in Asian elephant (Sapundzhiev *et al*., 2007; Pringproa *et al*., 2015). The present case reports the accidental finding of tumor of uterus during post mortem examination of an elephant which succumbed to severe impaction.

Material and methods

A 50 year old female elephant was detected with impaction when she did not pass stools and inappetance for 3-4 days. Conventional treatment including fluid therapy, prokinetics, purgatives, analgesics and antimicrobials was given for a week but there was no improvement of the condition. The elephant succumbed to impaction and a detailed post mortem examination was conducted to confirm the cause of death. Small pieces of affected tissue were collected in 10% neutral buffered formalin. After proper fixation, the tissues were embedded in paraffin and processed according to Luna (1968). Briefly, the tissue sections were cut into 4-5 micrometer thickness and were stained with Haematoxylin and Eosin stain (H & E). Duplicate sections of the tissues were stained using Gomori's one step trichrome staining following standard procedure. The faecal samples were also examined for any parasitic egg/ova.

Results

A well detailed post mortem examination to ascertain the cause of death of the animal was conducted as per standard procedures of necropsy examination. The portion of colon cranial to the position of uterus was found impacted with fecal matter (Fig.1). Grossly, size of the uterus was more than the normal expected size and multinodular, firm masses of approximately 10-20cm (Fig 2 and 3) diameter scattered on the body of uterus without any evidence of metastasis was observed. Histopathological examination of the formalin fixed paraffin embedded hematoxylin and eosin stained tissue sections of the uterus revealed varying degrees of uterine epithelial derangement (fig. 4 and 5) wavy pattern of well differentiated, hyperchromatic, spindle shaped cells in a large stroma of interlacing collagenous connective tissue. The spindle-shaped tumour cells stained as bright red and collagen bundles as blue with Gomori's one step trichrome staining (fig.5).

Conclusion

Based on the detailed necropsy examination and relevant microscopic examination of the contrived histological slides, uterine leiomyoma has been diagnosed in the present case.

However, the existing anamnestic information on the health status of animal such as inability to pass stools and inappetance for 3-4 days along with evidence of impaction of colon due to fecal material on postmortem examination led to the assumption that the prime cause of death may not be tumour rather the impaction of colon. Uterine fibro leiomyoma, being associated with age can be just a concomitant illness of the ageing animal as the captive life span of elephant being 50 to 60 years. Lack of breeding of the female elephants in capitivity may be a cause of uterine leiomyomas.

Legends:

Fig. 1. Uterus showing multinodular, pale firm masses sized 10-20 cm in diameter (*) scattered throughout the uterine body and the uterine horns.

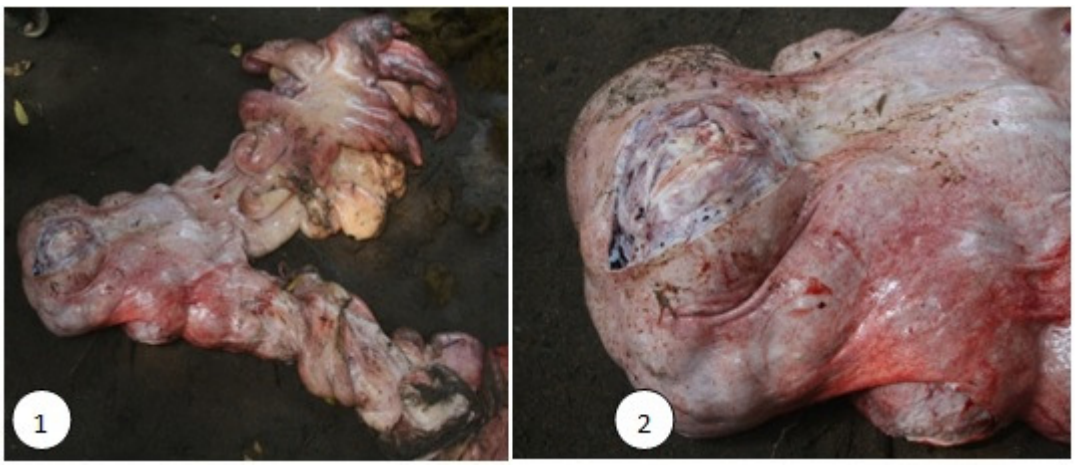
Fig. 2. Uterus(closer view) showing firm, well-demarcated pedunculated mass

