

## Lymphoma in reindeer (*Rangifer tarandus tarandus* L.)

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Tumors in free-living cervidae are not uncommon (Hansen & Borg, 1965; Elvestad & Henriques, 1985). Neoplasias in semidomesticated reindeer, however, have seldom been reported (Kummeneje & Poppe, 1978) although almost all slaughtered Scandinavian reindeer are exposed to meat inspection by veterinarians.

While the incidence of neoplasias in wild free-living cervidae varies between 2.3 – 7.2 %, the highest incidence reported from moose, the number of lymphoma cases are consistently low (0.01 – 0.7 %) (Hansen & Borg, 1965; Elvestad & Henriques, 1985; Mörner, 1992).

In reindeer, only one case of lymphoma, a multiple cutaneous malignant lymphoma, has been reported hitherto (Kummeneje & Poppe, 1978). This communication describes two additional cases of lymphoma in reindeer. One was a young adult, of unreported sex, slaughtered 1994 in Harads in northern Sweden and the other an elderly female slaughtered 1974 in Strömstad in middle Sweden. At pre-slaughter inspection both animals were found to be thin and weak. Both animals had moderately enlarged mediastinal lymph nodes which had a grey and fleshy cut surface.

Appropriate pieces of the enlarged lymph nodes were fixed in 10 % formalin and submitted to the National Veterinary Institute for histopathological diagnose. Both cases were diagnosed as being lymphomas but with different histological appearance. In the younger animal the tumor consisted of a

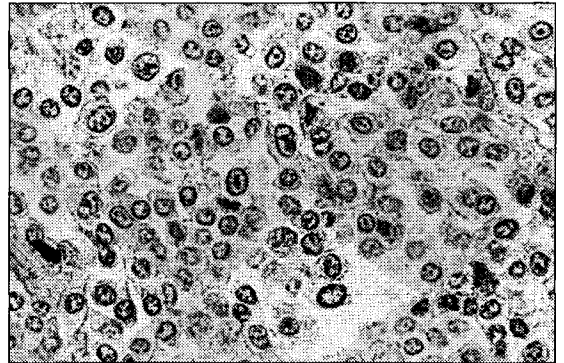


Fig. 1. Lymphoma in reindeer. Monomorphic cells with large cytoplasm. The morphology of this tumor resembles that of mantle zone lymphoma in bovine. HE x 670. Photo: C. Rehbinder.

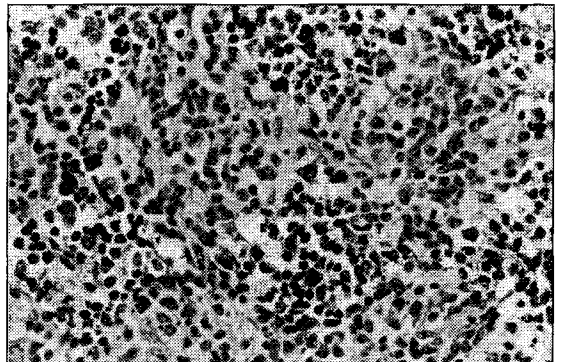


Fig. 2. Lymphoma in reindeer. Pleomorphic cells scattered in a rather pronounced stroma. The morphology of this tumor resembles that of histolympocytic lymphoma. HE x 450. Photo: B. Järplid.

homogeneous mass of monomorphic lymphoid cells with abundant pale cytoplasm and distinct cell boundaries. Large nucleoli were seen in some cells but no mitotic figures were observed. There was minimal stroma. The morphology was similar to that of mantle zone lymphoma in the bovine (Vernon *et al.*, 1992).

In the older animal the tumor consisted of relatively small and somewhat pleomorphic lymphoid cells scattered in a rather pronounced stroma. Some mitotic figures were seen in this case. The morphology of this tumor indicated a histio-lymphocytic lymphoma (Jarret & Mackey, 1974). Thus, the Norwegian case (Kummeneje & Poppe, 1978) included, the three lymphomas reported represent three different types.

Between 85–110,000 reindeer are slaughtered in Sweden each year. Since 1978, veterinarians performing the meat inspection have the opportunity to confirm their diagnosis by submitting material for histo-pathological investigation at the National Veterinary Institute. Despite this, only two cases of lymphoma have been verified in Sweden at 20 years interval. This indicates that lymphoma is extremely rare in reindeer.

## References

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