

Dermoid Cysts in Lambs (Algeria)

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Abstract: This report is the first description of dermoid cyst in sheep in Algeria. Dermoid cyst is uncommon in sheep, in contrast with other species. The purpose of this article is to describe 7 cases of dermoid cysts in Ouled Djellal limbs (also known as Algerian Arab and Western Thin-tailed) and its diagnosis. The cysts are incidental findings at necropsy examination and do not cause clinical signs. They were excised and subsequently examined histologically. This study is novel in that such pericardium dermoid cysts have not previously been described before in any species.

Key words: Dermoid Cyst • Histopathology • Lambs • Algeria

INTRODUCTION

Dermoid cyst is developmental choristomas (An abnormal arrangement of tissues not normally present at the site) [1] that has been reported in dogs, cats, horses and cattle. It is caused by defective epidermal closure along embryonic fissures, which isolates an island of ectoderm in the dermis or subcutis. The majority of dermoid cysts occur on the dorsal midline because of incomplete separation of skin and neural tube during embryonic development but they also occur in other locations. Although present at birth, dermoid cysts are usually asymptomatic and may not be noticed until they become distended or infected in older animal [2]. Dermoid cysts have an epithelial lining and contain adnexal structures, such as hair, sebaceous and sweat glands, or even intact skin. This condition is believed to be congenital, although some authors have reported cases of an acquired origin [3]. In humans, the commonest choristomatous cyst of the orbit is dermoid cyst [4, 5]. They can be found in the brain (rats) [6], spinal cord (humain)[7], orbit (horse and cattle) [3, 8], auricle (humain) [9], jaw bone (humain) [10, 11, 12], neck (humain) [13], dorsal midline (horse)[14], ovary (humain) [15], intestine (dogs) [16], presacral region (humain) [17], retrorectal region (humain) [18] and in the tail (cat) [19]. Dermoid cysts are well documented in humans however less common among animal species. It is common among dogs however less common among cats and bovines and less frequent among horses and goats [20].

In Algeria, The Ouled Djellal sheep is the most dominant breed and representing nearly 60% of the 22.868 million heads [21, 22].

MATERIALS AND METHODS

A total of 150 limbs were included in this study. Their ages were between 1 day and 45 days. The necropsy examination of limbs was completed with excision of the cyst. This later were fixed in 10% of neutral buffered formalin and embedded in paraffin wax before staining with hematoxylin and eosin.

RESULTS

Six limbs (1 male, 5 females) presented a dermoid cyst. Their age is between 1 day and 45 days (Table 1).

7 cysts were noted, 3 in the pericardium (2 in the same heart) and 4 in the neck (3 unilateral right and 1 unilateral left). They were similar varying only in their diameter which ranged between 6 mm and 10 mm and in their degree of fluctuation some being very firm and others seeming more fluid filled. All were smooth, well circumscribed, round hemispherical, swelling, which were slightly mobile within the surrounding skin. Differential diagnosis for the masses included dermoid cyst, epidermoid cyst and epidermal inclusion cyst. The specimen was sent for anatomopathological examination in which histological analysis revealed a central area composed

Table 1: Dermoid cysts: the six cases reported (30/11/2012 to 08/11/2014)

N°	Date	Age	Sex	localization	diameter	Cause of mortality
1	30-11-2012	03 days	Female	Neck (right)	8 mm	Inanition/ hypothermia
2	11-12-2012	07 days	Female	pericardium	10mm	septicemia
3	27-12-2012	45 days	Female	pericardium	Not available	Open fracture
4	16-01-2013	01 day	Male	Neck (right)	6mm	Gastro-enteritis
5	24-10-2014	10days	Female	Neck (left)	6mm	Fibrinous pneumonia
6	08-11-2014	45days	Female	Neck (right)	7mm	Indigestion, pneumonia

