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A case report of a fibroepithelial polyp (acrochordon) in a Boerboel dog

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Abstract

Fibroepithelial polyps (acrochordons) are benign cutaneous outgrowths of the fibrous stroma and overlying epidermis that are well characterized in human medicine but seldom described in dogs, particularly in sub-Saharan Africa. Recognition of their distinctive pathology is critical to differentiate them from malignant or infectious skin masses. A 7-year-old intact male Boerboel dog presented with a solitary, soft, pedunculated skin mass located immediately cranial to the penultimate left mammary gland. Gross examination revealed a cylindrical, polypoid fragment on a slender stalk measuring 3.5 cm in overall length and 1.0 cm in maximum diameter. A cut surface of the mass showed a homogeneous, glistening whitish core surrounded by a thin epidermal rim without haemorrhage, necrosis or ulceration. Hematoxylin and eosin-stained sections demonstrated a markedly thickened epidermis featuring combined orthokeratotic (non-nucleated) and parakeratotic (retained nuclei) hyperkeratosis. Moderate to pronounced acanthosis formed elongated, anastomosing rete ridges that projected over an expanded fibrovascular core. The stratum corneum exhibited marked hyperpigmentation. The dermis comprised loose fibrovascular stroma with interlacing bundles of mature collagen fibres and numerous small- to medium-sized, thin-walled capillaries. Adnexal units (hair follicles, sebaceous glands) were hyperplastic but architecturally intact. Importantly, there was no cellular atypia, dysplasia, inflammatory infiltrate or evidence of invasive growth. The gross morphology (a narrow stalk supporting a uniformly fibrous whitish core) and the histopathological hallmarks of hyperkeratotic, acanthotic epidermis overlying loose fibrovascular stroma are diagnostic of a benign fibroepithelial polyp. This case emphasizes the indispensable role of detailed pathological assessment in distinguishing acrochordons from more aggressive skin lesions, and contributes valuable documentation of this lesion to Nigerian canine practice.

Keywords: Fibroepithelial polyp; Acrochordon; Dog; Case report; Pathology.

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Introduction

Fibroepithelial polyps or acrochordons are benign cutaneous lesions of mesenchymal and epithelial origin that are well-documented in human medicine (Goldschmidt *et al*., 2019). They are infrequently reported in veterinary practice, particularly in sub-Saharan Africa **(**Mohammed *et al*., 2021; Samuel *et al.,* 2025). In Nigeria, where the majority of published skin mass case reports focus on neoplastic or infectious aetiologies, recognition of a fibroepithelial polyp in a large-breed dog expands the differential diagnosis of pedunculated cutaneous growths (Gross *et al*., 2003).

Canine fibroepithelial polyps reportedly most often arise in areas of repeated minor trauma or chronic irritation, such as oral mucosa beneath the tongue, where ongoing mechanical stress and low-grade inflammation drive a fibrovascular proliferation beneath a hyperplastic squamous epithelium (Trejo *et al*., 2023). Although their exact pathogenesis remains uncertain, analogous proliferative stromal lesions in dogs have been linked to hormonal influences and detection of low-risk papillomavirus subtypes, suggesting that endocrine fluctuations and viral factors may also act as contributing triggers (Chang *et al*., 2020).

Documentation of fibroepithelial polyps in indigenous and imported canine breeds contributes to a more complete epidemiologic understanding of skin lesions in Nigerian companion animals **(**Mohammed *et al*., 2021)**.** The present case report highlights the need for awareness of fibroepithelial polyps among clinicians and pathologists, since their benign behaviour and distinctive histopathology contrast sharply with the more aggressive skin tumours and influence surgical planning and prognostication (Goldschmidt *et al*., 2019)**.** By detailing the gross and microscopic features of this lesion in a Boerboel dog, a breed significantly popular in Nigerian veterinary practice, this report provides a useful reference for practitioners encountering similar masses and underscores the importance of histopathologic confirmation in guiding appropriate management (Goldschmidt *et al*., 2019)**.**

Case Presentation

A 7-year-old intact male Boerboel dog was presented with a solitary, pedunculated skin mass noted by the owner a few weeks prior to presentation. The lesion was located just cranial to the penultimate left mammary gland teat. The mass appeared as a soft, dark-coloured, non-ulcerated projection consistent with a "skin tag" and had not shown evidence of rapid growth, discharges, or any associated discomfort. The patient was otherwise in good health, with no reported changes in behaviour, appetite or activity level.

