



Oestrus ovis larvae in nasal cavity of sheep: A case report



M. Chelkar, S. Panda, A. Pandiyan

Department of Veterinary Pathology, Nagpur Veterinary College,
Maharashtra Animal and Fishery Sciences University, Nagpur, INDIA

Citation: Chelkar, M., Panda, S., Pandiyan, A. 2021. Oestrus ovis larvae in nasal cavity of sheep: A case report. *J. Vet. Anim. Sci.* **52**(1): 102-104.

Received : 07.11.2020

Accepted: 30.11.2020

Published: 01.01.2021

Abstract

Oestrosis, caused by the larvae of Oestrus ovis, is an obligatory myiasis of sheep and goats. It is commonly known as sheep nasal bot. The present study reports the infestation of the nasal cavity of sheep by Oestrus ovis larvae in Nagpur. Sheep showing symptoms ranging from dyspnea, mild nasal discharge, and torticollis was brought to the Department of Veterinary Pathology, Nagpur Veterinary College, for postmortem examination. Grossly sinusitis, catarrhal discharge, purulent exudate, and congestion was observed. Microscopically, the cerebral cortex of infected animals revealed degeneration of neuron and softening of brain substance. Characteristic lesions included engorgement of blood vessels and vacuolation of brain substance with mild perivascular cuffing by mononuclear cells was seen. Nasal mucosa showed discontinuation of epithelial cells with mononuclear cell infiltration and edema and fibrosis. Based on parasitological and histopathological analysis, the case was confirmed to be of nasal myiasis.

Keywords: *Oestrus ovis, Histopathology, Nasal bot.*

The larvae of *Oestrus ovis* are commonly found parasites in the nasal cavity, frontal sinuses and the maxillary sinuses of domestic sheep, goats, and wild ruminants causing a clinical condition called oestrosis (Godara *et al.*, 2009). The females swarm around the heads of animals and deposit larvae into the nostrils in batches of one to several dozen. The larvae then migrate and molt twice in the nasal passage. The duration of the parasitic portion of the lifecycle varies considerably, depending on the season and climatic conditions (Cobbett *et al.*, 1941).

The larvae are deposited around nostrils and then crawl up the nasal passages and sinuses, causing inflammatory reactions, nasal discharge and frequent sneezing. Sometimes larvae enter into the cranial cavity and injure the brain, leading to the development of symptoms like in coordination of movement and high stepping gait (false gid). The affected animals become restless, go off-feed, and showed decreased weight gain and become anorectic.

*Corresponding author: Mayuri Chelkar Email – mayurichelkar@gmail.com

1. MVSc Scholars, Department of Veterinary Pathology, Nagpur Veterinary College,
Maharashtra Animal and Fishery Sciences University, Nagpur, INDIA

Copyright: © 2021 Mayuri *et al.* This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Clinical signs include seromucous or purulent nasal discharge, dyspnea etc. (Dorchies *et al.*, 1947). Although *O. ovis* causes nasal myiasis primarily in sheep, it sporadically affects goats, dogs and sometimes human beings (shepherds). In humans, ophthalmomyiasis, respiratory and non-respiratory infestation is also caused where small ruminants and humans live together (Susilathangam *et al.*, 2013). Pathological studies help in identifying the common lesions associated with disease pathology. The use of proper therapeutic control and prevention strategies helps in the prevention of future crises. Hence, the present study aims to study the occurrence and histopathological changes of *O. ovis* larvae in the nasal cavity of sheep.

A 17-day old sheep kid was received for a necropsy with a history of dyspnea, mild nasal discharge, and head torticollis. The clinical material was collected at the time of postmortem at the Department of Pathology, Nagpur Veterinary College, Nagpur, India. A detailed post mortem was conducted. Tissue samples of the nasopharynx and cerebral cortex were collected in 10 per cent buffered formalin for histopathological study. The formalin-fixed tissues were subjected to histopathological processing as per standard procedures (Luna, 1968). The larvae were collected from major sites, including the nasal cavity, middle meatus, and septum. The nasal cavity was opened, and larvae were collected in a petri plate, washed in physiological saline, and fixed in 70 per cent ethanol for parasitological analysis.

Based on the morphological features, i.e., dark bands on the dorsal surface and spines on the ventral surface, the larvae were identified as *O. ovis*. Also, the presence of D shaped, closed, dark black colored stigmal plates with radially arranged spiracles confirmed the identification of bots (Fig. 1).

Grossly, sinusitis, catarrhal discharge, purulent exudate, and congestion was observed. Increased goblet cell activity in the nasal mucosa and excessive mucosal secretion in submucosal glands was observed, which was in accordance with earlier reports (Fathy *et al.*, 2006).