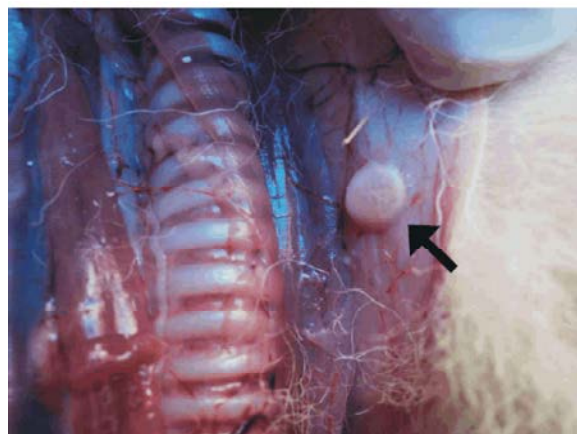


Fig. 1: Dermoid cyst in the neck

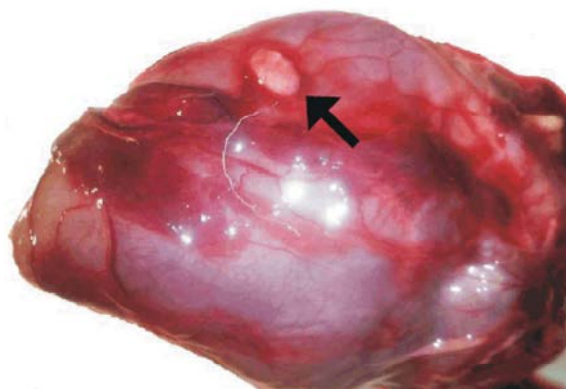


Fig. 2: Dermoid cyst in the pericardium

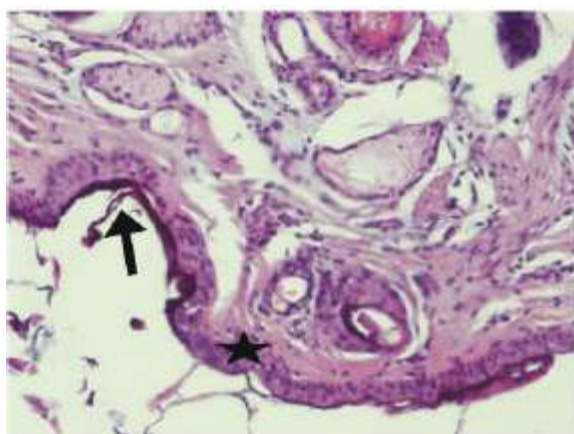


Fig. 3: Dermoid cyst wall composed of stratified pavement epithelium filled (asterisk) with keratin (arrow). (H&E, X250)

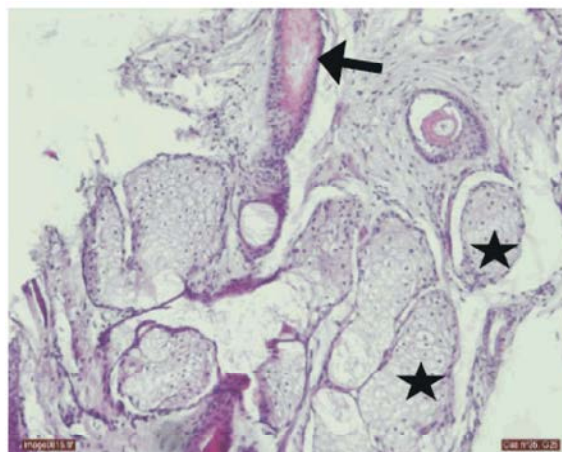


Fig. 4: Dermoid cyst with hair follicles (arrow) and sebaceous glands (asterisk). (H&E, X250)

of hair and keratin, resulting from desquamation of pavement stratified epithelium where hair follicles and sebaceous glands were found on a conjunctive stroma. The histological findings were compatible with a dermoid cyst. No calcification, no connection to any tissues or evidence of malignancy was found.

DISCUSSION

Dermoid cysts are uncommon in sheep with only one report describing them in the left front leg in nine months aged ewe [20]. In contrast these lesions are well documented in humans, dogs and cats [23]. Dermoid cysts may have a congenital or acquired origin [14]. In humans dermoid cyst may develop in 5 months after a

traumatic lesion of the skin [24]. Congenital dermoid cysts are believed to develop with incomplete division of the skin and spinal cord during embryological separation of the ectoderm and neuroderm. In the current cases the age of the 6 limbs can point to a congenital origin. However a recent trauma had not occurred. The region affected by dermoid cysts varies with the species and even breed. In humans, they have been recorded in the brain [25], spinal cord [17], ovary [15], orbit [4, 26], auricle [9], nose [27], tongue [28, 29, 30, 31], jaw bone [11, 12], neck [13] and rectum [18]. Hillyer *et al.* [14] reported six dermoid cysts along the dorsal midline of a 3-year-old thoroughbred-cross gelding. One report described a dermoid cyst in the tongue of a German shepherd dog [32]. To the best of our knowledge excluding ours no reported cases of dermoid cyst in the pericardium have been documented in sheep or other species and it's the first report of this kind. Dermoid cyst represents an essential diagnosis with similar histopathological changes. Both epidermoid and dermoid cysts are lined by a stratified squamous epithelium and can be distinguished by the presence of adnexal structures in the later only [33]. In the present cases the dermoid cyst was confirmed because adnexal structures such as hair follicles and sebaceous glands were present.

