The Thai Journal of Veterinary Medicine

Volume 6
Issue 3 *September, 1976*

Article 4

9-1-1976

Calcinosis Circumscripta of the Tongue : A Case Report.

Terd Tesprateep

CALCINOSIS CIRCUMSCRIPTA OF THE TONGUE

A case report in a bitch

*Terd Tesprateep D.V.M.,F.R.V.C.S., Dr.med.vet.

ABSTRACT:

The paper describes a case of lingual calcinosis circumscripta affecting a young female German-shepherd. Clinical information, pathology and possible etiology are given.

Multilocular calcified lesions of dog in which calcium salts are present as chalky-white, irregular masses embedded in fibrous connective tissue usually in the skin and subcutaneous tissues, was described on one hand as "Calcium gout" or Kalkgicht" (Künze 1926), and on the other as "Calcinosis circumscripta" (Thompson and co-workers 1959). Similar lesions were less commonly seen in the tongue and cavity buccal (Cotchin 1960, Douglas and Kelly 1966, Howell and Ishmael 1966). The pathogenesis of this Lesion is still not clear. Calcification of soft tissue may be metastatic or dystrophic in origin. This report describes calcinosis circumscripta affecting the tongue of one-year-old German shepherd.

CASE HISTORY:

The patient was one-year-old female German-shepherd which was, in general, excellent without clinical abnormallity.**

* Dept. of Pathology, Faculty of Veterinary Science, Chulalongkorn University.

**General check performed at Faculty Clinic, Faculty of Veterinary Science, Chulalongkorn University.

The patient's owner observed that his dog had less appetite and he noticed, for a month, a few white irregular nodules at the edge of the tongue. The dog was anaesthetised, the whole piece of white nodule at the right lateral apex of the tongue was removed by surgical diathermy. A piece of biopsy tissue was aseptically collected for mycological investigation. Another piece was fixed in 10% neutral formalin for histological examination.

The following histological stains were used :-

(1) Hematoxyline-eosin stain
(2) Periodic acid schiff's stain
(3) Gridley's stain for fungi
(4) Kossa's calcium stain

Mycological result revealed a pathogenic *Candida albicans* whereas, in contrast, no evidence of fungal hyphae found in histological sections.

Within 2 weeks the excised lingual wound healed satisfactorily. Surgical removal of the rest of lingual nodules were subsequently performed and biopsy specimens were fixed as method mentioned above for histological examination. After six weeks post operatively, depressed lingual scars appeared at the sites of excision without recurrence of the nodular growth.

PATHOLOGY:

All lingual lesions were raised, greyish white, irregular fairly hard masses. The cut surfaces were hard, firm, grey pink with multiple chalky nodules (up to 0.2 cm. in diameter). Details of the gross lesion are given in table I and Fig.1.

TABLE I Details of the gross lesions in the tongue.

No.of lesion	Site of lesion	Size of lesion(cm) (W:L:D)
I	Right lateral apex (no ulceration)	0.5x1. 5x0.5
II	Right lateral body (ulcerated)	0.5x2x0.5
III	Left lateral body (no ulceration)	0.5x3.5x0.5

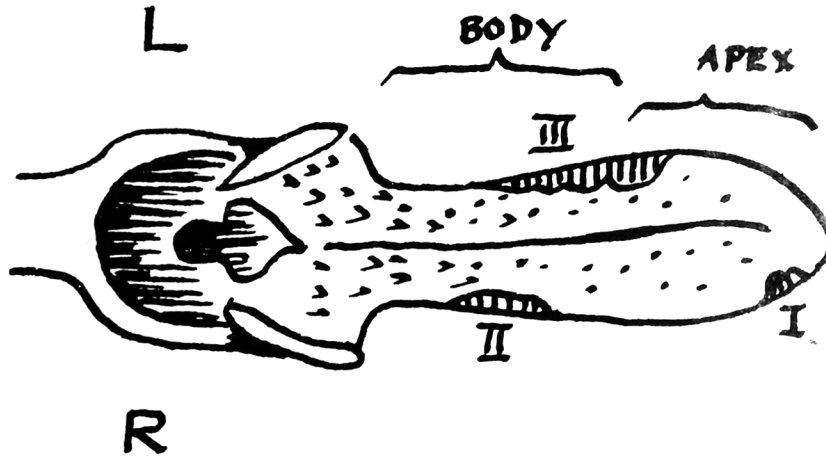

Fig.1. Location of calcinosis circumscripta I,II,III, (diagram)

