



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; SP-12(9): 2567-2569  
© 2023 TPI  
[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 24-06-2023  
Accepted: 30-07-2023

**RV Ramanamurty**  
Associate Professor and Head,  
Department of Veterinary  
Pathology, College of Veterinary  
Science, Sri Venkateswara  
Veterinary University, Tirupati,  
Andhra Pradesh, India

**C Yugandhar**  
Assistant Professor  
(Contractual), Department of  
Veterinary Pathology, College of  
Veterinary Science, Sri  
Venkateswara Veterinary  
University, Tirupati,  
Andhra Pradesh, India

## Gross lesions and cytopathological findings in a Lymphosarcoma affected pig

**RV Ramanamurty and C Yugandhar**

### Abstract

A Large White Yorkshire pig was received for postmortem examination. Based on the gross lesions in postmortem examination and cytopathological examination, the case was diagnosed as Lymphosarcoma.

**Keywords:** Lymphosarcoma, large white Yorkshire pig, postmortem findings, gross lesions, cytopathology

### 1. Introduction

Lymphosarcoma (also referred to as malignant lymphoma) is defined as the malignant proliferation of lymphoid cells, originating from outside of the bone marrow, in solid organs such as lymph nodes, liver, or spleen [1]. Lymphosarcoma is a diffuse malignant lymphoma. Lymphosarcoma or malignant lymphoma is a multicentric disease of great importance in many species of domestic animals. This wide range disease is also the most common tumor disease in swine [2] where it is primarily seen in young animals and rarely in newborns [3]. The exact etiology of lymphosarcoma in pigs is not yet clearly established and it is likely caused by a complex interaction of infectious, hereditary and environmental factors [4]. The disease is heritable in nature and most probably caused by an autosomal recessive gene [5]. Lymphosarcoma can be related to the porcine lymphoma C-type virus [6]. Lymphosarcoma is the most common malignancy in pigs followed by nephroblastoma, melanoma, primary and secondary liver malignancies [7]. No specific pig breed is more susceptible to Lymphosarcoma than others. The occurrence of Lymphosarcoma in pigs is sporadic [8]. Lymphosarcoma is widely disseminated (multicentric) with liver, kidney, lymph nodes and spleen being the organs most commonly involved [9]. In the present case study, gross lesions and cytopathological findings were described in a Lymphosarcoma affected male pig.

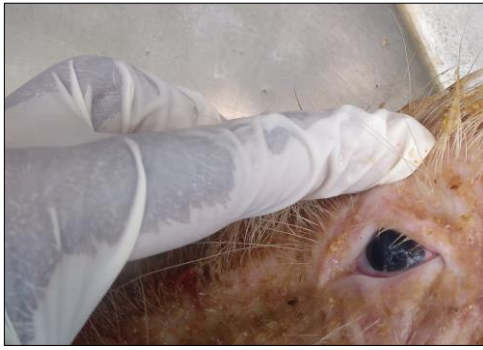
### 2. Case history and observation

A male Large White Yorkshire pig of three months age was received for post mortem examination with clinical history of anorexia, paleness of the body along with skin rashes. Upon external postmortem examination, the pig was debilitated (Fig.1), anemic with pale conjunctival mucous membranes (Fig.2) and ecchymotic hemorrhagic patches on the skin (Fig.3).



**Fig 1:** Debilitated condition of the body

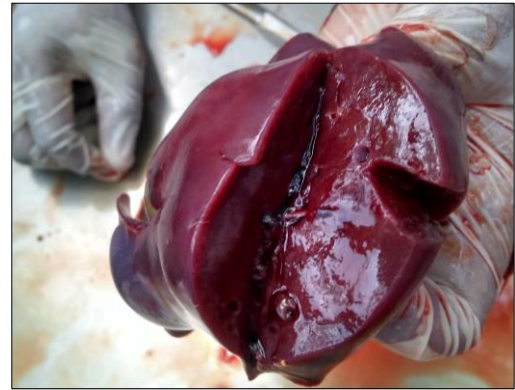
**Corresponding Author:**  
**RV Ramanamurty**  
Associate Professor and Head,  
Department of Veterinary  
Pathology, College of Veterinary  
Science, Sri Venkateswara  
Veterinary University, Tirupati,  
Andhra Pradesh, India



**Fig 2:** Pale conjunctival mucous membrane



**Fig 3:** Ecchymotic hemorrhagic patches on skin



**Fig 5:** Congested liver



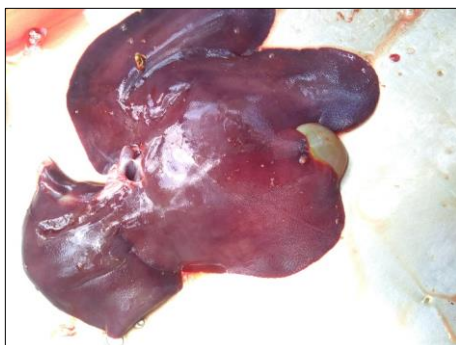
**Fig 6:** Enlarged mesenteric lymph nodes, fused to form cord like masses and with hemorrhagic areas.