CONCLUSION

Dermoid cysts are unusual benign lesion in sheep. It's believed that in these cases the cysts were congenital as the history was not compatible with the acquired form. The diagnosis of dermoid cysts was made by using histopathology examination. This report is the first description of a pericardium dermoid cyst in sheep limbs or any other species.

REFERENCES

1. Abou-Rayyah, Y., G. E. Rose, H. Konrad, S.J. Chawla and I.F. Moseley, 2002. Clinical, radiological and pathological examination of periocular dermoid cysts: evidence of inflammation from an early age. *Eye*, 16: 507-512.
2. Ginn, P.E., J.E.K.L. Mansell and P.M. Rakich, 2007. Skin and appendages, In Jubb, Kennedy and Palmer's pathology of domestic animals. 5th Ed. Edinburgh ; New York: Elsevier Saunders.
3. Muñoz, E., M. Leiva, C. Naranjo and T. Peña, 2007. Retrobulbar dermoid cyst in a horse: a case report. *Vet. Ophthalmol.*, 10: 394-397.
4. Perry, J.D. and R. Tuthill, 2003. Simultaneous ipsilateral temporal fossa and orbital dermoid cysts. *Am. J. Ophthalmol.*, 135: 413-415.
5. West, J.A., R.H. Drewe and A.A. McNab, 1997. Atypical choristomatous cysts of the orbit. *Aust. New. J. Ophthalmol.*, 25: 117-123.
6. Kulwich, B.A., 1994. Epidermoid Cysts In The Central Nervous System Of Rats And Mice: An Incidental Finding In Toxicity/Oncogenicity Studies. *Vet Pathol.*, 31: 475-478.
7. Mrabet, A., M. Kchouk, H. Jemel, S. Touibi, M. Khaldi and N. Sllman, 1992. Intra Spinal Dermoid Cyst after Spinal Surgery. *Rachis*, 4(5): 287-291.
8. Sarrafzadeh-Rezaei, F., A.A. Farshid and S. Saifzadeh, 2007. Congenital ocular dermoid cyst in a river buffalo (*Bubalus bubalis*) calf. *J. Vet. Med. A Physiol. Pathol. Clin. Med.*, 54: 51-54.
9. Horikiri, M., K. Ueda and M. Kato, 2014. Dermoid cyst of the auricle: a rare manifestation. *BMJ Case Rep.*, pp: 1-3.
10. Bodner, L., Y. Woldenberg and N. Sion-Vardy, 2005. Dermoid cyst of the maxilla. *Int. J. Oral Maxillofac. Surg.*, 34: 453-455.
11. Takeda, Y., Y. Oikawa, M. Satoh and S. Nakamura, 2003. Latent form of multiple dermoid cysts in the jaw bone. *Pathol. Int.*, 53: 786-789.
12. Singh, V., S. Gupta, R. Jaiswal and L. Malkunje, 2012. Intra osseous dermoid cyst of mandible- A rare case report. *Open Journal of Stomatology*, 2: 153-156.
13. Görür, K., D. Talas and C. Özcan, 2005. An unusual presentation of neck dermoid cyst. *Eur. Arch. Otorhinolaryngol.*, 262: 353-355.
14. Hillyer, L.I., A.P. Jackson, G.C. Quinn and M.J. Day, 2003. Epidermal (Infundibular) and dermoid cysts in the dorsal midline of a three-year-old thoroughbred-cross gelding. *Vet. Dermatol.*, 14: 205-209.
15. Ferrari, M.M., R. Mezzopanea, A. Bulfonia, B. Grijuelaa, R. Carminatib, E. Ferrazzic and G. Pardia, 2003. Surgical treatment of ovarian dermoid cysts: a comparison between laparoscopic and vaginal removal. *Eur. J. Obstet. Gynecol. Reprod. Biol.*, 109: 88-91.
16. Saberi, M., O. Azari, R. Kheirandish, R. Rasouli, M. Aghazamani and E. Mohebbi, 2013. Intestinal dermoid cyst in a German shepherd dog. *Journal of the South African Veterinary Association* 84(1), Art. #911, 3 pages.

