BENHA VETERINARY MEDICAL JOURNAL

SOME CONGENITAL MALFORMATIONS IN RUMINANTS AND EQUINES WITH SPECIAL REFERENCE TO THE SURGICAL TREATMENT OF RECTO-VAGINAL AND CYSTO-RECTAL FISTULAE

Adel M. Badawy
Department of Surgery, Anaesthesiology and Radiologyy, Faculty of Veterinary Medicine, Benha University, Benha, Egypt, P.O. 13736, Moshtohour, Tokheh, Qaluobia Egypt,

A B S T R A C T

A clinical study was undertaken to record, analyze and treat some congenital malformations in ruminants and equines during the period from January 2007 to May 2011 at the faculty of veterinary medicine Benha University. A total of 49 cases of congenital malformations including: bulldog calf, cleft lip and absence of nasal plane ,exophthalmos, microphthalmos, conjunctival dermoid, dermoid cyst, branchial cysts, wattle cyst, arthrogryposis, aplasia of the forelimb (anomelia) , ectopic extra-digits, , contracted tendons, urethral dilatation, urethra-rectal fistula, atresia ani , atresia ani et recti , cysto-rectal fistula and recto-vaginal fistula were recoded. Surgical correction was attempted for most of these affections. The surgical treatment of cysto-rectal and recto-vaginal fistulae was taken into account in this study. The animals suffered from recto-vaginal fistula were divided into two groups, for evaluation of two techniques (the transection-suturing technique and the isolation-ligation technique) for treatment of this affection. Results revealed that; the mean surgical time in the isolation -ligation technique was shorter than the transection-suturing technique. Bleeding was minimal during the isolation-ligation technique than the transection-suturing technique as well as the surgical costs. Recurrence and opening of the fistula was absent in the isolation-ligation technique, while in transection–suturing technique, 3 animals of the cases treated with this technique recurrence with opened fistula associated with many various complications. It could be concluded that isolation-ligation technique was superior to transection-suturing technique, and satisfactory for treatment of the recto-vaginal and Cysto-rectal fistula. It was minimally invasive, simple easier, less time consuming, without recorded complications and without recurrence

KEY WORDS: Congenital, Malformations, Ruminants, Equines

(BVMJ 1: 8-22; 2011**)**

1. I N T R O D U C T I O N

Congenital, is a descriptive term denoting a condition existing at birth,; hence congenital malformations or congenital deformities are defined as abnormalities of structure present at birth. Developmental or congenital abnormalities include functional as well as morphological imperfections **[33].** Congenital defects, may be caused by genetic or environmental factors or a combination of both and in many cases, the causes are unknown **[37].** The most common environmental teratogenes include toxic plants consumed by the dam and maternal-fetal viral infections during gestation **[4].** Developmental defects may be lethal, semi-lethal, or compatible with life causing aesthetic defects or having no effect on the animal. Susceptibility to agents that affect development varies with fetal stages, but in general decreases with gestational period **[20].** Congenital defects are reported in all breeds of cattle with variations in the frequency of occurrence **[39]**. Multiple congenital anomalies of one part of the body lead directly to the malformation of another part **[1].**

Bull dog calf is a congenital anomaly characterized by broad head, bulging forehead, malocclusion of the jaw, prognathism of the mandible **[29].** Such types of monsters are generally considered to be due to a simple, autosomal recessive defects with some modifiers **[36]**. Dystocia due to the bull dog

calf, though uncommon, have been reported in cows **[34].**Clefts of the face in calves were developmental disorders due to failure of closure in fascial processes such as the frontonasal, maxillary and mandibular processes with defects appearing in the lateral or median site of the rostral face as cleft lip, jaw and palate **[27].** In the cleft palate, the opening of the bony palate would be a direct change due to disturbance of palatogenesis **[39].**

Ocular dermoid is a skin or skin-like appendage usually arising on the limbus, conjunctivae and cornea. It can be unilateral or bilateral and may be associated with other ocular manifestations **[16].** Anophthalmia , the animals are born without eye, and it is mainly due to genetic mutations of the homeobox pax 6 gene, the master control gene of the eye **[26, 43].**

In humans and animals, the branchial (pharyngeal) apparatus appears during the fourth week of development, and consists of arches, pouches, and clefts. The neural crest give rise to the bones and cartilage of the jaws, hyoid apparatus, and larynx, while the endodermal pharyngeal pouches give rise to structures and spaces such as the Eustachian tube, parathyroid glands, and thymus. The first pharyngeal cleft, which is a surface feature, develops into the external acoustic meatus, but the remaining clefts disappear into a shrinking structure called the cervical sinus. However, in some individuals, remnants of the clefts or the cervical sinus persist, and if these abnormal structures fill with fluid, they will appear as branchial cysts **[7].**

Dermoid cyst usually contains differentiated tissues such as sebaceous glands, hair follicles. Wattle cysts, were reported and caused by a dominant autosomal gene with but variable expression regarding the shape and location of the wattle. Occasionally cyst occurs unilaterally or bilaterally at the base of the wattle or at the site of the previous wattle amputation **[5, 15].**

Congenital malformations of the limbs are among the most frequent congenital anomalies found in human and animals and preferentially affect the distal part **[1, 2, 23, and 40].** Athrogryposis (rigid joints) was a congenital defect and was often associated with cleft palate **[22].** The presence of extra digit or toes, a condition called polydactyly, is the most common limb deformity in human and is the consequence of disturbance in the normal program of limb development **[1].** Contracted flexor tendons are the most prevalent abnormality of the musculoskeletal system of newborn calves. An autosomal recessive gene causes this condition **[37].**