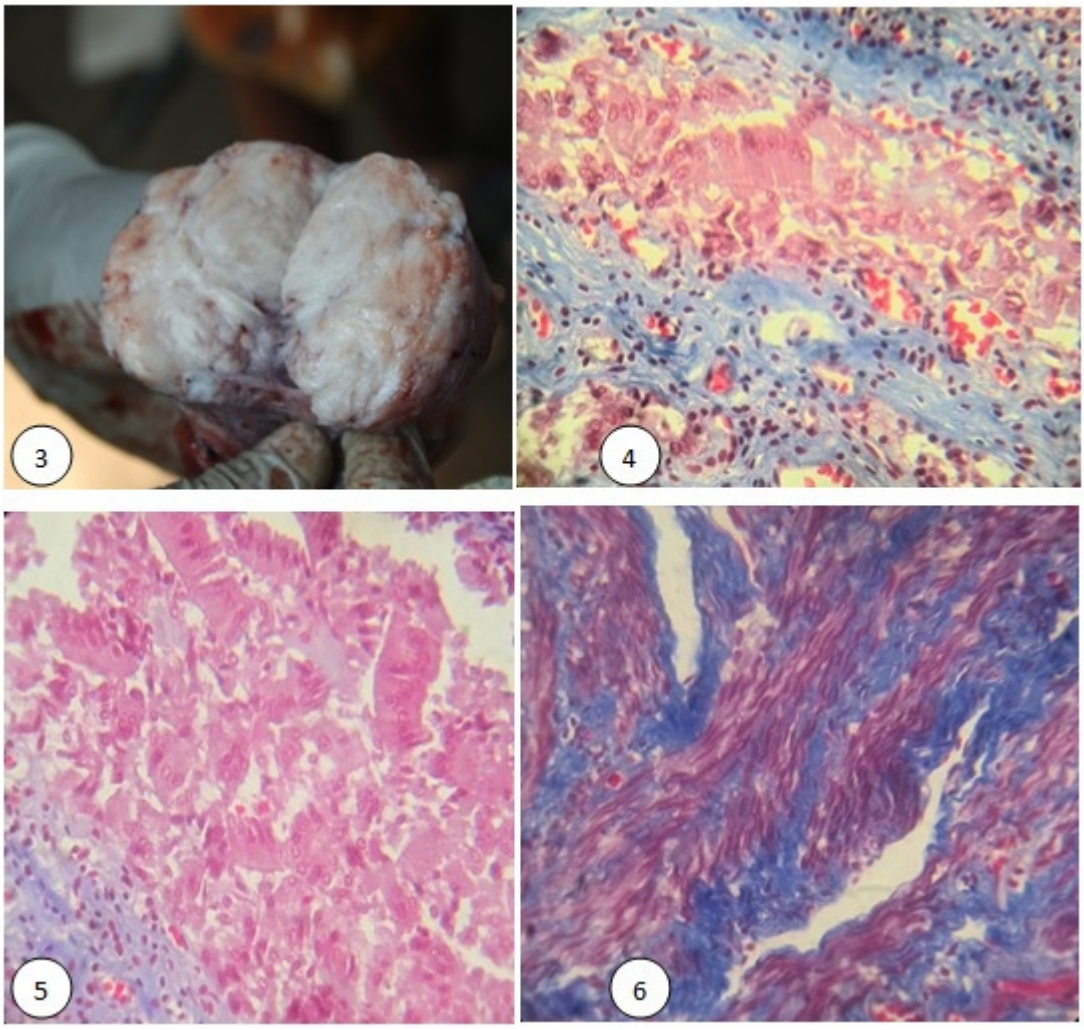
Fig. 3. Cut surface of the tumour.

Fig. 4. Uterine epithelial derangement (Gomori's one step trichrome staining. 20X)

Fig. 5. More progressive derangement of uterine epithelium (Gomori's one step trichrome staining. 40X)

Fig. 6. Collagen and smooth fibre proliferation suggestive of leiomyoma. Smooth muscle fibres and nuclei are stained magenta to red colour (Gomori's one step trichrome staining. 40X).





References

[1] Corpa, J.M. and Martinez, C.M. (2010). Uterine leiomyoma in a sheep. *Reproduction in domestic animals*. **45(4)**: 746-748.

[2] Kapatkin, A.S., Mullen, H.S., Matthiesen, D.T. and Patnaik, A.K. (1992). Leiomyosarcoma in dogs: 44 cases (1983-1988). *Journal of the American Veterinary Medical Association*. **201(7)**:1077-1079.

[3] Luna LG. (1968). Manual of Histologic Staining Methods of the Armed Forces Institute of Pathology, 3rd ed. McGraw-Hill, New York.

[4] Miller, D., Jackson, B., Riddle, H.S., Stremme, C., Schmitt, D. and Miller, T.(2015). Elephant (Elephas maximus) health and management in Asia: variations in veterinary perspectives. *Veterinary medicine international*, *2015*.

[5] Mumba, C., Pandey, G.S., Kabali, E., Shibahara, T. and Kubo, M. (2011). Uterine fibroleiomyoma in a 12 year old sow. *Indian Journal of Veterinary Pathology*. **35(1)**:84-86.

[6] Munday, J.S. and Stedman, N.L. (2002). Uterine leiomyomas in two Vietnamese pot-bellied pigs (*Sus scrofa*). *Veterinary Pathology Online*. **39(5)**:.580-583.

[7] Pringproa, K., Madarame, H., Sritun, J., Bumpenpol, P., Pedsri, P., Somgird, C. and Thitaram, C. (2015). Histopathological and immunohistochemical characterization of spontaneous uterine leiomyomas in two captive asian elephants. *The Thai Journal of Veterinary Medicine*. **45(2)**: 289.

[8] Sapundzhiev, E., Pupaki, D., Zahariev, P., Georgiev, G. and Ivanov, I. (2007). Fibroleiomyoma in elephant uterus. *Journal of Veterinary Medicine Series.* **54(9)**: 499-500.

[9] Serin, G., Aydogan, A., Yaygingul, R. and Tunca, R. (2010). Uterine leiomyosarcoma in a dog: a case report. *Veterinarni Medicina*, **55(8)**:405-408.

[10] Siegal-Willott, J.L., Henrikson, T., Carpenter, J.W. and Andrews, G.A. (2005). Chronic obstipation in a leopard (Panthera pardus) caused by intrapelvic uterine leiomyoma compression of the distal colon. *Journal of Zoo and Wildlife Medicine*. **36(3)**: 534-537.

[11] T.J. Hulland, "Tumors of muscle," *In.* Tumors in Domestic Animals, J.E. Moulton, 1978. Ed., University of California Press, 2nd edition

[12] Varma, S., Easwaran, E.K, Rajeev, T.S, Radhakrishnan, C.M., Sujata, S.R. and Namboodiri, N. (2009). Captive Elephants in Kerala.Compassion Unlimited Plus Action and Asian Nature Conservation Foundation