
Case History of a Nasal Polyp in a Black Rhinoceros

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A free-ranging young adult male black rhino, about 9-10 years old and living in the Nairobi National Park, was noticed to be ill. The animal was eating, but never moved far from its territory near Masai Lodge. It gradually lost condition and was obviously unfit.

The following abnormalities were noted during a close observation: the animal appeared very thin and weak; its respiration was laboured and audible as loud wheezing and snoring noises from as far as 35 m away; after walking a short distance uphill it was short of breath and breathed through the open mouth; there was nasal discharge from both nostrils.

One week later it was seen again together with two other rhino bulls. All three were close to a cow with a large calf. The cow was possibly in season at the time. The sick bull was obviously thinner than the others.

A fair amount of nasal discharge from the left nostril was present.

Ten days later the animal looked very ill and in respiratory distress. It was decided to anaesthetize it briefly in order to examine its upper respiratory tract and administer treatment if possible. A dart was prepared containing 2.5 mg Etorphine (M99) and 150 mg Azaperone. The animal was approached on foot and darted from about 15 m. The projectile injected into the muscles of the left shoulder.

Unfortunately the rhino was still in the company of the group described above. After it was darted, it ran off for about 20 m and stopped. The other rhinos stayed where they were. Six minutes later the sick bull began to stumble and shortly afterwards sat down in sternal recumbency. Some stones were thrown in the direction of the other rhinos and they moved off

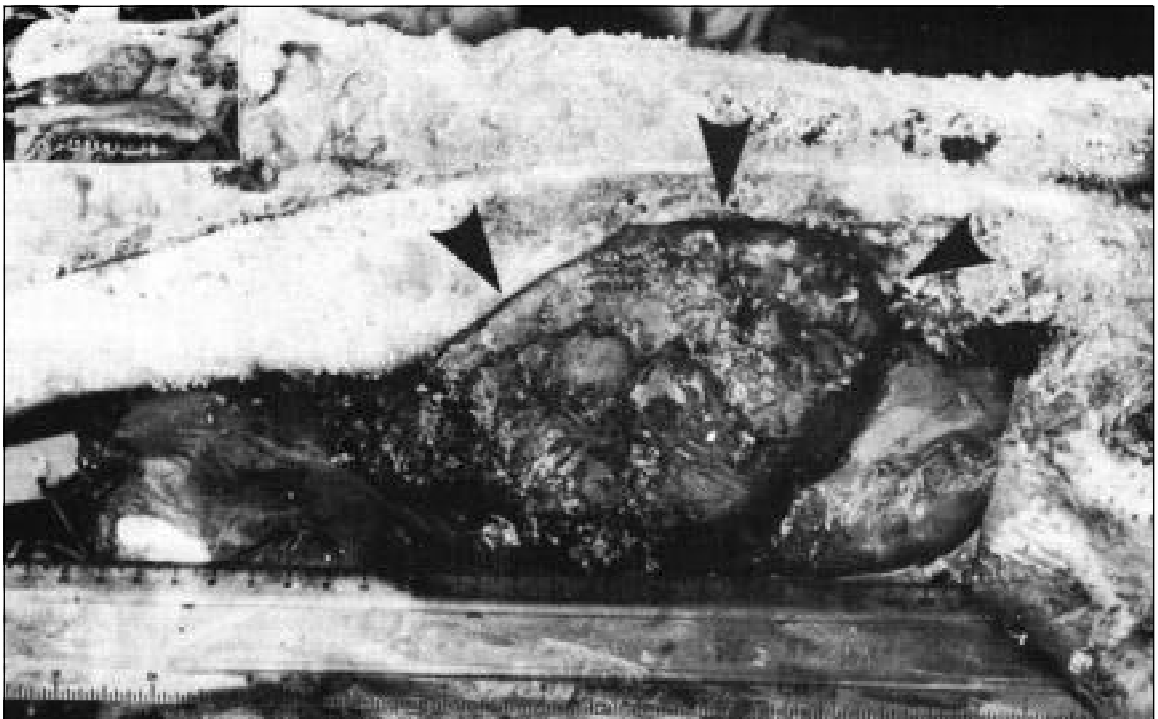


Figure 1: A hemisection of the skull shows a large multi-lobular mass (arrows) filling the nasal cavity. The upper left inset is provided for orientation

except for one bull. More stones were thrown at him, but he would not leave until a vehicle was brought and driven towards him. Ten to fifteen minutes were lost in the process.