Disorders of the external genitalia are of particular concern due to impact of the deformity on future generations. In the female foal, external intersex appearance is usually confined to the clitorial-vulvar area in which the clitoris may be enlarged or literally resemble the penis. The urethral opening may be located in the normal caudal vaginal location or in the penis like structure **[35].** Urethral dilation is a cystic like pouch, painless, fluctuating, pinkish and glistening covered with healthy skin varied in size from a small bean like swelling to a large mandarin like size extended in front of the scrotum to variable distance on the ventral aspect of the penis. Permenant urethrotomy usually used for correction of such cases **[11, 12, 25].** Atresia ani (imperforate anus) is a congenital abnormality characterized by persistence of the anal membrane resulting in a thin membrane covering the normal anal canal **[10, 28].** Atresia ani develops when a dorsal part of the cloacal plate fails to form and it is the most common intestinal defect in sheep **[13, 20 and 24].** Recto-vaginal and urethro-rectal fistulae are characterized by a bypass of urine into the rectum or feces into the vagina or urethra. These types of abnormalities are usually a part of a larger picture where other congenital abnormalities related to the urogenital tract are present. In addition, in rare occasions, some of these cases may also present an atretic segment of bowel (section of bowel without an opening) **[8, 9 and 14].**

Congenital rectovaginal fistula is characterized by the communication between the dorsal wall of the vagina and the ventral portion of the rectum, so that the vulva functions as common opening to the urogenital and gastrointestinal tracts **[6].** Usually the abnormality is associated with atresia ani, in which the rectum ends as a blind pouch immediately cranial to the imperforated anus **[4, 18, 21].** Recto-vaginal defects may cause pneumovagina results from stretched, ruptured, deformed and horizontal vulva may introduce fecal materials, urine and air into the vagina, leading to vaganitis, cervicitis,

endometritis and failure of conception and repeat breeding **[6].**

2. MATERIAL AND METHODS

This study was conducted in surgery clinic of the Faculty of Veterinary Medicine at Benha University. During the four years period between January 2007 to May 2011, on a total of 49 of cases with history and clinical signs were suggestive for congenital malformations.
Clinical examination was performed for all presented cases. Diagnosis and differential diagnosis was conducted on all recorded cases for identification of the congenital defects.
Positive contrast radiographic examination was performed by using Urographin 76% per rectum for determination of the extent of the rectovaginal fistula in sheep.
Ultrasonography was performed by using vaginal probe 7.5 Mhz for identification of the dorsal vaginal wall defect (rectovaginal fistula).
Eleven cases of the total cases of congenital defects were not subjected to any treatment.
Surgical treatment was performed for the remaining 38 cases of congenital malformations as the following:
Unilateral exophthalmia in a kid was treated by extirpation of the affected eye and suturing of the incised eyelids. The conjunctival dermoid was surgically excised and the conjunctiva sutured. The dermoid, wattle and branchial cysts were treated by surgical excision of the cyst and suturing of the skin with simple interrupted suture pattern by silk.
Urethral dilatations in the kids were corrected through making a permanent fistula by permanent urethrotomy. Foal donkeys suffered from contracted tendons were treated by fixation of the affected limb by full plaster cast and splint.
Atresia ani was treated by reconstruction of the anal opening and stitching the rectal wall to the skin **[19, 20].**
Atresia ani et recti, was treated by reconstruction of the anal opening at its site and the distal part of the colon was identified through the ventral prepubic laparotomy and stitched to the skin of the anal opening.
Urethro-rectal fistula in male donkey foal was subjected to premedication and caudal epidural analgesia. The animal was positioned and restrained in lateral recumbancy and prepared for aseptic surgery, a horizontal skin incision 10 cm length and 3 cm distal to the anus was performed. Plain dissection was extended forward through the perineal tissues till reaching the fistula, as well as, the urethra separated from the rectal wall and sutured. The rectal wall was sutured in line crossing the urethral suture line. The perineal tissues and skin were closed.
Cysto-rectal fistula was treated by reconstruction of the anal opening. Ventral prepubic laparotomy was performed for lodgment of the rectum. A double ligation with Prolene No 1 was performed 2 cm distance in-between for the fistula that connect between the rectum and the urinary bladder. Surgical section was performed between these two ligations for separation of the urinary bladder and the rectum. The ligated rectal end was stitched by a long piece of thread. The stitched rectal end was grasped by an intestinal forceps passed through the reconstructed anus. The rectal end was stitched to the circular skin opening by four stitches (dorsal, ventral and on both sides). The tip of the ligated rectal end was snipped to evacuate the contents. The rectal wall was sutured to the skin opening.
The animals suffered from rectovaginal fistula were divided into two groups (4 animals for each). Group (1) was subjected to section-suturing technique of the fistula, group (2) consisted of 3 ewe lambs and one foal she-donkey was subjected to isolation-ligation technique of the fistula.
Group 1, animals of this group were treated by surgical sectioning and suturing of the fistula **[17]**. The animals were sedated with xylazine hydrochloride 0.2mg/kg and subjected to caudal epidural analgesia by using 0.2 mg/kg lidocaine 2%. The anal opening was reconstructed at first. A linear skin incision 7-8 cm extended horizontally, midway between the anus and vagina, blunt dissection was done through the perineal tissues and extended forward through the fistula where, the rectal and vaginal walls were separated. The rectal and vaginal wall defects were sutured separately with chromic catgut No 2/0 by Cushing suture pattern with their suture lines crossing each other. The perineal tissue was coapetated and the skin closed by simple interrupted stitches. The animals were investigated every 3 days for the patency of the suture and the complications.
Group 2, The animals were anaesthetized, restrained, and prepared for aseptic surgery in