

CORNU CUTANEUM
ON THE MANDIBULAR REGION OF A
GREATER KUDU
TRAGELAPHUS STREPSICEROS

by

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and

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Abstract—The condition, *cornu cutaneum*, in a free living kudu *Tragelaphus strepsiceros* in the Kruger National Park is described. Macroscopical and microscopical findings are recorded. Two identical cases have been observed previously.

Introduction

According to Cohrs (1967) cutaneous horns are horn-like structures projecting from the surface of the skin, and being movable in the skin, they often hang downwards. Jubb and Kennedy (1963) describe it as projecting masses of keratin, pyramidal or conical in shape. It consists of a connective tissue core surrounded by intensely keratinized epithelium. The cause is still unknown although a connection has been sought with prior trauma or inflammation. Moulton (1961) considers the condition as hyperkeratinization of papillomas. Jubb and Kennedy (1963), however, advise the histological examination of the base of the horn for clues to its origin and likely behaviour.

Cutaneous horns are apparently relatively frequent in cattle, sheep, goats and birds, less frequent in horses and extremely rare in pigs, dogs and cats (Cohrs, 1967; Jubb and Kennedy, 1963). The condition may occur in a great variety of situations, although the predilection sites in cattle seem to be the head, ears, udder, scrotal region or limbs (Cohrs, 1967; Moulton, 1961; Brown, 1935; Corcoran, 1970). Jackson (1936) maintains that cutaneous horns in sheep occur particularly on the external ears.

The literature appears to be quite barren of any reports on the occurrence of the condition of *cornu cutaneum* in wild animal species.

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Case History

A kudu *Tragelaphus strepsiceros* "with its tongue partly torn out and hanging pendulously from its throat" was reported seen by a tourist near the Punda Milia Rest Camp in the northern section of the Kruger National Park. A predator was thought to be the responsible party. Subsequent sightings by other tourists were held as a confirmation of this report.

After a chance sighting of the kudu by the authors, the animal was destroyed in order to make a closer examination of the condition.

A macroscopic examination was made at the site of death and specimens for histological examination collected in 10% formalin solution.

Macro- and microscopic examination

The animal, an aged female kudu, exhibited a large horny appendage hanging from the lower jaw region. The rest of the body appeared normal and she was in a relatively good condition.

As can be seen in the accompanying photograph (Fig. 1) a large pendulous horny structure was attached to the skin of the lower jaw region immediately to the right of the median plane and about midway between the angle and body of the mandible. In shape it was roughly cylindrical, with the distal part tapering to an off-centre point. Basically it consisted of a stalk, horny part and a central core. Dimensions are provided by Fig. 2. The circumferences at the base of the horny structure, halfway down the horny part and 2 cm from the apex was 21 cm, 18,5 cm and 6,8 cm respectively. The stalk consisted for the first part of soft thick skin covered with hair, which on one side was continuous with the skin of the lower jaw region and on the other side gradually becoming scurfy, denuded of hair and hard towards the base of the horny structure. The root or base of the horny structure had a thin edge which was continuous with the skin. This area of transition was irregular with soft horn emanating from it for the first part, but rather abruptly changing into thick hard, scaly horn with a wrinkled surface appearance, shallow grooves and ridges following a longitudinal pattern. From the thin edge at the root the thickness of the horn increased till it became practically a solid mass for the last 9,7 cm forming an off-centre conical depression with the depth 13,8 cm and a diameter of 7,0 cm at the root (Fig. 2). The central core consisted of firm yellowish tissue with a fatty appearance. Blood-vessels were present. The core tissue could be felt through the skin in the stalk as a firm cord. The core tissue was found to be continuous with the normal subcutaneous tissue of the mandibular region, and was not directly attached to the mandibular bone. The bone presented a smooth and normal appearance. The skin therefore appeared to have the main weight supporting function.



Fig. 1. A cutaneous horn on the mandibular region of a kudu.

