# An incidence of pleural mesothelioma in circus lionesses

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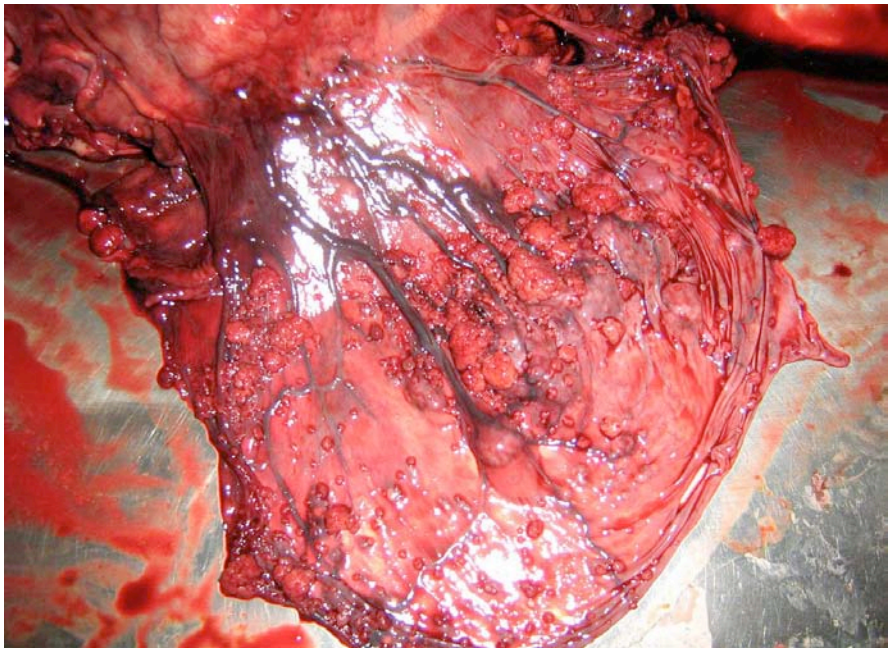
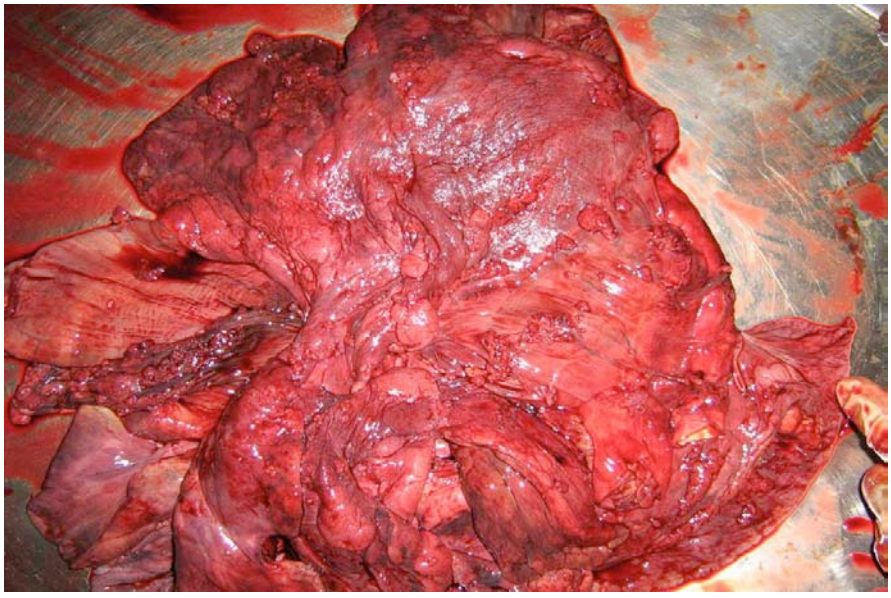
Mesothelioma is a rare mesodermal neoplasm arising from pleura, pericardium and peritoneum. The incidence of tumors is more in carnivores than ruminants (King and Robbins, 2006). Peritoneal mesotheliomas were recorded in the cattle, dog &cat (Balachandran *et al.,* 2006, Kabayashi *et al.,* 1994, Nashiruddallah and Chakravathy, 2003). But in lions mesotheliomas have not yet been reported. Present report describes an incidence of pleural lesions in circus lionesses which may be attributed to asbestosis.

Four lionesses from Sri Venkateswara Zoological Park, Tirupati between the age of 20-25 years died in a course of fourteen months and were subjected for post mortem examination in the Department of Pathology, College of Veterinary Science, Tirupati. The Lionesses showed clinical signs of progressive weakness over several months. Dyspnoea, wheezing sounds both at inspiration and expiration and emaciation were observed before death. During PM examination representative tissues were collected in 10% Formalin and processed and stained with routine Haematoxyline & Eosin for Histopathological examination.

Necropsy examination of four animals revealed approximately 4-5 liters of serosanguinous fluid in the thoracic cavity. Multiple grayish white, firm, fleshy irregular masses ranging from approximately 2 mm to 2cm in size were noticed in the pericardium, pleura, diaphragm, lungs and ribs (Fig –1&2). The lungs were slightly firm and brownish black colour pigment was noticed on the surface. Tracheal, bronchial and bronchiolar mucosa was congested and filled with mucus. Severe congestion of liver, gastric and intestinal mucosa was noticed. Engorged mesenteric blood vessels were observed in all the cases. The present findings are similar to the reports of pleural mesothelioma in a tigress and mesothelioma in a cat (Rao and Acharjyo, 1994 and Balachandran *et al*., 2006)

Histologically tumor masses revealed columnar neoplastic mesothelial cells, arranged in finger like (or) papillary pattern (Fig-3). These neoplastic cells were proliferated over the highly cellular and vascular connective tissue stroma. Neoplastic cells revealed abundant pink cytoplasm with pleomorphic round to elongated nuclei and more prominent nucleoli. A few mitotic figures were also seen.