The histological features of the three biopsy specimens were generally similar. The multilocular lesions were of variable size located beneath the lingual epithelium and penetrated down to the outer muscular layers. Each loculus was surrounded by rather thick cellular connective tissue (Fig.4). In H & E section the center of loculi stained darked granular basophilic which stained deep black with Kossa's (Fig.10). In some loculi there were granular materials which in H & E section stained eosinophilic around calcified center, this eosinophilic mass was PAS positive (Fig.9)

Between granular materials and connective tissue there was a bordering cell layer characterized by large epitheloid cells, which had homogenous eosinophilic cytoplasm and large nuclei with loose chromatin networks and a single nucleoli. Numerous multinucleated giant cells accumulated between capillary sprouts(Fig.5). A modest number of lymphocytes and neutrophils were seen. Occasional adjacent muscle fibers had swollen fragmented and very eosinophilic cytoplasm(Fig.6). In places where glossal epithelium was ulcerated (No.II) neutrophil accumulated and congested capillaries intermingled forming an active granulation tissue (Fig.7). Elsewhere projection of epithelial pegs extended into underlying connective tissue which result in irregular thickening of epithelium (Fig.8).

The histological appearance of the lesion was that of calcinosis circumscripta.

DISCUSSION:

The lesions in the tongue were identical macroscopically and microscopically with calcinosis circumscripta as described in the literatures (Künze 1926, Cotchin 1960, Douglas and Kelly 1966).

It affected young dog of large breed. This opinion was supported by Howell and Ishmael (1968); they also strongly suggested that the lingual lesion was much more common than was indicated in the literatures. The pathogenesis of this lesion has not been clearly established. The distribution of glossal ulceration in the present case suggests the possibility that trauma from teeth may have damaged the subepithelial connective tissue and dystrophic calcification develops subsequently. This suggestion is in agreement with many authors (Douglas and Kelly 1966, Howell and Ishmael 1968). In the present case, evidence of positive mycological result *(Candida albicans)* is of minor significance while this organism can

be usually found in G-I tract of normal dogs. Cordy (1966) found that glandular hyperplasia of apocrine glands particularly of the skin is a prelude to calcification. In this case there is no evidence of glandular structure in the lingual section to support this phenomena.

Thompson et al (1959) have described the presence of PAS positive material in the calcified zone. They suggested that the mineral material is suspended in a mucinous matrix as in normal ossification of bone or cartilage which is evidently corresponding to the present finding. From the practical point of view, the author found that surgical removal of lesion may be carried out successfully. This is also suggestive in subcutaneous lesions (Cotchin 1960).

ACKNOWLEGEMENT:

The author wishes to express his appreciation to Dr.P. Tantivanich for surgical biopsy and Prof.Dr.P.Nittayasutti for suggestion. Appreciation is also expressed to all colleagues in Pathology section, Faculty of Veterinary Science, Chulalongkorn University for warm and helpful assistance.

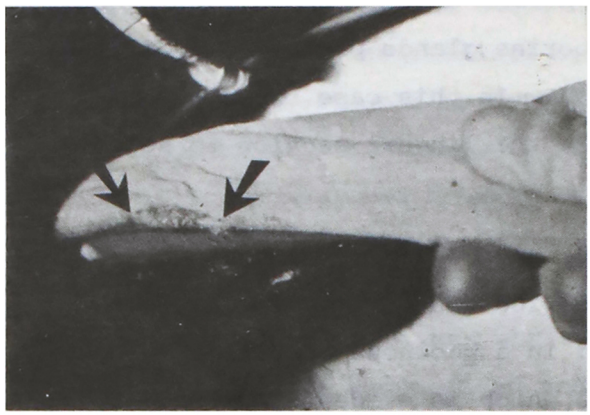

Fig.2 Lingual lesion(No.II).

