FOCAL AND GENERALIZED CALCINOSIS CUTIS ASSOCIATED WITH LEPTOSPIROSIS IN TWO BEAGLES.

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INTRODUCTION

Calcium deposits are deposits of insoluble calcium salts within the cutaneous tissue, and are referred to as mineralization or calcification, in the skin is named as calcinosis cutis. There are two main forms, calcinosis cutis and calcinosis circumscripta. The circumscripta is considered as a subgroup of calcinosis cutis characterized by the focal deposition of mineral salts in tumor-like nodules. The calcinosis cutis is considered as uncommon with depositions in the epidermis, dermis or subcutis. It is sub-classified as localized or generalized according to their distribution. The localized is present as focal lesion, whereas generalized has a multifocal presentation. Etiologically, the calcinosis cutis can develop as a result of four different processes including dystrophic, metastatic, idiopathic, and iatrogenic. Briefly, the dystrophic occurs as results of injury or degeneration with necrosis of the skin where serum calcium and phosphorus levels are normal. Like some granulomas and hyperadrenocorticism. Metastatic, is the calcification of no damage skin as a result of increased serum calcium and/ or phosphorus concentration. It is presented in dogs with chronic renal failure. The causes of idiopathic calcinosis are unknown. It develops within undamaged skin without abnormal serum calcium or phosphorous concentration. The iatrogenic calcinosis cutis is caused by exposure to calcium-containing substances, like injections.

Pathological dermal calcinosis related to infectious diseases is considering rare in dogs. In fact, only three papers have been published, two associated with systemic mycosis 1 and one related with leptospirosis 2. Here we presented two additional cases associated with leptospirosis.

RESULTS

A- Clinical findings:

Case 1: A one-year-old female Beagle was examined for inappetence, vomiting and bloody diarrhea for two days. Physical examination only revealed jaundiced mucous membranes. A complete blood count (CBC) and serum biochemistry profile showed increased levels of ALT (70u/L. Ref. 0-57), GOT (102u/L. Ref. 11-41) and AP (75 u/L Ref. 5-61 u/L) enzymes. The direct and total billirubin and the creatinine were also increased. Initial treatment with amoxicillin (single dose IM) and supportive fluid was unsuccessful. On day five, leptospirosis was suspected based on a positive Elisa test. Treatment was changed to penicillin and dihidrostreptomicin with mild improvement. Thirty days later, an alopecic lineal none pruritic skin lesion (6.0 x 0.40 cms) was observed on the ventral midline (Fig.1).



Figure 1. An alopecic proliferative lineal none pruritic skin lesion (6.0 x 0.40 cms) is present on the ventral midline (linea alba).

Case 2: An eleven months-old male Beagle was presented with inappetence (suspected intestinal parasitosis). Physical examination showed only a mild ictericia. Six consecutives CBC revealed leukocytosis due to mature neutrophilia and monocytosis. Serum chemistry profile showed increased ALT enzymes in 6 serial test (range from 142 to 313 u/L. Ref. values 8-57) as well as increased creatinine concentration. Four weeks later, exudative, erythematous, with plaque formation lesions were observed in the axilla, abdomen, neck, cheeks, and prepuce that later expanded to the anus and forehead (Fig.2-3). Pyoderma was suspected and treatment with cephalexin (10 mg/Kg q12h) was prescribed but no improvement was observed. Ten weeks later, serology revealed a titre of 1/800 against Leptospira icterohemorrhagica and 1/200 to L. pyrogena.



Figure 2. In the front head and dorsum an extensive alopecic, hyperpigmented area is seen.



Figure 3. An exudative, erythematous, with plaque formation lesions are observed throughout the abdominal ventral area.

B- Histopathological findings:

In both cases multiple skin punch biopsies were taken fixed in 10% neutral buffered formalin, then routinely processed and stained with haematoxylin and eosin. In case 1, the dermis diffusely showed fractures of the collagen fibers with hypereosinophilic aspect, and little mononuclear inflammatory reaction (Fig. 4).

