



Penile Squamous Cell Carcinoma in A Boerboel Dog in Ibadan, Nigeria – A Case Report

**Ohore O.G¹, Jarikre T.A¹, Agbugba L.², Gurumyen G.Y¹, Ola O.O¹, Adekunle L.A¹,
Usman A.A.¹ Jubril A.J.¹, Alaka O.O.¹, Tijani M.O.¹, Oyeyemi M.O.²,
Taiwo V.O¹ and Antia R.E¹**

¹*Department of Veterinary Pathology, Faculty of Veterinary Medicine, University of Ibadan, Nigeria.*

²*Department of Theriogeneology, Faculty of Veterinary Medicine, University of Ibadan, Nigeria.*

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ABSTRACT

This report describes the first case of penile squamous cell carcinoma (SCC) in a Boerboel from our environment while emphasizing the importance of cytology as a quick and reliable diagnostic tool in clinical setting. The dog presented with a complaint of bloody urination had a noticeable growth on the penis. There was high cellularity of neoplastic squamous cells admixed numerous neutrophils and keratin within the background upon cytological evaluation. Therefore, cytological evaluation can become a ready tool for the diagnosis of SCC for appropriate treatment.

Key words: Squamous cell carcinoma, Penis, Dog, Diagnosis

*Corresponding author:

email: get2theo@gmail.com

Tel: +

INTRODUCTION

The increasing demand and social acceptance of dogs as companion animals may have also increased incidence and risk of genital disease or neoplasm in dogs [1]. The most common penile tumors in dogs are transmissible venereal tumor (TVT) and Squamous cells carcinoma (SCC) [2, 3]. Other tumors reported to affect the penis include papilloma of the glans penis, [chondrosarcoma](#) of the os penis, and lymphoma [1].

Squamous cell carcinoma accounts for 2% of skin tumours in dogs resulting in ulcerative growths, which are frequently metastatic [2] affecting organs with infiltrative stratified squamous epithelial cells [3]. When the tumour is on the skin, it would usually ulcerate due to extensive areas of necrosis, and therefore, grading can be done by cytology [3]. The tumour is known to be associated with aggressive cannibalism [2], which are associated with the presence of either inflammatory cells or other neoplastic cells within their cytoplasm of the SCC cells [1]. This is a phenomenon called emperipolesis whose mechanism is not yet fully known [4]. Squamous cell carcinoma is reportedly common in dogs affecting mostly the oral mucosa, the skin and the nail bed [5]. Besides, the tumour is also reportedly common in Doberman, German shepherd, Dalmatian and Golden retriever [6]. However, only a few cases of penile involvement have been documented in conjunction with testicular epidermoid cyst [7]

or paraneoplastic hypertrophic osteopathy [5]. Therefore, the present report documents the first case of penile SCC in a Boerboel dog in Nigeria with particular emphasis on cytological evaluation as a quick and reliable diagnostic tool in clinical setting.

CASE HISTORY

A 4-year-old Boerboel dog presented to the University of Ibadan Veterinary Teaching Hospital had complaints of bloody urination and a noticeable growth on the penis. The dog showed no improvement to treatment for urinary tract infection and neither did it favourably respond to four weeks of Vincristine sulphate treatment following a suspicion of Transmissible Venereal Tumour (TVT). The growth was expansive, cauliflower-like, bright red and located on the tip of the glans penis (Plate 1A).

CYTOLOGY DIAGNOSIS

Smears were fixed with methanol and stained with Giemsa following fine needle aspirations. Cytology showed high cellularity of neoplastic squamous cells admixed numerous neutrophils and keratin within the background. The squamous epithelial cells were of varying sizes, with abundant cytoplasm, basophilic cytoplasm, and prominent nucleoli with the presence of neutrophils in many of the squamous epithelial cells (emperipolesis) (Plate 1B).

