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 recorded. 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

1. INTRODUCTION

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 teratogens 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 PAX6 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, 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, pink in color, glistening and covered externally with healthy skin. It varied in size from a small bean like swelling to a large mandarin like size. It extends in front of the scrotum to variable distance on the ventral aspect of the penis. Permanent 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, 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, 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]. Rectovaginal defects may cause pneumovagina results from stretched, ruptured, deformed and horizontal vulva may introduce fecal materials, urine and air into the vagina, leading to vaginitis, 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 period from January 2007 to May 2011, on a total number of 49 of cases with a 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 connects 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 [17]. Group (2) consisted of 3 ewe lambs and one foal she-donkey was subjected to isolation-ligation technique of the fistula.

**Group 1:**
Animals in 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 in this group were anaesthetized, restrained, and prepared for aseptic surgery in the same way as Group 1. After reconstruction of the anal opening, a horizontal skin incision 10 cm length and midway between the anus and vulva was made [3]. Separation and isolation of the fistulous duct was performed by the plain dissection through the perineal tissues that extended forward and around the fistula. Plastic strap 3 mm width and 20 cm length was introduced through the perineal incision and surrounding the short fistulous duct. Complete closure of the duct was obtained by tight ligation of the strap. The perineal tissues and the skin were closed in the same way as in Group1.
Data were collected, including the surgical time (duration of surgery), severity of bleeding, complications and recurrence and compared in the two techniques.

### 3. RESULTS

A total number of 49 animals were recorded suffering from different congenital malformations (Table 1). Concerning the congenital defects of the head; a bulldog calf was recorded in one male cattle calf died three hours after parturition. The face of the calf was seamed to be compressed with a broad forehead. There was bilateral absence of the palpebral fissures. Surgical dissection revealed absence of the globe of the eye ball.

There was complete unilateral cleft upper lip with the absence of the ventral boundary of the right nostril. Complete cleft palate was detected in this calf; however, there was a long wide opening of the hard palate leaving a small U-shaped part of the palate. The inner structures of the nasal cavity were appeared from the cleft palate (Fig.1).

Agenesis of nasolabial plane was recorded in one male cattle calf (Fig.2). The upper lip and the ventral boundary of the nasal orifices were completely absent since birth.
Table 1 Different recorded congenital malformations in lambs, kids, calves and foals during the period from January 2007 to May 2011

<table>
<thead>
<tr>
<th>Abnormality</th>
<th>Small ruminants</th>
<th>Large ruminants</th>
<th>Equines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sheep</td>
<td>Goat</td>
<td>(Cattle)</td>
</tr>
<tr>
<td>Bulldog calf</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cleft lip</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Exophthalmia</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Microphthalmia</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Conjunctival dermoid</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dermoid cyst</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Branchial cyst</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wattle cyst</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Arthrogryposis</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ectopic extra-digit</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anomelia (aplasia) of the fore limbs</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Contracted tendon</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hermaphrodite (with small vulval lips)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ectopic large clitoris</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Urethral dilatation</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Urethro-rectal fistula</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Atresia ani</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Atresia ani et recti</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cysto-rectal fistula</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recto-vaginal fistula</td>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6</td>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>

Exophthalmos was recorded in a kid ten days old with corneal opacity and blindness in this side (Fig.3). There was unilateral protrusion of the eye ball outside the palpebral fissure. There were small superficial erosions on the bulbar conjunctiva since birth. Complete healing without any complications were attained 20 days after extirpation of the eyeball.

Microphthalmos and micropalpebral fissure was recorded in one male foal. The size of the eyeball was smaller than normal (Fig.3).

Conjunctival dermoid was recorded in one bull calf. The dermoid was adhered to the palpebral conjunctiva with some hair on its dorsal surface (Fig.3). There was epiphora and mild blepharospasm. Surgical excision of the dermoid and suturing of the palpebral conjunctiva was efficient for correction of the condition.

Fig 1 (A) Bulldog calf head with anophthalmia. (B) Cleft lip and palate (C) cleft palate with presence only of a U-shaped part of the hard palate and exposure of the nasal concha.

