HYDROCEPHALIC FETUS WITH WRY NOSE AND ITS MANAGEMENT THROUGH FETOTOMY IN A MARE

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ABSTRACT

A case of dystocia in mare due to hydrocephalus fetus was successfully managed by partial fetotomy. The yolk sac remnant was found attached to the placenta. Histopathology of brain tissue revealed wide perivascular spaces and decreased cellularity in granular cell layer with interstitial edema.

Keywords: Fetotomy, Histopathology, Hydrocephalus, Mare, Yolk sac remnant

INTRODUCTION

Hydrocephalus is a rare congenital fetal dropsical condition due to the developmental defect involving swelling of the cranium with an accumulation of fluid in ventricular system or between the brain and duramater (Smith, 2002). For severe head malpostures, fetotomy is the method of choice due to a higher survival rate of dam and return of mare to breeding in the same season (Ras *et al*., 2014). The present report discusses a case of foal hydrocephaly and use of fetotomy to relieve the dystocia.

CASE HISTORY AND OBSERVATIONS

A seven-year-old multiparous mare with the history of all previous foalings normal was presented and had difficulty in foaling since last 6h. Unsuccessful attempts were made to deliver the foal at field level using mutational operations. Even amputation of fore limbs at knee was also undertaken. The mare appeared exhausted following manipulation and travelling stress. The evaluation of mare's vital signs showed temperature 101.6°F, pulse 48/minute and breaths 36/minute. The mucous membranes were pink and hydration status was normal. On vaginal examination, the cervix appeared completely dilated with the fetus in anterior longitudinal presentation and dorso-sacral position with a severe flexion of fetal head on the left side, which appeared enlarged with a soft feeling on dorsum. Both the fore limbs amputated at knee joint were also extended in the vagina.

TREATMENT AND DISCUSSION

The mare was sedated with Xylazine (10ml, i.m.) and epidural anesthesia (5ml, 2% lignocaine HCl) was given for the ease in obstetrical procedures. The perineum was washed with clean water and a large amount of liquid paraffin as lubricant was used to smear the vaginal passage. The fetal neck was amputated at cervical region using Thygeson's fetotome. Traction was applied first on the cut part comprising of forelimbs and caudal body parts and, thereafter on the part with neck with hydrocephalic head (Figure 1). The placenta was shed completely and the uterus was lavaged using a diluted povidone iodine solution in 10L normal saline. The mare appeared normal immediately following the completion of obstetric manipulations and postoperative treatment consisting of antibiotics, analgesics and intravenous fluid therapy was administered. The mare was discharged on next day after treatment and had complete recovery within a week.

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Figure 1: Craniofacial malformation (wry nose) in a foal

Figure 2: Disproportionally enlarged fetal head

Figure 3: Yolk sac remnant (round and hard mass) attached to placenta

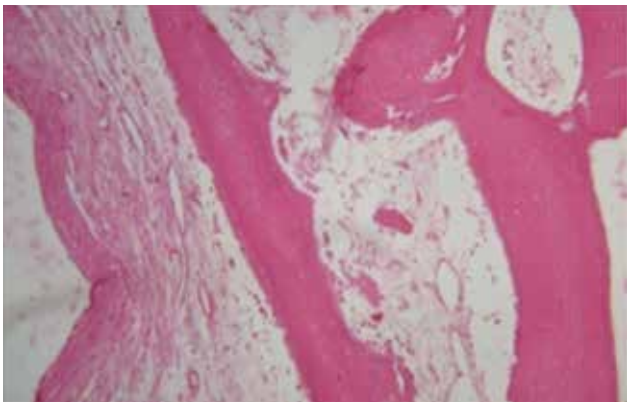

Figure 4: Yolk sac remnant - Bony trabeculae (pink dense area) and connective tissue showing edema and angiectasis (H&E, 100X)

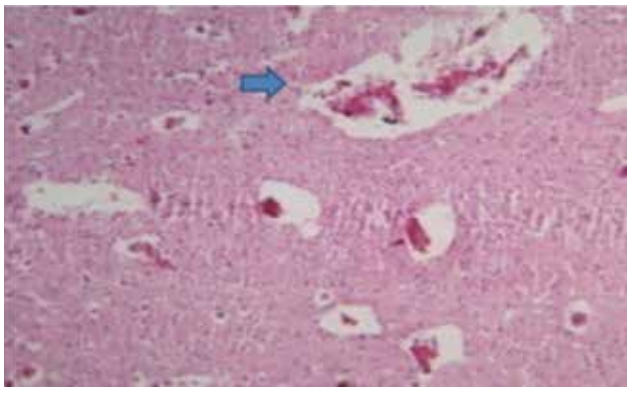

Figure 5: Cerebellum - Perivascular spaces are wide due to fluid leakage through blood-brain barrier (H&E, 10X)

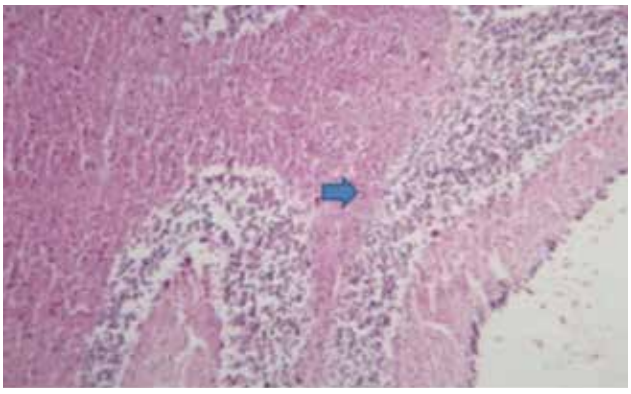

Figure 6: Cerebellum - Decreased cellularity in granular cell layer with interstitial edema (H&E, 10X)

The necropsy examination revealed that foal had wry nose, a congenital craniofacial malformation with incompletely developed and smaller jaws, tongue, eye and nose (Figure 1). This condition is more common in Arabian horses, but probably related to malposition *in utero* at critical stages of development (Foote *et al.*, 2012). The disproportionally enlarged fetal head of increased circumference had marked thinning of cranial bones with no ossification on dorsal portion and was covered with skin only (Figure 1 and 2). The brainstem and cerebellum were reduced in size.

A round, hard mass termed as yolk sac remnant was attached to placenta (Figure 3). Histopathology revealed this mass as cancellous bony mass, characterized by bony trabeculae with osteocytes located within lacunae and connective tissue showing edema and angiectasis (Figure 4). In a previous case, about 12 cm size calcified shell present at the insertion of umbilical cord of placenta and composed of fat, soft tissue and connective tissue was observed (Manu and Kurt, 2007). These were termed as yolk sac remnants rather than acardiac fetus or amorphous globosus (Samper, 2009). Histopathology of the cerebellum revealed enlarged perivascular spaces that could be the result of fluid leakage through blood-brain barrier due to increased intracranial pressure (Figure 5). A decrease in cellularity of granular cell layer was evident with interstitial edema in cerebellum (Figure 6). Fetus with bilateral hydrocephalus internus, hydranencephaly and cerebellar aplasia were reported earlier in mare (Waelchli and Hrensperger, 1988).

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