**CASE REPORTS**

MULTIPLE CONGENITAL ANOMALIES IN A FRIESIAN-ZEBU CROSSBRED BULL CALF


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Abstract

A 30-kilogram, 3-day-old Friesian-Zebu cross bull calf was presented to the Ahmadu Bello University Veterinary Teaching Hospital (ABUVTTH) Zaria, Large Animal Clinic Unit, with the complaint of not urinating since birth and that a mass (18 cm diameter) was protruding from the pubis to the perineal midline extending 5 cm to the left lateral of an area with incomplete skin (Epithelialogenesis imperfecta) formation and coverage. The calf was sluggish. The calf was stabilized with energy fluid (600 ml of Dextrose (100ml of 50% and 500ml of 5%) and reconstruction of the integumentary defect, and catheterization (permanent drainage) of the urinary bladder. The engorged urinary bladder contained blood tinged urine that was stained by fine needle aspiration and catheterization. It was fed and maintained ad libitum on warm enriched milk. The calf died four days post operation. Necropsy revealed several orogenital abnormalities and double atresic urinary bladder. The ectopic urinary bladder was haemorrhagic and contained blood tinged urine and blood clots extending to an ambiguous aplastic prepuce with hypoplastic penis devoid of the sigmoid flexure. An aplastic left-sided scrotal sac containing a hypoplastic testicle was retained in the inguinal canal. The epithelialogenesis imperfecta measured 12 cm in length by 5 cm width from the midline of the perineum to the umbilicus. The carcass was pale; there was hepatomegaly with fatty change, pulmonary oedema with frothy exudates in the trachea and bronchi. The case illustrates multifaceted congenital anomalies consisting of unilateral cryptorchidism, aplastic urethra and atresia and not likely associated with Friesian-Zebu cross. The cause of these multifaceted congenital anomalies is not known.

**Key Words**: Multiple congenital, anomalies; Friesian-Zebu, Bull calf

Case History

A 30 kilogram body weight, 3-day-old Friesian-Zebu cross bull calf was presented to the Large Animal Clinic Unit of Veterinary Teaching Hospital, Ahmadu Bello University (ABUVTTH) Zaria, with the major complaint of not urinating since birth, and that a mass (diameter of 18 cm) was protruding from the pubis to the perineal midline extending 5 cm to the right lateral of an area with incomplete skin (Epithelialogenesis imperfecta) formation and coverage. The calf was sluggish and dull. History revealed that the calf had a surgical correction of an atresia at a day prior to presentation. Further history revealed that attempts were made to relieve the calf of its inability to urinate.

On physical examination, the vital parameters were: temperature 39.0°C (98.2°F), pulse (100-120 beats/minute) and the respiratory (20-30 cycles/minute) rates were quite rapid in comparison to the normal in brackets. There was slight tachycardia and moist rales was perceived from the lungs on auscultation of the thorax. Other clinical signs observed were pale ocular and oral mucous membranes, dry muzzle, fever, mild dehydration, hyperpnoea, tachycardia, weakness, sternally recumbent, unilateral left-sided cryptorchidism, ectopic atresic urinary bladder, epithelialogenesis imperfecta, aplastic prepuce and a hypoplastic penis, and matted perineum with pasty faeces. The stump of the umbilical cord was seen as a blackish tape 5cm cranial to the aplastic prepuce.

Differential diagnosis included cutaneous cyst, urinary bladder diverticulum and urinary bladder dilatation. Further diagnosis and management plans were to stabilize the calf, decrease the rigidity of the bladder by catheterization, conduct a routine laboratory examination, and evaluate the bladder architecture by cystography. Transformation of the defect into a rectangular shape and perform a linear closure.
Management

The calf was being stabilized with 600 ml of Dextrose (100ml of 50% and 500ml of 5% Dextrose) through intravenous infusion. Physical and laboratory examinations were conducted. The hair around the region of the ectopic urinary bladder and the epitheligenesis imperfecta was clipped liberally and aseptically scrubbed with 2% chlorhexidine solution. The calf was placed on a dorsal recumbency with both hind limbs abducted and local anesthesia with 30 ml epinephrine based 2% lidocaine hydrochloride solution was infiltrated intradermally round the defect.