Fig 2 (A) Bilateral cleft lip and absence of the nasolabial plan (B) Exposure of the nasal cavity.
Fig 3 (A) Exophthalmia in 3 day old kid, (B) Micophthalmia in one year old foal and (C) Conjunctival dermoid in a calf.

Dermoid cyst was recorded in one male donkey. There was a large lemon sized subcutaneous swelling on the right upper fourth of the neck near the jugular vein and behind the mandibular ramus (Fig.4). Aspiration of the content revealed a brownish muddy thick fluid. Excision of the cyst completely and suturing of the skin was satisfactory without any complications. Branchial remnant cysts (BRC) was diagnosed and recorded in one male foal (Fig.4). There had been a history of dysphagia or intermittent oesophageal obstruction and retropharyngeal swelling, respiratory stridor and visible mass. Presence of a right-sided, palpable retropharyngeal mass of 16 cm diameter was noted clinically. Ultrasonography typically revealed a thick-walled cyst containing hypoechoic fluid (Fig.4). Aspiration of the contents revealed milky color fluid (like the rice soap).

Fig 4 (A) Dermoid Cyst in 2 years donkey , (B) Branchial cyst in one year old foal (C) ultrasonographic picture of the Branchial cyst showing hypoechoic content surrounded by hyperechoic capsule.

The condition was treated via surgical excision of the cyst. Wattle cyst was recorded in 2 female goats. There was a bilateral painless fluctuating subcutaneous swelling, just above the wattle and below the jugular vein. Aspiration of the contents revealed a clear watery fluid. Satisfactory healing of the skin wound without complications was obtained after surgical excision of the cysts (Fig.5).

Fig 5 (A) Wattle cyst in a goat, (B) Measurement of excised wattle cyst with its clear contents (C) Sectioned cyst showing a thin fibrous capsule.

Arthrogryposis was recorded in 2 cattle calves died few hours after birth and one lamb one week old. There were bilaterally rigid fetlock joints of the hind limbs of calves, which curved cranially instead of caudally. The lamb had a bilateral rigid elbow with S-shape curvature (Fig. 6).

The presence of extra digit or toes, (polydactyly) was recorded in one female goat. There was a single digit adhered to the medial aspect of the carpal region. The distal end of the extra digit was covered by a horny claw (Fig.6). Surgical excision of the extra digit and suturing of the skin was satisfactory for treatment of this condition without complications. Dissection of the extra digit revealed presence of an elongated piece of bone, 2 cm in length and 8 mm in width.

Agenesis of the forelimb (Anomelia) was recorded in one female kid. There was bilateral complete absence of the fore limbs. The animal had been living and moving on both hind limbs vertically (Fig. 6).

Contracted tendons were recorded in two lambs, foal 2 months old and a donkey 2 years old. There was a rigid flexion of the fetlock joint in the donkey wherever, the case was diagnosed as severe flexor
Congenital malformations in ruminants and equines

contracted tendons. The contracted flexor tendon in the two lambs and the foal was of moderate contracted tendon cases (Fig. 6). A padded splint was applied to force the animal to bear weight on its toe and evident satisfactory treatment of the condition. The donkey did not respond to this treatment.

Fig 6 (A) Arthrogryposis of the hind fetlock in a cattle calf. (B) Arthrogryposis of the elbow in a male kid. (C) Ectopic extra-digit adhered to the inner aspect of the carpal region in a female goat. (D) Aplasia of the fore limb in a female kid. (E) Contracted tendon of the hind foot in two weeks old lamb.

Urethral dilatation was recorded in kids. The dilatation was spherical, ovoid or elongated painless swelling. Permanent urethrotomy with a resultant permanent urethral fistula was satisfactory for correction of this defect (Fig. 7).

Urethro-rectal fistula was detected in one male donkey foal. There was a history of the animal voiding the urine with the feces from a reconstructed anal opening. Clinical examination revealed that; there was a fistulous opening discharging urine form the anus.

Introduction of the infusion set with colored water into the penile urethra revealed the fistula was positioned in the dorsal aspect of the urethra at the ischeal arch (Fig. 8).