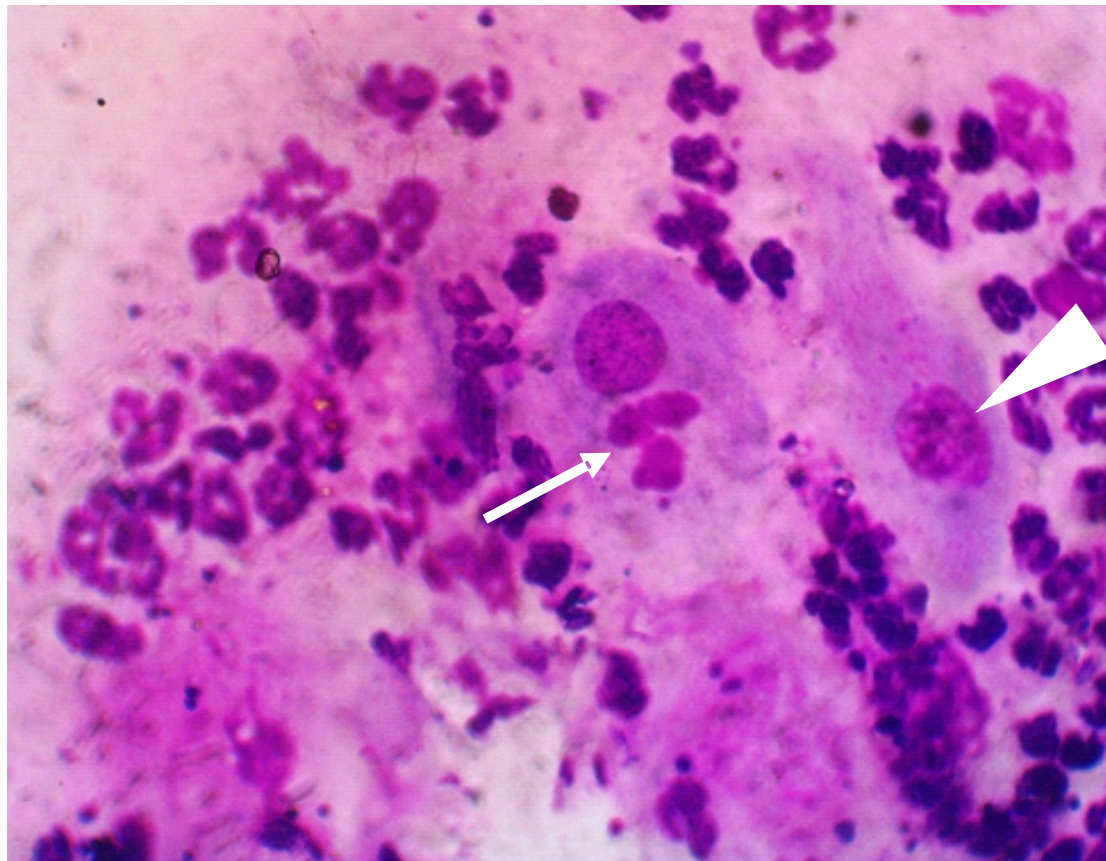
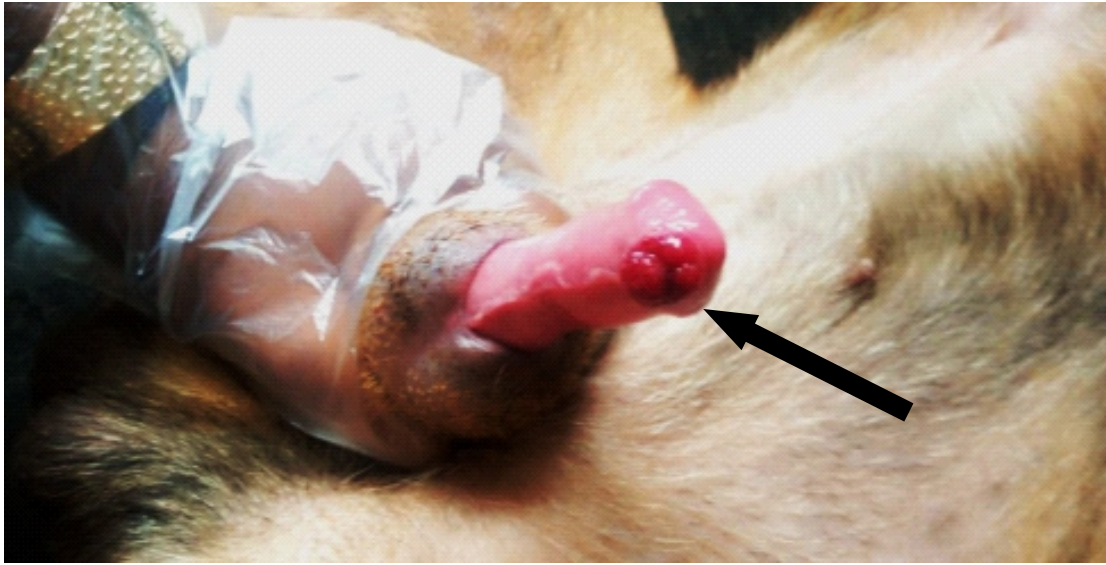


Plate 1 - Penile squamous Cell Carcinoma in a 4 -year-old Boerboel dog: **A.** An expansive, cauliflower-like, bright red penile growth (arrow) **B.** Light microscopy showing emperipolesis (white arrow), basophilic cytoplasm, multiple nucleoli (arrow head) and neutrophilic infiltration (black arrow). Giemsa X 1000

DISCUSSION

This case of penile squamous cell carcinoma appears to be the first reported in dogs in Ibadan, Nigeria, where it is an uncommon occurrence. This report is also the first penile SCC in a Boerboel. SCC in dogs has been linked to papilloma virus [7]. Although not investigated in the present case, SCC has been reported to cause pulmonary hypertrophic osteopathy as a paraneoplastic syndrome in dogs [5]. Besides in human, SCC reportedly occurs with different other types of tumours like sarcomatoid, basaloid and adenosquamous carcinomas associated with high rate of nodal metastasis to cause death [8].

Although the mechanism of emperipolesis, as seen in the present case, is not yet well understood, it is a common feature of SCC as well as an important diagnostic feature of the condition [4]. This might be an attempt by such neoplastic cells to evade the immune surveillance as reported by Zhao et al [9]. The apparent lack of response to Vincristine treatment agreed with the report of Sandoval *et al.* [10] where systemic administration had no effect unlike through the intralesional route that resulted in the regression of the tumour mass. The prognosis of SCC is usually poor due to metastasis [5], however the dog was placed on intravenous cisplatin plus fluorouracil (5-fu) [11].

The gross cauliflower appearance of this case, which was initially believed to be TVT shows that, not all cases with cauliflower appearances are those of TVT according to [10, 12]. Therefore, there is need for cytological evaluation of such growths before the commencement of any form of treatment in future cases.

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