



A Report of Bilateral Convergent Strabismus and Exophthalmus in a Buffalo

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Abstract

A case of bilateral convergent strabismus with exophthalmus (BCSE) in a buffalo is reported. In buffaloes there is paucity of published literature on BCSE; hence the present paper is written with an objective to report a rare case of (BCSE) in an adult non-descript buffalo.

Keywords: Bilateral Convergent; Buffalo; Exophthalmos; Strabismus (BCSE)

Introduction

Bilateral convergent strabismus with exophthalmus (BCSE) is a heritable eye defect prevalent in cattle breeds particularly in Holstein and German Brown cattle [1,2]. In India reports on occurrence of bilateral convergent strabismus with exophthalmus in buffaloes are lacking. The present paper describes a case of bilateral convergent strabismus and exophthalmus in about 3.5 year-old non-descript Buffalo.

Case History and Clinical Examination

A non-descript buffalo about 3.5 years was presented to Polyclinic IVRI, with the history of vision impairment and bilateral convergent strabismus (Figure 1). The owner reported that the condition was developed suddenly within 24 hours after first calving. The clinical examination revealed this condition as bilateral, symmetric rotation of eyeballs in an antero-medial direction with severe latero-dorsal exophthalmus and epiphora (Figure 2). The buffalo was able to move the eyelids over the visible lateral sclera. On manual reflection of third eyelid cornea was found moist and normal in appearance. Menace and pupillary light responses were absent. The rotation of eye balls was approximately 90 degrees antero-medial, which could be rotated to central by traction on the dorso-lateral bulbar conjunctiva. There was impairment of vision in both the eyes due to considerable reduction of visual field. The owner was informed about the possibility of inheritance of this disorder and poor prognosis.

Discussion

The most frequently observed manifestation of strabismus is convergent strabismus (esotropia), with eyes deviating medially [3]. Strabismus in cattle can be caused by congenital defects,

space-occupying processes within the orbit, neurological diseases, muscular impairment, metabolic diseases or intoxication (e.g., by phosphoric acid ester, seeds of *Aesculus octandra* [4]. Exophthalmus is the abnormal prominence of an eyeball of normal size and can be caused by congenital deformity of the skull or by defects of the suspension apparatus of the eyeball, paralysis of the extraocular muscles (e.g., a defect of the abducens nerve, lesions of the musculus retractor bulbi) or space-occupying processes within the orbit.

Generally, at birth no signs of the defect are present as these tend to develop later in life. According to Holmes and Young [5], the earliest manifestation of the defect is usually at the age when the heifers are calf and often not recognized till calving, although those investigators also report one calf affected at birth. The similar findings were also recorded in present case. The degree of deviation of both eyes from the normal visual axis can be determined by the amount of sclera permanently visible in the temporal corner of the eye. In many cases, the visible sclera shows a secondary dark pigmentation.

Vogt and Distl [6] proposed four-stage scale BCSE for affected animals: Stage 1, with < 25% of the visible eyeball filled with sclera; Stage 2 from 25% to 50%; Stage 3 from 50% to 75%; and Stage 4, with > 75% filled. The animal's sense of orientation may be intact in mildly affected individuals in spite of the limited field of vision, but animal showing Stage 3 or 4 BCSE are generally disoriented and have an insecure gait. Epiphora is often seen, particularly in cattle with advanced BCSE. This defect can become a significant problem because of its progressive course, which most often leads to blindness due to antero-medial rotation of both eyeballs and,



Figure 1: Close view of both (left and right) eyes of the buffalo affected with Bilateral convergent strabismus with exophthalmus (BCSE).



Figure 2: Front view of same buffalo affected with Bilateral convergent strabismus with exophthalmus (BCSE).

as a consequence of this rotation, the pupils disappear at the inner angle of the orbits. Handling of these animals becomes difficult due to their limited vision and there will be changes in the behavior of the affected animals, such as aggressiveness or panic in everyday situations, as noticed in the reported case. Farmers describe affected cows as 'shy', 'leery', 'jumpy' and 'wild' [3]. Since BCSE is caused by an autosomal dominant major gene in bovine, this inherited eye disease cannot be usually diagnosed in calves, heifers or young bulls. The animal can be excluded from herd before breeding. So far, there are no known reports on treatment of BCSE in animals.

Conclusion

Taking reference from the available published literatures and clinical signs we considered that the present case of congenital bilateral convergent strabismus with exophthalmus, probably inherited in nature. Since approximately 100% of the visible eyeball was sclera, we classify this as Stage 4 BCSE. Antibiotics and analgesics were given as there was scleral congestion and animal was in pain. The owner was told about the poor prognosis and the possibility of inheritance and the animal was discharged on the same day.

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