When it was finally possible to examine the sick animal, it was immediately obvious that the bull was severely starved of oxygen. The head had sunk down so that the chin rested against the ground and the mouth was firmly closed by the weight of the upper skull resting on the lower jaw. About three times per minute the animal gasped for air. The antidote (Diprenorphine 3 mg) was given intravenously immediately. The next ten minutes were spent in an attempt at artificial respiration by applying pressure rhythmically to the left side of the thorax. However, spontaneous respiration did not improve, but stopped. The animal was dead about half an hour after being darted.

A post mortem examination was carried out. The animal was thin without any fat deposits. Kidney, heart and orbital fat deposits were nonexistent. There were no obvious abnormalities to the abdominal and thoracic organs. A fair number of helminths were noted in the large intestine. The air passage through

larynx, trachea and bronchi was free and the lungs looked healthy. The nasal cavity, however, was blocked on both sides. A soft, multi-lobular, tumorous mass was visible in both nostrils and posteriorly above the soft palate. Once the soft and hard palate had been removed the full extent of this lesion became obvious. It filled the nasal cavity in the anterior portion on both sides and extended on the left side further posterior than on the right.

The animal had been unable to get sufficient air through the nose. Its emaciated condition may have been caused by the permanent difficulty of feeding and breathing simultaneously. Because closing the mouth to chew also closed the air intake, it probably ate less than a normal amount of food. The tumour was in an anatomical position and of such extent as to make it inoperable. The cause of death was obviously asphyxiation due to the position adopted under anaesthesia that closed the remaining air passage through its mouth. However, it appears likely that the progressive growth of the lesion would have killed the rhino eventually.

Tissue from the nasal mass was fixed in 10% buffered formalin processed for light microscopy by standard

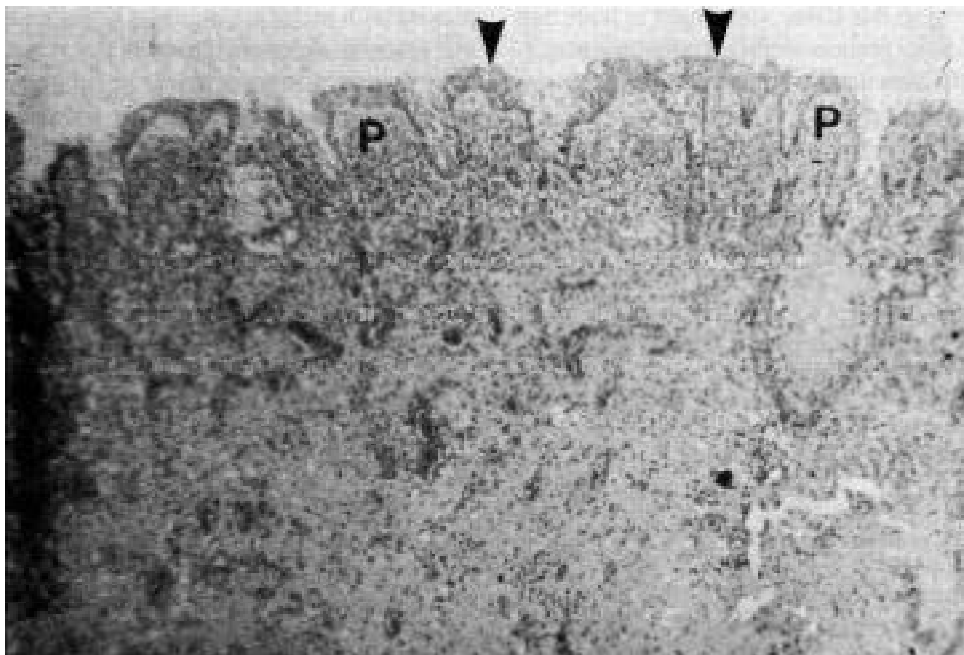


Figure 2: The surface of the mass was lined by pseudo-stratified columnar epithelium (arrows) which invaginated at regular intervals resulting in the formation of short, blunt papillae (P) (x 65).