Gross Description of the Lesion*:* The tissue growth was an elongated, cylindrical, polypoid fragment on a narrow stalk, and was fleshy (Figures 1). The maximum diameter of the lesion body was approximately 1.0 cm; the overall length, including the stalk was about 3.5 cm (Figure 1). A cut surface revealed a homogeneous, whitish, slightly glistening surface (Figure 2), with a central core lined by a thin layer of epidermis. No haemorrhage, necrosis or ulceration was evident.

Figure 1. Gross appearance of the solitary, soft, pedunculated mass (acrochordon) located immediately cranial to the penultimate left mammary gland.

Figure 2. Cut surface of the acrochordon, showing a homogeneous, whitish, slightly glistening appearance.

Further Clinical and Laboratory Investigation: The dog weighed 32 kg with a rectal temperature of about 37.9 ^{o}C and was generally active during physical examination. Blood samples were collected from the dog for haematology and serum biochemistry, preparatory for surgical excision of the lesion. And after excision, sections of the lesion were processed for histopathological evaluation.

Haematology and Serum Chemistry Analysis Procedures: Blood samples were collected via the cephalic vein into a heparinized sample bottles and used for the analysis of packed cell volume (PCV), haemoglobin concentration (HB), red blood cell (RBC) count, total and differential leucocytes (WBC) counts, and calculation of the mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), and mean corpuscular haemoglobin concentration (MCHC). For serum biochemistry, blood samples were collected into a plain sample bottle, allowed to clot, and centrifuged at 3000 revolutions per minute for 10 minutes to enable clear separation of the serum from clot. Analysis was carried out using a haematology and chemistry autoanalyzer.

Tissue Processing for Histopathology: The excised mass was fixed in 10% buffered formalin, and was routinely processed for histopathology by paraffin embedding, 5 µm-thick sectioning and haematoxylin and eosin (H & E) staining. The stained sections were mounted on glass slides, evaluated under the light microscope and pictures were captured (Avwioro, 2002).

Results of Haematology and Serum Biochemistry Analysis: Results of the pre-operative haematology determination showed that that the packed cell volume, haemoglobin concentration, red blood cell count and white blood cell counts of the dog were within the reference values for dogs (Table 1). There was however a slightly higher mean corpuscular haemoglobin concentration (MCHC) value (Table 1). Results of the serum biochemistry assay showed that most of the serum biochemistry parameters of the dog were within the reference values for dogs except for slightly higher than normal serum levels of creatinine, sodium, chloride and bicarbonate and slightly lower than normal levels of potassium (Table 2).

Surgical Excision of the Lesion: The dog was given pre-operative 5% dextrose saline. The mass was excised under local anaesthesia using 2% Lidocaine (2 ml) injected subcutaneously around the tag and the bleeding was controlled using electrocautery (Sanusi *et al*., 2025). The dog was monitored post-operatively for a week and it recovered fully without complications. The excised tissue sample/lesion was sent to the Department of Veterinary Pathology, University of Ibadan for histopathological evaluation (Olaifa *et al*., 2025a)

Histopathology Findings: Histological examination revealed a markedly thickened epidermis characterized by orthokeratotic (non-nucleated) and predominantly parakeratotic hyperkeratosis (Figures 3 and 4). A mild to moderate degree of acanthosis was observed, with stratification and varying thickening of the epidermis. In several regions, the acanthosis was pronounced, forming elongated, anastomosing rete ridges overlying a fibrovascular core (Figure 4). The stratum corneum showed marked hyperpigmentation.

Despite the hyperplastic changes, there was no evidence of cellular atypia or dysplasia. The lesion exhibited polypoid or finger-like projections composed of an expanded underlying dermis with abundant loose fibrovascular stroma (Figures 5 and 6). This stroma consisted of interlacing bundles of mature collagen fibres interspersed with numerous small- to medium-sized, thin-walled blood vessels. The dermis appeared otherwise unremarkable, with no evidence of invasive growth or inflammatory infiltrates (Figure 5). Adnexal structures within the dermis, particularly hair follicles and sebaceous glands, appeared hyperplastic but retained normal architecture and cellular morphology. No inflammatory response or significant atypical features were identified. The overall features are consistent with a benign, non-neoplastic, hyperplastic cutaneous growth. A diagnosis of a fibroepithelial polyp (acrochordon) commonly referred to as a "skin tag" was made.

Table 1. Pre-surgical haematological profile of the 7-year old Boerboel dog with an acrochordon, compared to reference values for dogs.

