

Glans penis of the Indian one-horned rhinoceros (*Rhinoceros unicornis*)

M BHATTACHARYA¹, A CHAKRABORTY², G BAISIYA³ and S DEY⁴

Assam Agricultural University, Khanapara, Guwahati, Assam 781 022

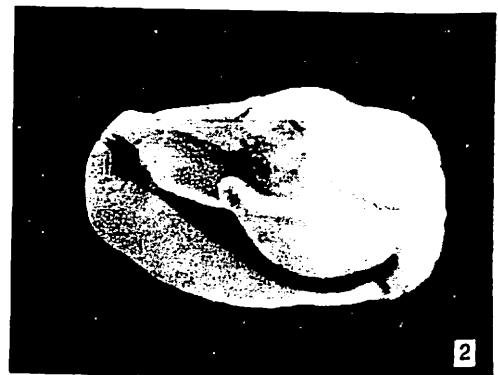
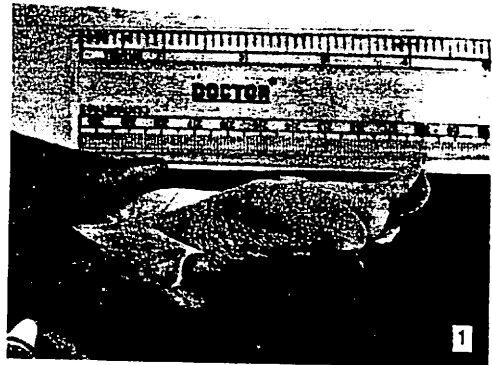
Received: 19 February 1992

This study was conducted to elucidate the glans penis of Indian one-horned rhinoceros.

The glans penis of 2 adult Indian one-horned rhinoceros was collected from the Assam State Zoo after death. Gross anatomical characteristics of the glans were noted immediately after collection. Small pieces of tissues were collected in 10% formolsaline solution, processed for routine paraffin sectioning, and stained by haematoxylin and eosin and Mallory's method (Luna 1968). Electron microscopy method for scanning (SEM) of the organ was done (Igaku *et al.* 1975) and observed by 'Jcol' SEM.

The prepuce on the glans extended at the dorsal border for adult 9 cm and at the ventral for 3.2 cm. The length of the glans penis was 13 cm from the attached portion of prepuce to free extremity of the glans, and transverse diameter at the widest free part was 2.5 cm. The free extremity of the glans of rhinoceros was like a half-bloomed bud (Fig. 1) as reported earlier (Kakati and Rajkonwar 1972). The height of the free extremity of the glans was 3.2 cm and width at the widest part was 1.3 cm. The external urethral orifice was located little below the central midline of the free extremity without any distinct groove (Fig. 2). However, a little darker area encircled the orifice from which a distinct groove

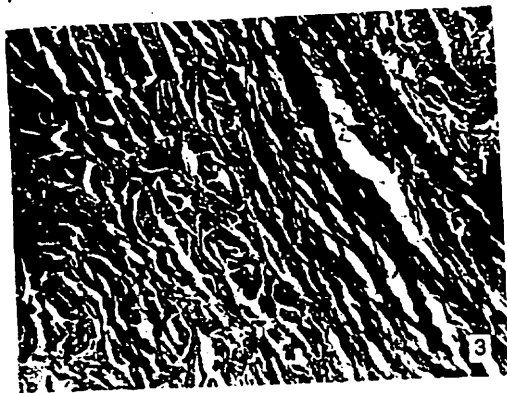
extended till the ventral tip. The diameter of the external urethral orifice at the point of termination was 0.1 cm and at the middle of



Figs 1-2. 1. Photograph showing the half-bloomed free end of glans penis of rhinoceros. 2. Photograph showing the location of external urethral orifice at the anterior free extremity of the glans penis.

Present address: ¹ Associate Professor, Anatomy, ² Associate Professor, Department of Pathology, College of Veterinary Science, ³ Scientific Officer, NEHU, Shillong 793 001.

4697



the glans penis was 0.4 cm. The ventral median raphe of the glans was distinct. The corpus cavernosus penis extended in the glans penis excepting for the last 5 cm of the glans, and may have a relation with specific sexual behaviour of the rhinoceros.

No cartilagenous structure was seen in the glans penis. The corpus cavernosus urethrae at the glans part of rhinoceros was lined by a stratified squamous epithelium underneath which was highly vascularised connective tissue consisting of mostly collagenous fibres (Fig. 3).

Scanning electron microscopy on urethral surface showed flat polygonal areas (Fig. 4). Polygonal areas could also be seen on the penile surface which were relatively much larger and had numerous minute processes that could not be marked on urethral surface (Fig. 5).

ACKNOWLEDGEMENTS

We are grateful to the Veterinary Officer and DFO, Assam State Zoo, for their help in getting the material for the study. The second author is grateful to CSIR for the financial assistance in the form of SRF for the study.

REFERENCES

- Igaku L. H., Patek E., Nilsson L., Metzger H and Hafez E. S. E. 1975. *Methodology of Scanning Electron Microscopy. Scanning Electron Microscopic Atlas of Mammalian Reproduction*. pp. 1-17. Igaku shoin Ltd, Tokyo.
- Kakati B. N. and Rajkonwar C. K. 1972. Some observations on the reproductive behaviour of *Rhinoceros unicornis*. *Indian Forester* 98 (6): 357-58.
- Luna L. G. 1968. *Manual of Histologic Staining Methods of Armed Forces Institute of Pathology*. 3rd edn. McGraw-Hill Book Co., New York.

Figs 3-5. 3. Photomicrograph showing vascularised connective tissue of corpus spongiosum consisting of mostly collagenous fibres. Mallory's method. 400x. 4. Scanning electron micrograph of rhinoceros glans penis showing polygonal areas on the urethral surface. x 1,000. 5. Scanning electron micrograph of rhinoceros glans penis showing polygonal areas on the penile surface studded with minute processes. x 3,200.