The fistula was approximately 2 cm in diameter and extended 3 cm beyond the anal opening. During surgical correction, the bleeding was minimized by plain dissection and separation of the rectal and urethral walls. The lumen of sutured urethra showed a slight narrowing without a change in the urine flow through the urethra. Fifteen days post surgery, the animal defecate and urinate normally without straining. The palpation of the sutured area by the index finger through the anus showed complete healing of the rectal wall. Urethral catheterization was easier without impediment during passing the catheter.

A female foal had an enlarged clitoris resembling the penis located between the thighs with very small vulvar lips. The external urethral orifice was located caudal to the vagina in a penis like structure. The case was diagnosed as hermaphrodite foal (Fig.9). An ectopic enlarged clitoris was recorded in one female calf; this structure was adhered to the dorsolateral aspect of the left vulvar lip. The condition was
corrected by surgical excision of the clitorial structure and suturing of the vaginal incision with catgut (Fig. 9).

Atresia ani was recorded in 8 animals (2 male and 3 female lambs, 2 kids and one male cattle calf). It was represented the most prevalent congenital anomaly in this study (Fig. 10).

Atresia Ani et recti was recorded in two male cattle calves. The surgical correction was conducted for these cases as the distal segment of the colon was served as the end part of the gastrointestinal tract. Regarding the cysto-rectal fistula, the condition was recorded in three male calves. The clinical examination of the affected animal revealed urine mixed with greenish fecal materials voided through the prepuce. The midventral prepubic laparotomy showed a long narrow tract 5-6 cm in length and 0.8-1 cm in diameter connecting between the rectal end and the caudo-dorsal aspect of the urinary bladder (Fig. 11).

The double ligation of the tract minimized the bleeding, healing time and the abdominal contamination. Stitching of the ligated rectal end to the skin of the reconstructed anal opening, minimized the subcutaneous contamination and promoted easy and free release of the intestinal contents. All treated animals were defecating and urinate normally two weeks post surgery.

Atresia ani et recti was concerned with special type of interest. The condition was recorded in 7 ewe lambs with age ranged from 2 to 8 months and one she donkey foal 1 year old (Fig. 12). The animals admitted to the surgery clinic with history of absence of
the anal opening and voiding both urine and feces from the vulvar orifice with severe straining. Palpation of the rectal floor and the dorsal vaginal wall revealed presence of a tract connecting between them ranging about 8 mm to 2 cm in diameter.

Ultrasonographic examination revealed a hypoechoic vaginal wall defect connected with the rectum (Fig. 12). The positive contrast radiograph revealed a short tract connecting the vaginal vestibule and the rectal floor (Fig. 12). After reconstruction of the anus, the fistulae were surgically transected and sutured in Group 1 (4 ewe lambs).

With respect to bleeding, it was minimal and controllable in Group 2 than in Group 1. Regarding complications, only a scanty amount of purulent discharge between the skin stitches in one animal were recorded in Group 2. Recurrence of 3 animals was recorded in Group 1. All cases of Group 2 were recovered 10-12 days postoperative and regained normal discharge of feces and urine with a tightly closed fistulous openings. Only one animal in Group 1 had recovered 15 days postoperative with closed rectal and vaginal walls (Table 2).

In group 2 the fistulae were dissected, isolated and ligated through encircling it by a self secure plastic strap (Fig. 13). The duration of surgery in Group 2 was shorter than that of Group 1, as isolation-ligation technique lasted 10-17 minutes with average 13.5 minutes; otherwise, the transection-suturing technique lasted 25-35 minutes with average 28.5 minutes (Table 2).