**Figures 1 & 2. Note grayish white multiple, firm, fleshy irregular shaped multiple masses in the diaphragm and lungs.**

There was no metastasis. Lungs revealed the presence of yellowish brown colored irregular masses of ferruginous bodies were noticed in perialveolar, peribronchiolar and interstial septa (Fig-4) and mild fibrous tissue proliferation in interstial places were also observed. All other visceral organs were severely congested.

The similar changes were recorded by earlier authors (Moulton, 1978, Nashiruddalah and Chakravarthy, 2003 and Jubb *et al*., 2005).

In humans mesotheliomas are thought to be due to asbestosis, and have proved to be fatal (Jubb and Kennedy, 2005). In the present investigation we found that Sri Venkateswara Zoological Park, Tirupati was free from asbestosis.

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Four out of the 77 lions died. This might be because these four animals were brought from circuses (Jumbo circus, Gujarat & Rambo Circus, Kerala State, India). These circus animals used to move to different places (cites) in India, so there is a possibility of coming in contact with environmental pollutants like asbestosis which may lead to mesothelioma.

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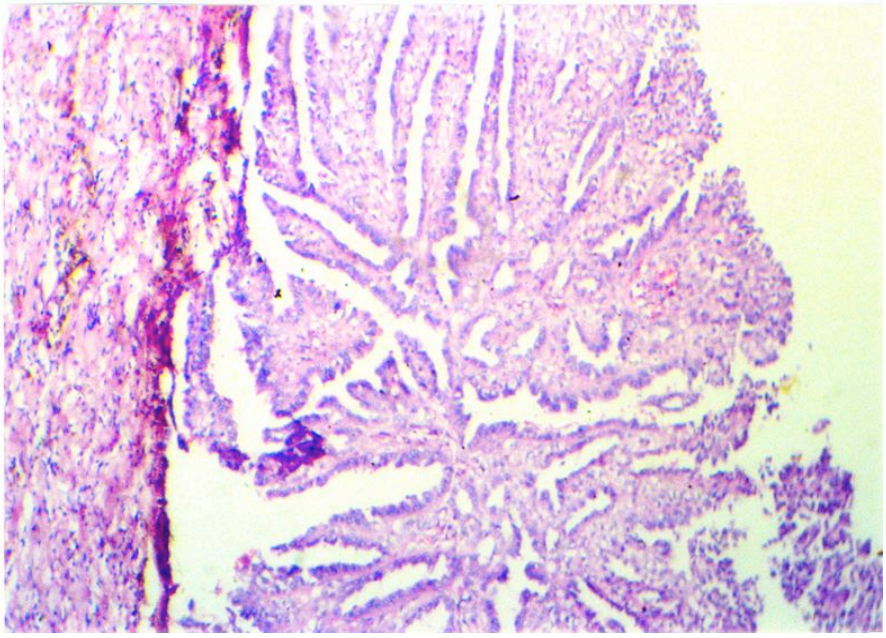

**Figure 3. Note columnar neoplastic mesothelial cells, arranged in finger like (or) papillary pattern. H and E: x70.**

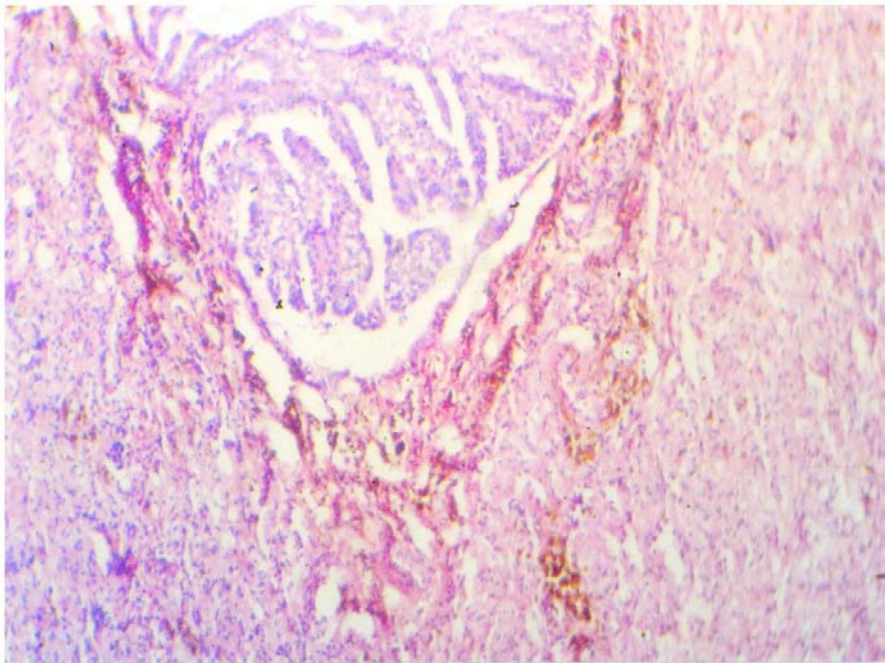

**Figure 4. Lung section showing yellowish brown colored irregular masses of ferruginous bodies in interstitial space. H and E: x70.**