17. Nishie, A., K. Yoshimitsua, H. Hondaa, H. Iriea, H. Aibea and K. Shinozakia, 2003. Presacral dermoid cyst with scanty fat component: usefulness of chemical shift and diffusion-weighted MR imaging. *Comput. Med. Imaging Graph*, 27: 293-296.
18. Sharma, D., R. Nandini, D. Goel, A. Ghosh, R.C. Shukla and V.K. Shukla, 2008. Retrorectal Dermoid Cyst in an Adult. *Anz J. Surg.*, 78: 408.
19. Akhtardanesh, B., R. Kheirandish and O. Azari, 2012. Dermoid cyst in a domestic shorthair cat. *Asian Pac J Trop Biomed.*, 2(3): 247-249.
20. Stelmann, U.J.P., A.A. Da Silva, B.G. De Souza, GfDe Oliveira, E.B.F.R.B. De Mello, G.C.J. De Souza and M. Hesst, 2012. Dermoid Cyst in Sheep-A Case Report. *Rev. Bras. Med. Vet.*, 34(2): 127-130, Abr/Jun.
21. Afri-Bouzebda, F., R. Lamraoui, Z. Bouzebda, F. Chacha and D.E. Gherissi, 2015. Effects of GnRH or HCG on Ovarian Response in PMSG-Superovulated Ouled Djellal Ewes (Algeria), *Global Veterinaria*, 15(5): 498-505.
22. Safsaf, B., M. Tlidi, B. Mamache, M.A. Dehimi, H. Boukrous and A. Hassan Aly, 2012. Influence of Age and Physiological Status on Progesterone and Some Blood Metabolites of Ouled Djellal Breed Ewes in East Algeria. *Global Veterinaria*, 9(2): 237-244.
23. Henderson, J.P., G.R. Pearson and T.N. Smerdon, 1993. Dermoid cyst of the spinal cord associated with ataxia in a cat. *Journal of Small Animal Practice*, 34: 402-404.
24. Tulvatana, W., C. Chantranuwat, K. Mahasuvirachai and S. Amaranuntakit, 2005. Free keratin and dermoid cyst of the iris. *Arch. Ophthal.*, 123: 402-403.
25. Akhaddar, A., M. Jiddane, N. Chakir, R.E. Hassani, B. Moustarchid and F. Bellakhdar, 2002. Cerebellar abscesses secondary to occipital dermoid cyst with dermal sinus: case report. *Surg. Neurol*, 58: 266-270.
26. Stallard, H.B., M.B.E., T.D., M.D. and L.I.D.F.R.C.S., 1960. Dumb-Bell-Shaped Dermoid. Cysts of the Orbit. *British Medical Journal*. April, 30: 1322-1323.
27. Amir, R. and M.E. Dunham, 2001. Bilateral choanal atresia associated with nasal dermoid cyst and sinus: a case report and review of the literature. *Int. J. Pediatr. Otorhinolaryngol*, 58: 81-85.
28. Reddy, V.S., K. Radhakrishna and P.L.N.G. Rao, 1991. Lingual Dermoid. *Journal of Pediatric Surgery*, Vol 26, No 12 (December): pp: 1389-1390.
29. Edwards, P.C., L. Lustrin and E. Valderrama, 2003. Dermoid Cysts of the Tongue: Report of Five Cases and Review of the Literature. *Pediatric and Developmental Pathology*, 6: 531-535.
30. Singh, P., N.B.S. Mani, S. Mitra and S. Suri, 2002. Dermoid Cyst of the Tongue: Magnetic Resonance Imaging. *The Journal of Otolaryngology*, 31: 3.
31. Campbell, R. and P. Walker, 2010. Management of congenital lingual dermoid cysts. *International Journal of Pediatric Otorhinolaryngology*, 74: 567-571.
32. Liptak, J.M., P.J. Canfield and G.B. Hunt, 2000. Dermoid cyst in the tongue of a dog. *Aust. Vet. J.*, 78: 160-161.
33. Hansmann, F., V. Herder, H. Ernst and W. Baumgartner, 2011. Spinal Epidermoid Cyst in a SJL Mouse: Case Report and Literature Review. *J. Comp. Path.*, 145: 373-377.