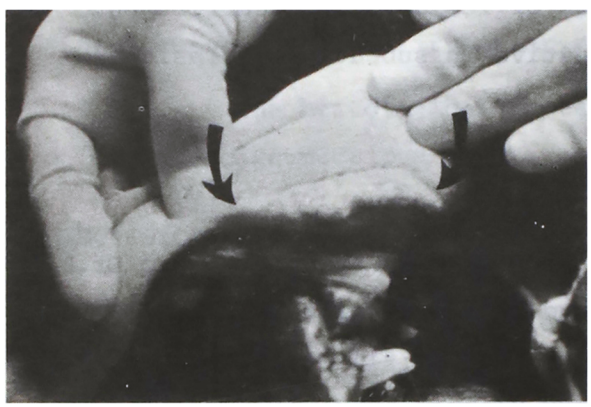

Fig.3 Lingual lesion(No.III)

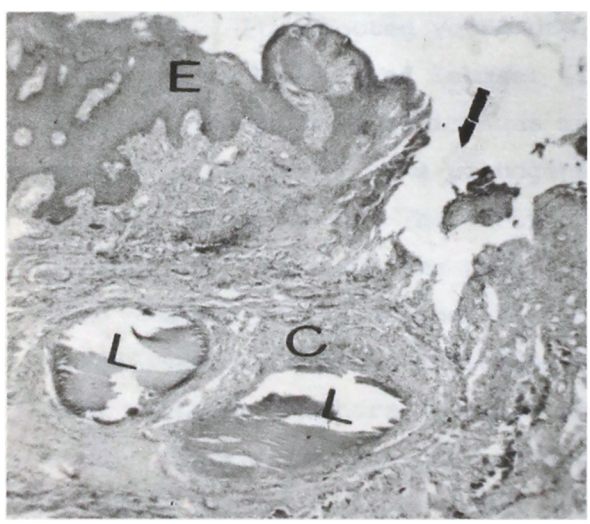

Fig.4 Two loculi (L) beneath the lingual epithelium (E) which surrounded by cellular connective tissue (C). Lingual ulceration indicated by arrow (H & E stain: 40X)

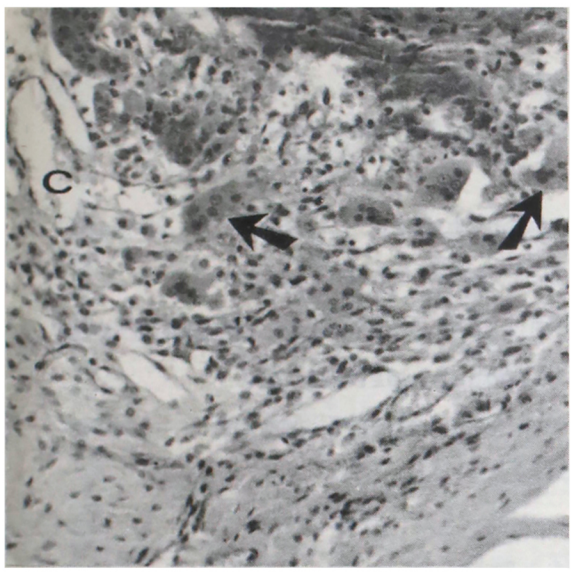

Fig.5 Bordering cell layer characterized by numerous multi-nucleated giant cells (arrows) and new formed capillaries (C) (H & E stain : 200X)

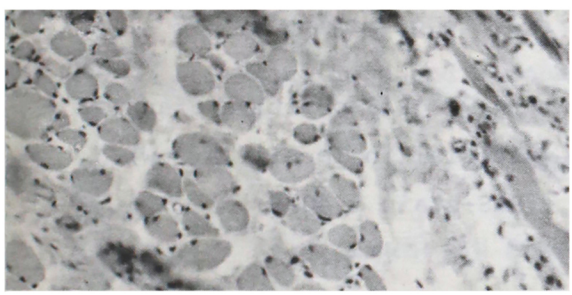

Fig.6 Lingual muscular fibers which are swollen and fragmented. (H & E stain : 200X)

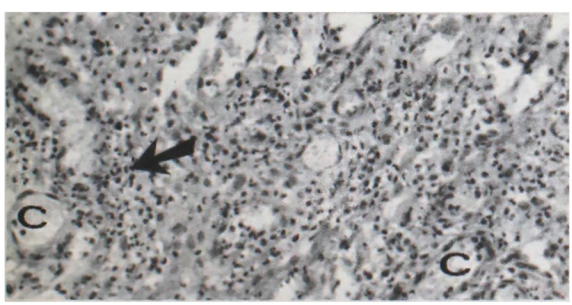

Fig.7 Active granulation tissue showing congested capillaries (C) and accumulating neutrophils(arrow) (H & E stain : 40X)