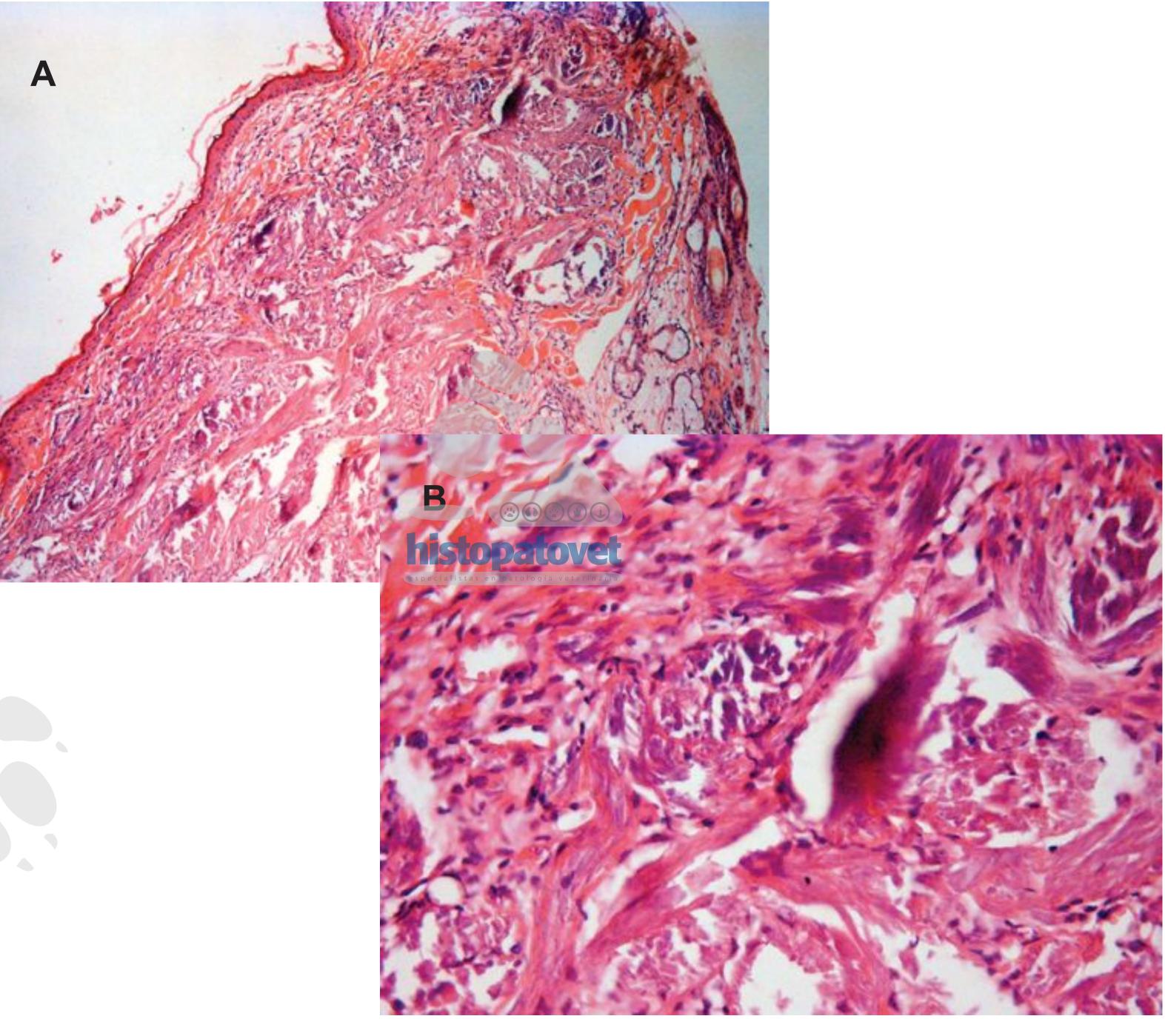


Figure 4. A- Haired skin, showing fragmentation and mineralization of dermal collagen fibers. 10x H.E. **B-** A close- up. 20x. H.E.

On the contrary, in case 2, throughout the dermis, there were multiples foci of basophilic acellular material surrounding by macrophages, giant cells and fibroblasts (Fig.5). Both cases were positive for mineral deposition with von Kossa stain.

