

ANATOMY OF THE DISTAL SESAMOID OF INDIAN ONE-HORNED RHINOCEROS

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Distal sesamoid bone plays a vital role in keeping the heavy Indian one-horned rhinoceros (*Rhinoceros unicornis*) in standing position as well as locomotion. This bone in domestic animals is widely studied (Raghavan, 1964; Getty, 1975 and Nickel *et al.*, 1986). However, reports regarding detailed gross studies of the distal sesamoid bone in Indian one-horned rhinoceros are almost absent. Despite its importance, absence of literature on this bone has led the authors to undertake the present study.

Materials and Methods

Eight numbers of distal sesamoid bones from two dead Indian one-horned rhinoceros were taken for this study. These bones from both fore and hind limbs were collected from Assam State Zoo, Guwahati after burial. These animals were approximately 18 to 23 years of age. After collection, the bones were properly cleaned and autoclaved, and were used to study the detailed gross characteristics.

Results and Discussion

The distal sesamoid bone of Indian one-horned rhinoceros was a single quadrilateral

short bone situated on palmar and planter aspects at the junction of the middle and distal phalanges. This bone was in consonance with the reports of Getty (1975) in horse. It was slightly narrower and shorter in the hind limb than that of the fore limb which was also described by Raghavan (1964) and Getty (*loc.cit.*) in ox (Fig). Its long axis was transverse, and it possessed three surfaces, three borders and two extremities. However, Getty (*loc.cit.*) recorded two surfaces, two borders and two extremities in horses. The dorsal articular surface of the bone showed a slightly elevated ridge flanked by two deep concave areas in both the sesamoids (Fig). Similar observations were also reported by Getty (*loc.cit.*); Nickel *et al.* (1986) and Deka (1996) in horse, ox and mithun, respectively. The lateral concave area of the articular surface in the distal sesamoid of fore limb was slightly deeper than the medial one, while it was found reverse in the hind limb. The flexor surface was extensive, irregular with five to seven foramina followed by two large foramina towards the extremities. The ventral surface revealed a central elevated relatively large (with foramina at ventro-cranial position) area on either side of which there were two foramina with grooves, which contained a number of foramina. These type of findings were also observed by Raghavan (*loc.cit.*) and

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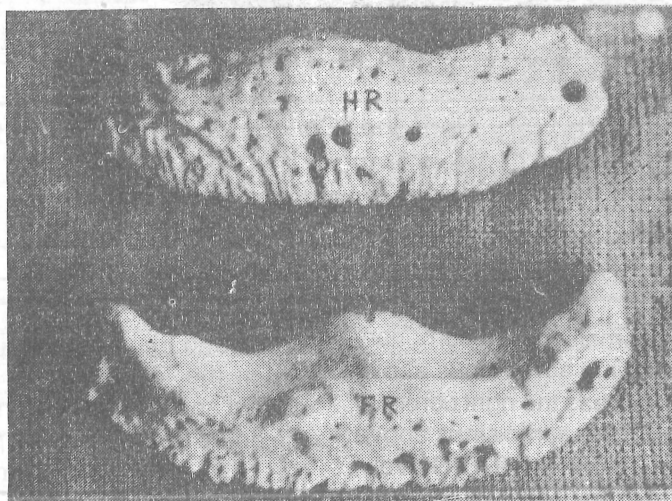


Fig. Photograph showing the right distal sesamoid of fore limb (FR) and hind limb (HR) in Indian one-horned rhinoceros.

Deka (*loc.cit.*) in ox and mithun, respectively. However, the present study demonstrated two large foramina towards the extremity (Fig). The dorsal border was rough with a slight elevation at the middle part and rounded on either side as also recorded by Raghavan (*loc.cit.*) in ox. However, this was more marked in the fore limb. The cranial border was like a sharp ridge with a marked elevated area (Fig). The ventral border was relatively more rough, large and almost rounded. But Raghavan (*loc.cit.*) observed one small convex facet in the ventral border of ox which was found absent in the present investigation. The two extremities were relatively blunt and rounded as recorded by Raghavan (*loc.cit.*) in ox. However, the medial one was slightly pointed for both fore and hind limbs.

Summary

Gross anatomical features of distal

sesamoids of *Rhinoceros unicornis* is reported.

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