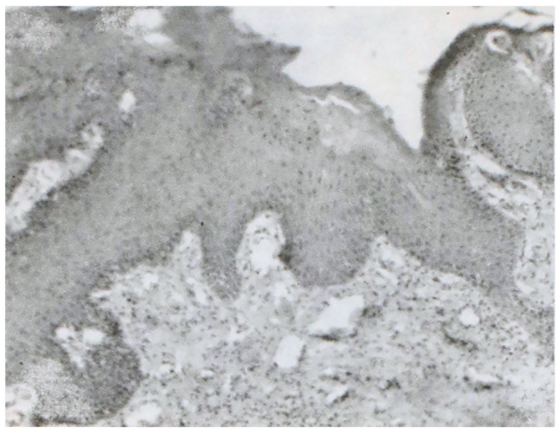

Fig.8 Irregular thickening of lingual epithelium.
(H & E stain : 200X)

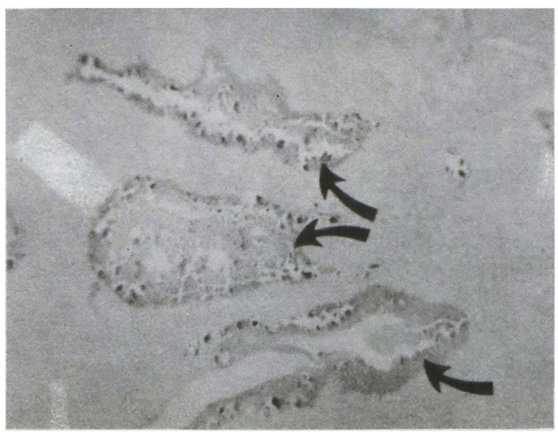

Fig.9 PAS-positive granular material in loculi (arrow)
(PAS-stain : 40X)

Fig.10 Calcified loculi (arrows) which stained black with Kossa's method. (40X)

REFERENCE:

Cordy, D.R. 1967. Apocrine cystic calcinosis in dogs and its relationship to chronic renal disease. Cornell vet. 57:107-118.

Cotchin, E. 1960. Calcium gout (Kalkgicht) and calcinosis circumscripta in dogs. Brit.Vet.J. 116:3-8.

Douglas, S.W. and Kelly, D.F. 1966. Calcinosis circumscripta of the tongue. J. Small Animal Practice. 7:441-443.

Howell, J.M. and Ishmael, J. 1968. Calcinosis circumscripta in the dog with particular reference to lingual lesions. Path.Vet. 5:75-80.

Künze, E. 1926. Über multiple Kalkeinlagerungen in die Unterhaut der Extremitäten des Hundes. ("Kalkgicht") Arch.wiss. prakt. Tierheilk. 54:462-478.

Thompson, S.W., Sullivan, D.J. and Pedersen, R.A. 1959. Calcinosis circumscripta. A histochemical study of the lesion in man, dogs and a monkey. Cornell Vet. 49:265-285.

บทย่อ

แคลซิโนซิส เซอคัมสคริปตา ที่ลิ้นสุนัข

เทอด เทศประทีป

แคลซิโนซิสเซอคัมสคริปตา จัดเป็นวิการที่มีการเกาะกันของหินปูนเป็นกลุ่มๆ (calcified loculi) กระจายทั่วไปใต้ชั้นเยื่อผิวลิ้น ถัดจากชั้นกลุ่มหินปูนจะล้อมรอบด้วยเนื้อเยื่อเกี่ยวพันที่มีเซล fibroblasts, macrophages และ multinucleated giant cells นอกจากนั้นพบมี neutrophils และ lymphocytes กระจัดกระจายอยู่ทั่วไป รายงานนี้รายงานถึงวิการของแคลซิโนซิสเซอคัมสคริปตาที่ลิ้นของสุนัขพันธุ์เยอรมันเชพเพอร์ด เพศเมียอายุ 1 ปี วิการดังกล่าวพบได้ที่ลิ้นไม่บ่อยนัก

สาเหตุที่ทำให้เกิดวิการนี้ เนื่องจากแผลที่ลิ้นที่เกิดจากการกระทบกับฟันบ่อยๆ จนเกิดเป็นแผลเนื้อตายซึ่งมีสภาพเป็นด่าง ทำให้เกิดการตกตะกอนของหินปูนได้ง่าย (dystrophic calcification) นอกจากนั้นอาจพบ active granulation tissue ในทางปฏิบัติการตัดเอาวิการทั้งก้อนออกโดยวิธีการทางศัลยกรรมได้ผลน่าพอใจ