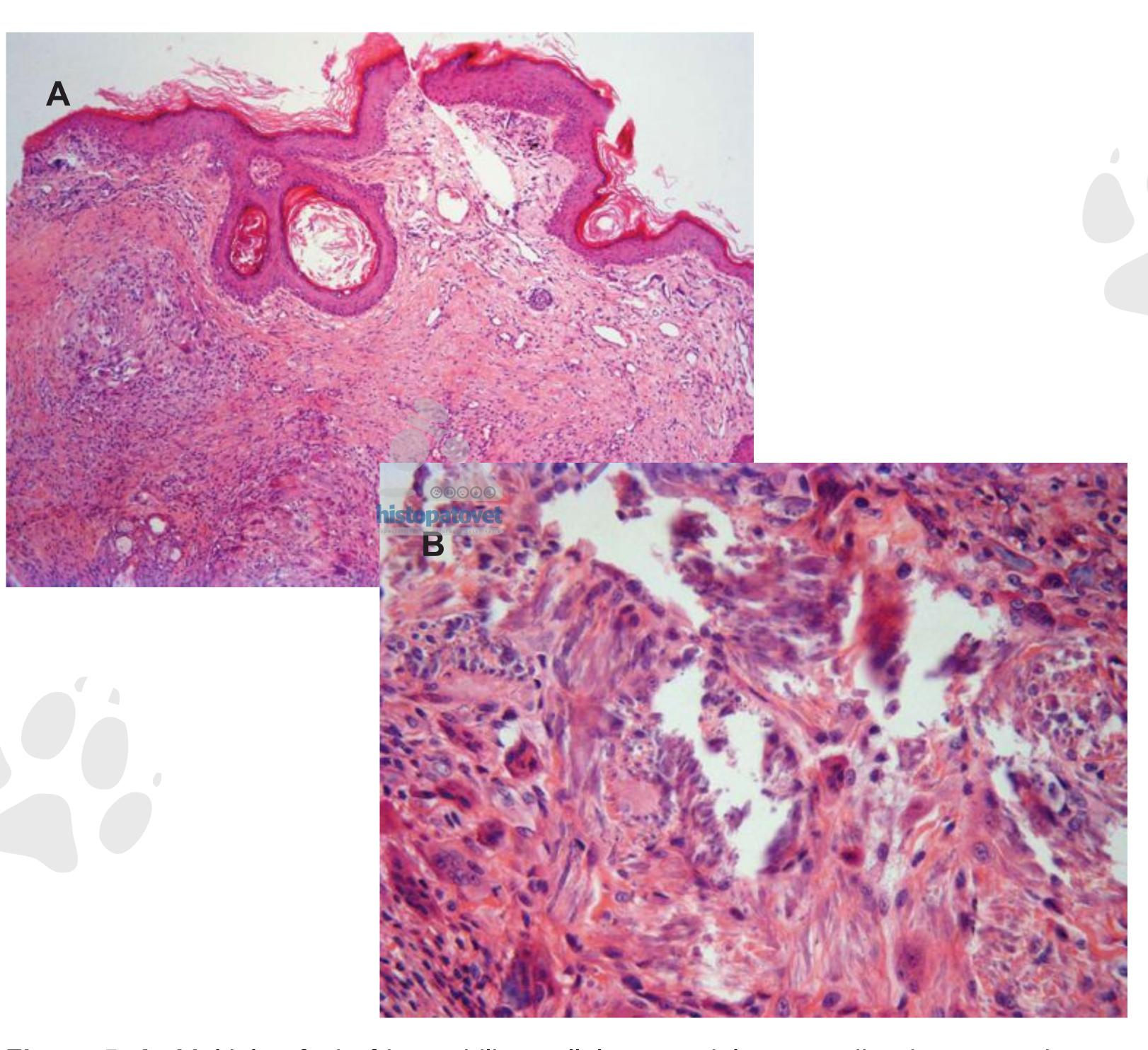


Figure 5. A- Multiples foci of basophilic acellular material surrounding by macrophages, giant cells and fibroblasts, are presented. **B-** Mineralization and inflammatory reaction with multinucleated cells. 40x. H.E:

DISCUSSION

Calcinosis cutis is an uncommon presentation of the dog. The two more frequently mechanisms are; first a dystrophic calcinosis associated wit necrotic tissue like granulomatous inflammatory reaction and hyperglucocorticoidism. The second, the metastatic occurred in association with chronic renal failure. A rarely widespread idiopathic calcinosis cutis has been reported in dogs younger than one year old associated with severe unspecified systemic illness. More recently cases related with systemic mycosis and also with leptospirosis have been described, similar to the two cases presented here. The pathogenesis of association between infectious diseases and calcinosis cutis is still unknown. However, it can be discussed that stress of the severe systemic diseases combined with impaired renal function may contribute to this calcinosis.

The clinical presentation, the lack of vaccination on both dogs, and the leptospira antibody titre support the diagnosis of systemic leptospirosis.



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