4. DISCUSSION

Congenital malformations observed in this study were recorded as sporadic cases originating from different areas of Qalubia Governorate, Egypt. The current study was conducted on many various congenital malformations with variable frequencies in ruminants and equines. Cleft palate and palatoschisis result due to failure of fusion of the lateral palatine processes and cleft lip.
Cheiloschisis is a consequence of failure of fusion of the upper lip along the midline and these are developmental abnormalities of oral cavity that are reported in cattle, sheep, goats, horses and humans [31]. According to our findings, it was evident that, anophthalmia, exophthalmia, microphthalmia and conjuntival dermoid occurred rarely as it recorded as single cases in calf, kid, foal and buttock respectively. Dermoid cyst was recorded in one donkey, containing a muddy content; these findings were in agreement with that recorded by [37]. Concerning the branchial remnant cyst, result showed that, it was recorded in a one year old foal mare, associated with respiratory manifestations, may be due to its pressure on the pharyngeal region and having a milky like contents[7]. Ultrasonographic examination of the cyst revealed a hypoechoic content with a thin hyperechoic capsule, this might be different from abscess as the content of the abscess mostly are with mixed echogenicity with a thick wall. This result agrees with that recorded by [30]. There was no evident of purulent nasal discharge and local pain, this may be confirm the avoidance guttural pouch infection.

In regards the congenital malformations of the limb, arthrogryposis was recorded in calves and kids with associated dystocia of the dam. This might be due to the stiffness and rigidity of joints especially the fetlock joint of the hind limb, that leads to difficulty in extraction of the fetus as the affected limbs may be entrap the uterine wall during parturition. This result was accordant to that reported by [31, 42] who also reported that, arthrogryposis occurs in calves that their mothers were affected during early stages of pregnancy with selenium and manganese deficiencies, Akabane or bovine viral diarrhea virus infection. Aplasia of the fore limb (Anomelia) might be considered the first naturally occurring case recorded in goats and in domestic animals as well. Only a syndrome includes agenesis of the phalanges and parts of the metacarpus and metatarsus affect one or more limbs of Moher goat due to an autosomal recessive mode of inheritance [34, 38]. Extra digit was recorded in one female kid; this might be attributed to either defective genetics or from a genetic insult/agent that is associated with the fetal environment or from their interaction [23]. Our results revealed that, the splint in moderate cases was efficient for enforcing the animal to bear weight on the affected limb and this may be attributed to absence of compression of circulation [37]. Hermaphrodite foal mare was recorded in this study as a single case that might be considered the first naturally occurring case recorded in foals. As well as, the vulval lips are very small and present between the thighs nearly at the site of the scrotum. These findings were greatly similar to that reported by [35]. Urethral dilatation was recorded only in kids with various shapes and sizes;

### Table 2 Number of the operated animals, duration of surgery, severity of bleeding, complications and recovery period during surgical correction of recto-vaginal fistula

<table>
<thead>
<tr>
<th>Animal number</th>
<th>Surgical time</th>
<th>Bleeding</th>
<th>Complications</th>
<th>Recovery period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suturing</td>
<td>1</td>
<td>35</td>
<td>+++</td>
<td>Recurrency</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>27</td>
<td>++</td>
<td>Recurrency and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>abscess</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>28</td>
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<td>-</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>25</td>
<td>++</td>
<td>Recurrency</td>
</tr>
<tr>
<td>Mean</td>
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<td></td>
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<tr>
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<tr>
<td>Mean</td>
<td>13.75</td>
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</table>
permanent urethrotomy was acceptable for treatment of these animals, this in agreement with [11, 12, 24, 25]. Urethro-rectal fistula was recorded in one donkey foal and might be considered the first naturally occurring case recorded in donkeys as well as in the domestic animals. Many congenital anomalies may be coexisting with other malformations [34].

Atresia ani was most frequently recorded in males, while atresia ani et recti recorded only in males. This result similar to that recorded by [24] who attributed that to failure of the anal membrane to perforating, the bowel to canalize, the proctoderm to invaginate and interruption of blood supply to the anus or to produce atresia ani or intestinal atresia, respectively.

In the present study, this condition was effectively corrected by reconstruction of the anus at its site in the perineal area. This in contrast to that reported by [24], who reported that ventral colostomy was effective for treatment of atresia ani et recti, with higher incidence of postoperative mortality and attributed that to undetected occlusion hindering the passage of the intestinal content. But also, might be attributed that to the presence of the anal opening in the mid ventral aspect of the abdomen that occluded by the pressure exerted by the other intestinal organs especially rumen as well as vertical position of the distal segment of the colon that might be interrupted with another intestinal loop. Otherwise in the present study, the colon was fixed in the dorsal aspect in the normal direction of the rectum, as this site considered faraway from the pressure by other organs other than absence of the interruption with other intestinal loop.