Following anesthesia, 160ml blood-tinted urine was aspirated from the turgid ectopic urinary bladder to reduce the bladder turgidity. The skin on the right side of the defect was debrided and dissected to create a pedicle flap large enough to close the defect with a catheter inserted into the ateresic bladder. The calf was hospitalized and fed ad libitum on warm enriched artificially manufactured milk and water pre- and post operation. Postoperative care involved infusion of energy based fluid and antibiotic therapy (procaine penicillin 20000 IU/kg, streptomycin 20mg/kg) and multivitamin 1 ml to be administered for 5 days intramuscularly. Wound dressing was routine.

The mean post surgical vital parameters were temperature 38.4°C, Pulse rate 102 beats/minute and respiratory rate 35cycles/minute. The vital parameters dropped on day 3 post surgery to 37.6°C, 52 beats/minute and 34 cycles/minute. At this period the calf rejected the milk on which it was fed. The gait was staggering with progressive weakness and dyspnoea. The animal died in the early hour (1-2 am) of day 4 post operation.

Results of laboratory and postmortem examinations

The calf was anaemic although the haemograms could not be gotten due to clotting of the samples sent to clinical pathology. Serum creatinine level was normal 71mmol/L (9-126). Fresh urine was seen oozing out through the catheter. E. coli was isolated from the urine culture. The pedicle flap used to close the ectopic urinary bladder was adequate and closure of the defect was uneventful. The calf regained activity but died 4 days post surgery.

Necropsy revealed several genitourinary abnormalities; double atresic urinary bladder. The ectopic urinary bladder was haemorrhagic and contained blood tinged urine and blood clots extending to an ambiguous aplastic prepuce with hypoplastic penis devoid of the sigmoid flexure. An aplastic left sided scrotal sac containing a hypoplastic testicle was retained in the inguinal canal. The epitheligenesis imperfecta measured 12 cm in length by 5 cm width from the midline of the perineum to the umbilicus. The carcass was pale; there was hepatomegaly with fatty change, pulmonary oedema with frothy exudates in the trachea and bronchi.

Discussion

The high normal vital parameters were accompanied by mild fever due to associated complications. The stress due to previous surgery and the difficult defecation due to the atresia and also aggravated the problem. The normal Serum Creatinine level found in this case indicated that the kidney was functional and the active physiological activity was not hampered by the retained urine in the urinary bladder. Although ectopic urinary bladder is a rare finding it has been reported by King et al. (2002). Epitheligenesis imperfecta is a genetic defect common in certain breeds of horse (e.g. Belgians, Quarter and Saddled breeds) but rare in other breeds of animals (The Genetic Research Endowment, 1999). It has been found in unrelated breeds of animals in Germany, in cattle and Ardennes foal in Sweden as well as in draft horses (Lisa, 2000). The defect is incompatible with life and hence euthanasia is recommended for infected foals depending on the severity (Cothran et al., 2002). The genetic status of progenies from carrier parents is in the ratio of 1:2:1 and single parent carriers do not pass down the disease (Cindy, 1999; Sellnow, 1997). Similar disease has been reported in humans referred to as Epidermolysis Bullosa or aplasia cutis congenita (Milenkovic et al., 2002; Merck Veterinary Manual, 2005). Usually accompanying these conditions are bladder duplication and associated urogenital congenital anomalies, which have been reported by Otaigba-Owiti et al. (1996); Bannykh et al. (2000); King et al. (2002) in Kenya-Africa, San Diego-Latinn America and Illinois-USA, respectively.

The surgical repair of the defect was adequate as well as the post surgical follow-up. The calf actually regained activity although the
vital parameters gradually decreased and it died four days later. The post mortem examination revealed multiple congenital problems besides the ectopic urinary bladder and the Epitheliogenesis imperfecta. The death of the calf could be attributed to the multifaceted congenital anomalies.

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References


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