S/No.	Haematological parameters, with units in bracket.	Values obtained for the dog.	Reference (normal) values for dogs*.
1	Packed cell volume (%)	44.3	35 – 57
2	Haemoglobin concentration (g/dl)	17.0	11.9 – 18.9
3	Erythrocyte counts (10^{12}/L)	6.61	4.95 – 7.87
4	Mean corpuscular volume (fl)	67.0	66.0 – 77.7
5	Mean corpuscular haemoglobin (pg)	25.7	21 – 26
6	Mean corpuscular haemoglobin concentration (g/dl)	38.3	32 – 36.3
7	Thrombocyte counts (10^9/L)	280	211 – 621
8	Total Leukocyte counts (10^9/L)	10.16	5.0 – 14.1
9	Absolute Lymphocyte counts (10^9/L)	2.32	0.4 – 2.9
10	Absolute Monocyte counts (10^9/L)	0.55	0.1 – 1.4
11	Absolute Eosinophils counts (10^9/L)	0.02	0 – 0.13
12	Absolute Basophils counts (10^9/L)	0.01	0 – 0.14

* Source of Reference values: Merck's Veterinary Manual 9th Edition, 2005

Table 1. Pre-surgical serum biochemistry profile of the 7-year old Boerboel dog with an acrochordon, compared to reference values for dogs.

S/No.	Serum biochemistry parameters, with units in bracket.	Values obtained for the dog.	Reference (normal) values for dogs*.
1	Alanine aminotransferase (IU/L)	21	10 – 125
2	Aspartate aminotransferase (IU/L)	38	8.9 – 50
3	Alkaline phosphatase (IU/L)	198	23 – 212
4	Gamma gultamyl transferase (IU/L)	9	0 – 11
5	Total Bilirubi (mmol/L)	2.52	0 – 5.13
6	Conjugated Bilirubin (nmol/L)	0.2	NA
7	Unconjugated Bilirubin (nmol/L)	1.32	NA
8	Urea (mg/dl)	8.0	2.5 – 8.3
9	Creatinine (µmol/L)	146.9	44.3 – 122.0
10	Total Protein (g/L)	62.0	54.0 – 75.0
11	Albumin (g/L)	39.2	25.0 – 41.0
12	Globulin (g/L)	23.1	25 – 45
13	Albumin: Globulin ratio	1.7	NA
14	Chloride (mmol/L)	127.1	110 – 124
15	Bicarbonate (mmol/L)	29.1	17 – 24
16	Potassium (mmol/L)	3.5	3.9 – 5.1
17	Sodium (mmol/L)	158.1	142 – 152
18	Glucose (mg/dl)	89	60 – 111

* Source of Reference values: Merck's Veterinary Manual 9th Edition, 2005; NA – Not available.

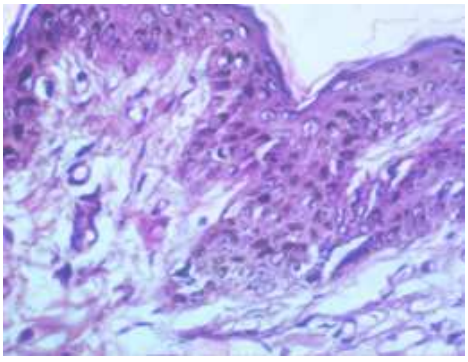

Figure 3. Stained section of the acrochordon showing markedly thickened epidermis due to orthokeratotic (non-nucleated) and predominantly parakeratotic hyperkeratosis. There is marked hyperpigmentation of the keratinocytes. Cellular atypia is not observed. [H & E, ×400]

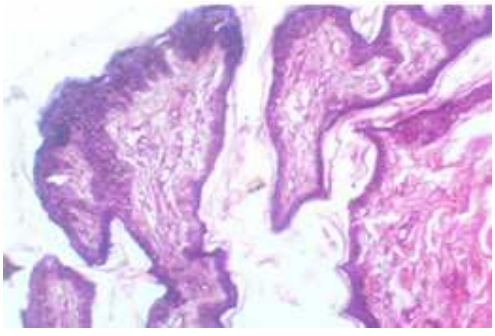

Figure 4. Low magnification a stained section of the acrochordon showing stratification and varying thickening of the epidermis with the dermis looking apparently normal without any invasive growth or inflammation. Acanthosis in some areas presents as elongated, anastomosing rete ridges. [H & E, ×100].