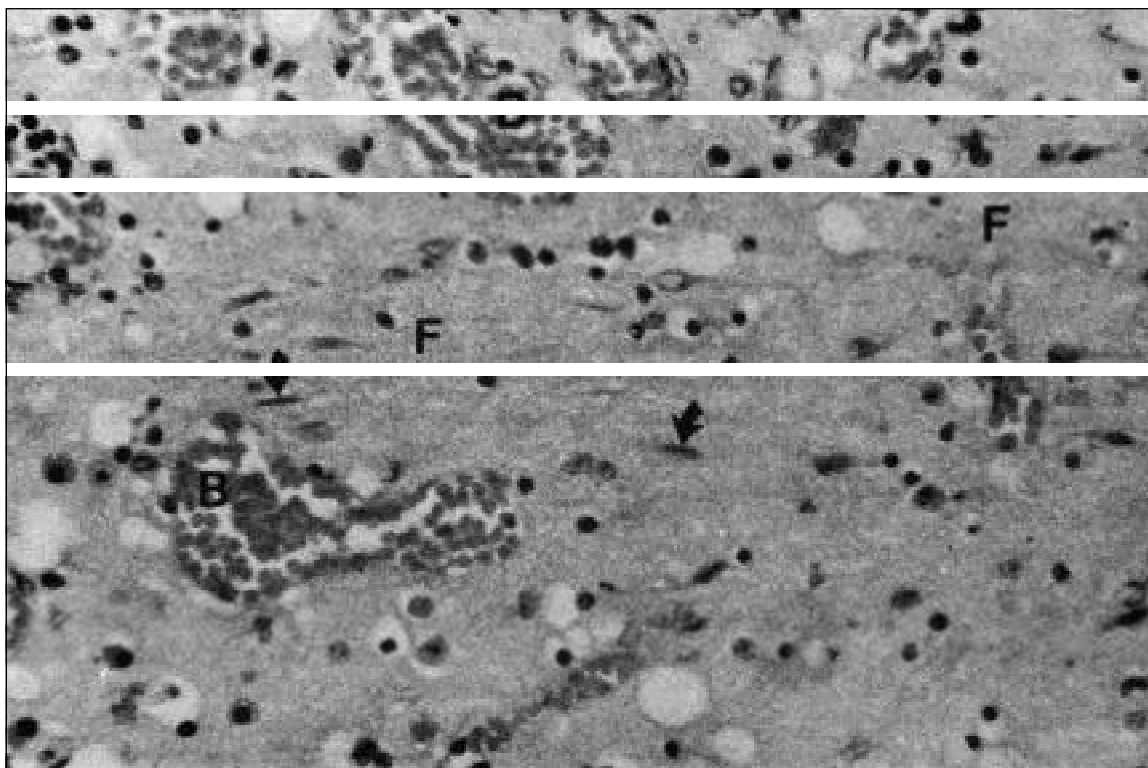


Figure 3: The stroma contained many thin-walled blood vessels (B) and was composed of dense fibrous connective tissue (F) with widely-spaced spindle-shaped fibroblasts (arrows) (x 650).

methods, embedded in paraffin, sectioned at 7 and stained with haematoxylin and eosin.

Histologically, this tissue was found to have one border lined by pseudo-stratified columnar respiratory epithelium that invaginated at regular intervals along the surface resulting in the formation of wide, short, blunt papillae. The lamina propria of these papillae contained an abundant, mainly lymphocytic-histiocytic, inflammatory cellular infiltrate. The stroma deep in this lamina propria contained radially arranged thin-walled blood vessels that extended to the surface. It consisted of dense, fibrous connective tissue with spindle-shaped

fibroblasts. Scattered mild to moderate vacuolation was present in the stroma and a diffuse, mainly mononuclear, cellular infiltrate was present with increased numbers of cells surrounding vascular channels. Deep in the stroma there were several clusters of acinar structures lined by tall, cuboidal epithelium having pale basophilic cytoplasm. A mainly mononuclear cell infiltrate was also associated with these acini.

Based on these morphological features a diagnosis of nasal polyp was made. The deep acinar structures were interpreted to be pre-existing glandular tissue of the nasal mucosa.

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Photographs by the authors.