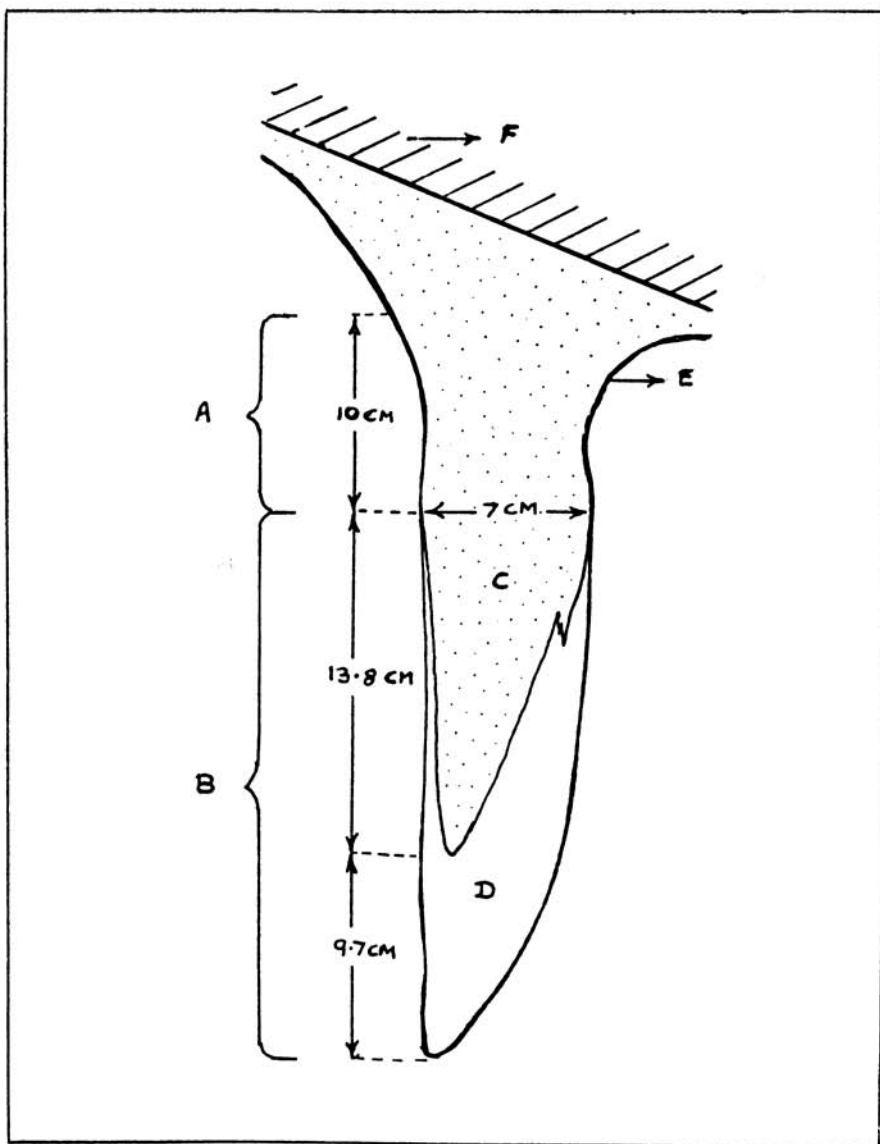


Fig. 2. A diagrammatic representation of a longitudinal section through the cutaneous horn viewed from the side.

A: Stalk

B: Horny part

C: Core

D: Horn matrix

E: Skin

D: Mandibular bone

The horny mass with contents (core) weighed 530 g.

On histological examination the central core appeared to consist mainly of connective tissue fibres, interspaced with fat tissue. Bloodvessels were present. A gradual phase of transition was noticed, from apparently normal skin layers to squamous stratified epithelium, with the basal layers becoming heavily laden with pigment granules, to intensely keratinized epithelial layers. An increase in the size and ramification of the papillae was also evident in the area of transition. The distal part of the horny mass appeared to consist entirely of closely welded horny scales.

Discussion

On the macroscopic and microscopic appearance of the specimen a diagnosis of cutaneous horn (*cornu cutaneum*) was made.

The mass was supported entirely by the skin and subcutis of the lower jaw region. This explains the length of the skin stalk and pendulous nature of the growth.

No indication as to the origin of this aberrant growth can be provided. It is however extremely interesting to note that a similar condition in a free-ranging female kudu in the Sabie Sand Private Game Reserve was recently observed by the local game ranger (Crabtree, *pers. comm.*). The phenomenon was described as “a growth resembling horn, hanging pendulously from the lower jaw region”. On showing the observer the photograph included in this paper (Fig. 1), he subsequently identified the condition on appearance as identical to the one he saw in the veld. The two cases were about 300 km apart, and there can be no doubt that two such cases have actually existed at the same time. This led to further inquiries and was awarded with yet another affirmative answer by a joint owner of the Sabie Sand Holdings. His observation dated back for quite a number of years, and must therefore be considered as yet another case. The condition of *cornu cutaneum* amongst kudu is therefore not as rare as first thought.

The favoured site seems to be the lower jaw region. Several possible explanations for this phenomenon exist. It could result from a horn rest embryologically misplaced, or the keratinization of a papilloma, or an irritant brought about by some predisposing factor in the behaviour and anatomy of the kudu.

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REFERENCES

- BROWN, M. H. V. 1935. *Cornu cutaneum* on the forehead of an ox. *Jl. S. Afr. vet. med. Ass.* 6: 133.
- COHRS, P. 1967. *Nieberle and Cohrs textbook of the special pathological anatomy of domestic animals*. Translated by R. Crawford. Oxford, London, Edinburgh, New York, Toronto, Braunschweig: Pergamon Press.
- CORCORAN, C. J. 1970. A cutaneous horn on the bovine teat. *Vet. Rec.* 86: 771.
- JACKSON, C. 1936. The incidence and pathology of tumours of domesticated animals in South Africa. A study of the Onderstepoort collection of neoplasms with special reference to their histopathology. *Onderstepoort J. vet. Sci. Anim. Ind.* 6: 1.
- JUBB, K. V. F. and P. C. KENNEDY. 1963. *Pathology of domestic animals*. Vol. 2. New York and London: Academic Press.
- MOULTON, J. E. 1961. *Tumours in domestic animals*. Berkeley and Los Angeles: University of California Press.