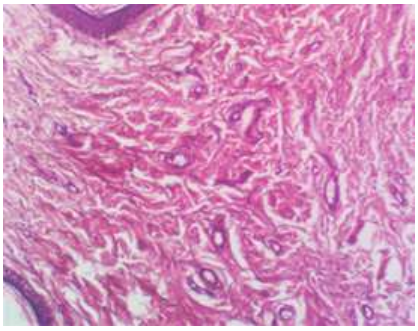

Figure 5. Stained section of the acrochordon showing the expanded underlying dermis with abundant collagenous stroma and hyperplastic hair follicles. There was no inflammatory response. [H & E, ×400]

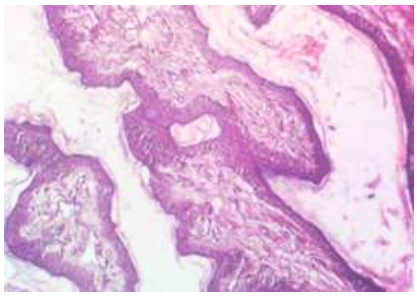

Figure 6. Stained section of the acrochordon showing polypoid/finger-like projections with stroma consisting of collagenous matrix and small capillaries (fibrovascular core). Anastomosing acanthotic ridges are also present. [H & E, ×400]

Discussion

The findings in this case of acrochordon are reasonably similar to those documented globally, albeit with certain notable distinctions. The present case involved a solitary pedunculated lesion in a Boerboel dog, differing in anatomical location and lesion multiplicity but aligning with the overarching benign and fibrovascular characteristics described previously. Additionally, oral fibroepithelial polyps, often termed "chewing granulomas", have been reported in aging dogs; a retrospective study of 23 oral polyps in 21 dogs revealed pedunculated morphology, fibrovascular stroma, mild acanthosis, and varying hyperkeratosis, mirroring the features in the present case (Lopes *et al*., 2022). Notably, none showed evidence of malignancy, confirming that these lesions are hyperplastic rather than neoplastic.

The first documented description of acrochordonous lesions in dogs was published in 2003 (Gross *et al*., 2003), reporting multiple, closely associated skin tags forming a large plaque termed "acrochordonous plaque" on the dorsal necks of Bulldogs and a Pug. Similarly, Mendes *et al*. (2024) described three French Bulldogs presenting with multiple fibroepithelial polyps in the external auditory canal, often associated with chronic otitis externa.

In Nigeria, reports of fibroepithelial polyps are extremely limited. Mohammed *et al*. (2021) documented a fibroma molle (synonymous with acrochordon) in an eight-year-old Caucasian bitch in Maiduguri; the mass, over 11 cm in diameter, was excised and confirmed histopathologically as benign tissue growth (Mohammed *et al*., 2021). The present case adds to this scarce local data by highlighting a similar lesion in a different breed and geographic setting, suggesting that fibroepithelial polyps may be more common than reported, being probably overlooked as a result of their indolent nature (Olaifa *et al*., 2025b).

Histologically, the lesion displayed classical features: marked orthokeratotic and parakeratotic hyperkeratosis, mild to moderate acanthosis, and elongated, anastomosing rete ridges. The dermis comprised loosely arranged collagen bundles interspersed with thin-walled capillaries, confirming its fibrovascular nature. These observations are consistent with established dermatopathology criteria for acrochordons (Goldschmidt *et al*., 2019) Unlike papilloma which exhibit viral cytopathic changes, fibroepithelial polyps lack such features, aiding differential diagnosis (Munday *et al*., 2019).

Globally, breed predispositions to development of acrochordons vary: Bulldogs, Pugs, and French Bulldogs often present multiple lesions **(**Gross *et al*., 2003**;** Mendes *et al*., 2024) whereas solitary lesions tend to occur in larger breeds such as Doberman Pinschers or Boerboels, and thus may go unnoticed unless functionally significant. Given the asymptomatic nature of most canine acrochordons, under-reporting in literature is likely.

Management of fibroepithelial polyps is reportedly straightforward: complete surgical excision is reportedly curative, with minimal recurrence when the lesion is removed at its base **(**Lopes *et al*., 2022). Lesions in sensitive areas may require careful planning to avoid complications **(**Mendes *et al*., 2024). In the present case, surgical excision under local anaesthesia resulted in uneventful recovery, with no recurrence on follow-up.

The importance of histopathology in the diagnosis of acrochordon cannot be overemphasized: routine evaluation of all excised skin masses is recommended to distinguish benign fibroepithelial polyps from malignant neoplasms (Goldschmidt *et al*., 2019; Olaifa *et al*., 2025b).

The present case report contributes to the growing evidence that fibroepithelial polyps, though benign and often asymptomatic, warrant clinical attention, particularly in regions where dermatologic masses may be misdiagnosed. As veterinary care advances in sub-Saharan Africa, enhanced reporting and documentation will improve understanding of prevalence, breed predisposition, and management outcomes of such lesions.

Conflict of Interest

The author declares no conflict of interest with this study

Acknowledgments

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