

# Incidence of Pulmonary Papillary Carcinoma in Dromedary Camels Affected with Pneumonia: A Sudanese First Report

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### Introduction

**Aims:** To study the pathology of lung tissue affected with tumors, isolate and identify the bacteria associated with these tumors in dromedary camels in Sudan to investigate the relationship between tumor and bacteria. **Study Design:** 45 lung samples of camels slaughtered at Tambool abattoir, Al-Gazeera state in Sudan of age ranging between 10-15 years, were subjected to pathological and bacteriological studies using standard methods. **Place of Study:** This study was undertaken in the Departments of Pathology and Bacteriology, Central Veterinary Research Laboratories, Ministry of Animal Resources and Fisheries, Khartoum during 2015. **Methodology:** The isolates were characterized using different techniques: conventional, Api kits and automated system Vitek 2 Compact. In histopathological method portions of Lungs tissues were fixed in 10% formalin, processed by standard method for paraffin wax embedding, 5 micron sections were cut and stained with hematoxylin and eosin (H and E). **Results:** Four out of 45 lung samples (8.9%) were diagnosed as pulmonary papillary carcinoma. The most striking changes were complete obliteration of lungs tissues architecture, which were replaced with papillary fibrovascular projections with complex secondary and tertiary branches. The cells lined projections were found in clumps with indefinite borders and mostly overlapping each other. The nucleoli of these cells showed atypia with vesicular nucleoli forming empty glass appearance, with dark nucleoli, psammoma bodies were identified in all cases and were often associated with the papillary component, either within fibrovascular cores or lining epithelium, infiltration of mononuclear cells, haemorrhage, necrotic detached tumor cells, and oedema was detected in the affected lungs. In this study *Streptococcus suis* (*S. suis*), *Bacillus* sp and *Staphylococcus aureus* (*S. aureus*) were isolated from lungs affected with papillary carcinoma, the isolation of these bacteria may have an importance in the future studies to determine the relationship between bacteria and such tumor. **Conclusion:** The current study considered to be the first report for occurrence of pulmonary papillary carcinoma in dromedary camel in Sudan.

### Conclusion

Although we cannot rule out the relationship between cancer and infection, we believe that malignancy, led to an immunosuppressed condition that facilitated the development of bacterial infection. Pulmonary papillary carcinoma is a rare malignant neoplasm in camel. The definitive diagnosis of this pulmonary neoplasia can be established only by a histopathological examination. Screening for bacteria present in cancer tissues of various histological types may open up new dimensions in our understanding of this relationship, and its importance, if any. As high throughput deep sequencing technologies become more available, mining for bacterial strains adapted to survive within the tumor microenvironment will permit dedicated studies on this phenomenon, perhaps even leading to the characterization of a potential 'tumor microbiome'.

### Keywords

Bacteria; carcinoma; dromedary; camel; tumor; Sudan.

### Biography

Muna Ahmed Elkhailifa, Veterinary Microbiologist at CVRL/ Sudan completed PhD in 2013 and had 20 papers in different international journals.

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