Fig. 1 : Presence of D shaped, closed, dark black colored stigmal plates with radially arranged spiracles

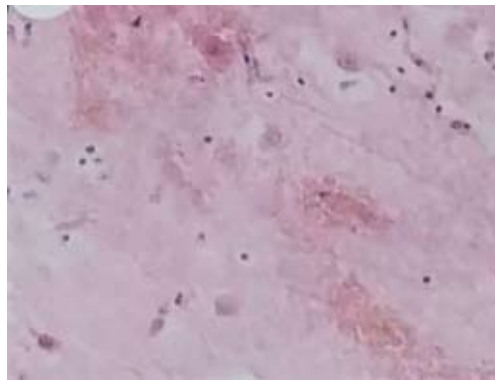


Fig. 2 : Section of cerebral cortex showing the degeneration of neuron and softening of brain substance

Microscopically, the cerebral cortex of infected animals revealed the degeneration of neuron and softening of brain substance (Fig. 2). Also, engorgement of blood vessels and vacuolation of brain substance with mild perivascular cuffing by mononuclear cells was seen. Nasal mucosa showed discontinuation of epithelial cells with mononuclear cell infiltration and edema, fibrosis, and engorgement of sub-mucosal blood vessels, which was in agreement with previous reports (Sharma *et al.*, 2014). (Maxie, 2015) reported the presence of mucoid or catarrhal rhinitis, mucopurulent exudates, and degeneration of neurons with increased peri-neuronal space and softening of brain substance in the cerebral cortex of sheep and goats infected with *O. ovis*.

The zoonotic impact of the nasal bot is prominent, causing catarrhal conjunctivitis,

corneal opacity, and even stomatitis (Dorchies *et al.*, 1998). The infection of man with larvae of *O. ovis* often leads to the development of external ophthalmomyiasis, at times resulting in complete loss of vision (Pampiglione *et al.*, 1997). Nasal myiasis in small ruminant flocks leads to extensive seasonal morbidity, even mortality, and overall huge economic losses to their nomadic owners (Sharma *et al.*, 2014). Thus, it is the need of the hour to establish a proper management and treatment regime for the establishment of an appropriate control strategy.

Acknowledgments

The authors acknowledge the support of the Professors of the Department of Veterinary Pathology for providing us a research platform.

References

- Cobbett NG, Mitchell WC. 1941. Further Observations on the Lifecycle and Incidence of the Sheep Bot, oestrus ovis, in New Mexico and Texas. *Am J Vet Res.* 2:358–366.
- Dorchies P. and Alzieu J.P.L. 1947. Oestrose ovine: *Revue de Medicine Veterinaire.* 148: 565-574.
- Dorchies P., Duranton C. and Jacquet P. 1998. Pathophysiology of oestrus ovis Infection in Sheep and Goats: A Review. *Veterinary Record.* 142: 487-489.
- Fathy F.M., El-Barghathi A., El-Ahwal, A. and El-Bagar S. 2006. Study on Human Ophthlmo-Myiasis Externa Caused by Oestrus ovis Larva in Sirte-Libya: Parasite features, Clinical Presentation and Management. *Journal of Egyptian society of parasitology.* 36: 265-282.
- Godara R., Sharma R.L. and Sharma C.S. 2009. Aberrant Infestation of Goat Mandibles with oestrus ovis Larvae. *Tropical Animal Health and Production.* 42: 137-139.
- Luna, L.G. 1968. Manual of Histologic Staining Methods of the Armed Forces Institute of Pathology (3rd ed.). McGraw-Hill, New York. pp. 4–8.
- Maxie G. 2015. In Jubb, Kennedy & Palmer's pathology of domestic animals-Ebook, vol. 2., 5 Ed., Elsevier Health Sciences, Philadelphia.
- Pampiglione S., Giannetto S. and Virga A. 1997. Persistence of Human Myiasis by oestrus ovis L (Diptera: Oestridae) among Shepherds of the Etnean Area (Sicily) for over 150 years. *Parasitologia.* 39: 415-418.
- Sharma N., Nayakwadi S., Pawaiya R.S., Kumar S., Tailie W.A., Paul S., Mishra A.K., Gururaj K., Kumar, A.Gupta, V.K. and Chaturvedi V. 2014. Parasitic Encephalomyelitis in Goats due to Aberrant Infestation with Botfly oestrus ovis larvae. *Advances in Animal and Veterinary Sciences.* 2: 8-11.
- Sucilathangam G, Meenakshisundram A, Hariramasubramanian S, Anandhi D, Palaniappan N, Anna T. 2013. External Ophthalmomyiasis which was caused by Sheep Bot Fly (oestrus ovis) larva: A Report of 10 Cases. *J Clin Diagn Res.* 7(3):539–542. ■