Cysto-rectal fistula was recorded in three cattle calves and might be considered the first naturally occurring case recorded in calves as well as in the domestic animals. Double ligation of the fistulous tract connection between the urinary bladder and the rectum minimized the abdominal contamination. There was minimal degree of bleeding as the fistulous tract was severed between the two ligations and not excised from the urinary bladder and this result in the line with [32].

Recto-vaginal fistula was the second prevalent congenital defect in the present study especially in ewe lambs. The condition was treated either by the transection of the fistula and suturing of the rectal and vaginal walls separately (Group1) or by dissection, isolation and ligation of the fistula without neither suturing of the rectal nor the vaginal walls (Group 2). The result revealed that the bleeding was minimal in Group 2 than in Group 1; this might be attributed to the absence of sharp dissection and rectal and vaginal wounds. Also this technique is avoiding the effect of transverse tension on the sutures due to rectal distension during defecation. These results in disagreement with [4], who reported that sectioning, and suturing of the vaginal and rectal walls and leaving the rectal mucosa non-sutured provided a protective covering to the wound.

Isolation–ligation technique might be considered minimally invasive as the surgical time was shorter in the group 2 than in the group 1 as well as minimal complications and absence of recurrence in contrary to in the group 1. 75% of treated cases were recurrent the fistula with many complications. In the present study using of the self secure plastic strap for ligation of the fistula was easy, precise and its width allow complete closure of the fistula allover its length. Also as the plastic strap was made from copolymer of inert material, that minimized the tissue reaction with consequent minimal complications.

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بعض العيوب الخلقية في المجترات و الفصيلة الخيلية مع العناية الخاصة بالعلاج الجراحي الناسوري الشرجي المهني

العنوان العربي

دراسة إكلينيكية تم تنفيذها لتسجيل وعلاج بعض العيوب الخلقية في المجترات و الفصيلة الخيلية خلال الفترة من يناير 2007 و حتى مايو 2011 بكلية الطب البيطرى - جامعة بني – كمية. تم تسجيل 49 حالة تعاني من عيوب خلقية وتشمل: عجل بولدغ، الشفقة المشقوقة، غياب عد الشفة الأنفية، جروح العين، صغر حجم العين، جلدانية الملتحمة، حوصلة جلدانية، حوصلة خيولية، حوصلة اللذ، إعجاك المفاصل، عدم تدخل الأطراف الأمامية، أسنان زائدة، رتق الشرج، الأوتار المتعادة، إحليل قناة مجرى البول، الناسور البولي الشرجي، رتق الشرج، رتق الشرج، المستقيم، الناسور المنثم الشرجي والناسور الشرجي المهني. تم علاج معظم هذه الحالات جراحياً. اختص بعين الاعتبار في هذه الدراسة العلاج الجراحي للناسورين المنثم الشرجي والشرجي المهني. عولجت الحيوانات التي تعاني من الناسور الشرجي المهني بأحد طريقتين، إما عن طريق الشق الجراحي للناسور أو بفصل وربط الناسور. أظهرت النتائج أن الوقت الجراحي في عملية الفصل وربط كان أقل قصراً عن مثيله في طريقة الشق الجراحي و الخياطة. أما النزيف كان أقل في عملية الفصل والربط عنه في عملية الشق الجراحي والخياطة. عودة الناسور كانت غائبة في عملية الفصل وربط ولكن في الشق الجراحي و الخياطة عاد الناسور في ثلاثة حيوانات من التي عولجت بهذه الطريقة، مع بعض المضاعفات. فقد استنتج أن فصل وربط الناسور هو علاج مرضي للناسور، قليل النفاذية، سهل وبسيط و يستغرق وقت أقل مع انعدام المضاعفات و انعدام رجوع الناسور.