**Fig 7:** Numerous small blood vessels formation in mesenteric lymph nodes area



**Fig 8:** Metastatic neoplastic growths in intestines.



**Fig 4:** Enlarged liver with greyish white focal lesion areas on the surface and distended gall bladder

**3. Materials and Methods**

External and internal postmortem examination of the pig was conducted and during internal postmortem examination, various gross lesions in different organs were recorded. Impression smears from cut section of mesenteric lymph nodes were taken and stained by Giemsa staining procedure and cytopathological findings were studied by microscopic examination [10].

**4. Results and Discussion**

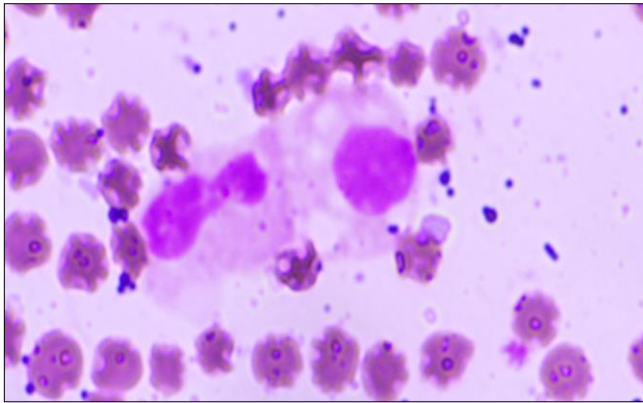
**4.1 Gross lesions**

In the internal postmortem examination, it was observed that liver was enlarged with greyish white focal lesion areas on its surface along with distended gall bladder (Fig.4). Congestion of the liver was also observed (Fig.5). Mesenteric lymph nodes were enlarged and even they were fused together giving an appearance of cord like masses with hemorrhages in some areas (Fig.6). Characteristic numerous small blood vessels formation which is highly suggestive of neoplastic condition was observed in mesenteric lymph nodes area (Fig.7). In the intestines, metastatic neoplastic growths were observed (Fig.8).

**4.2 Cytopathological examination**

Impression smears of the mesenteric lymph nodes were examined for cytopathology. The characteristic neoplastic

lymphoblast cells were observed in the Giemsa stained impression smears (Fig.9). The neoplastic lymphoblasts were larger than lymphocytes in size and they were with large vesicular nuclei and cytoplasmic vacuolation.



**Fig 9:** Neoplastic large lymphoblasts in mesenteric lymph nodes impression smear. Giemsa stain, 1000x

## 5. Conclusion

Based on the gross lesions in postmortem examination and the presence of characteristic neoplastic lymphoblast cells in the cytopathology of mesenteric lymph nodes, it was successfully diagnosed as Lymphosarcoma in a male Large White Yorkshire pig.

## 6. References

1. Stanley IR, Anthony PC. Canine Lymphoma. Canine Internal Medicine Secrets; c2007. p. 367-369.
2. Bostock DE, Owen LB. Porcine and ovine lymphosarcoma -A review. Journal of the National Cancer Institute. 1973;50:933-939.
3. Cotchin E. Tumours of farm animals. Veterinary Record. 1960;72:816-820.
4. Skavlen PA, Stills HF, Caldwell CW, Middleton CC. Malignant lymphoma in Sinclair miniature pig. American Journal of Veterinary Research. 1986;47:389-393.
5. McTaggart HS, Head KW, Laing AH. Evidence for a genetic factor in the transmission of spontaneous lymphosarcoma of young pigs. Nature. 1971;232:557-558.
6. Anzai T, Tokumino M, Shinzato T. Swine leukemia found on meat inspection. Food Sanitation Research 1984;34:121-129.
7. Bostock DE, Owen LN. Porcine and ovine lymphosarcoma: A review. Journal of National Cancer Institute. 1973;50:933-939.
8. Anderson LJ, Jarrett WF. Lymphosarcoma (leukemia) in cattle, sheep, and pigs in Great Britain. Cancer. 1968;22:398-405.
9. Jagdale A, Iwase H, Klein EC, Cooper DK. Incidence of Neoplasia in Pigs and Its Relevance to Clinical Organ Xenotransplantation. Comparative Medicine. 2019;69(2):86-94.
10. Barcia JJ. The Giemsa stain: its history and applications. International Journal of Surgical Pathology. 2007;15(3):292-296.