



The common surgical affections in sheep and goats at Qena governorate, Egypt

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<p>Article history Received: 19 Jan, 2015 Revised: 22 Feb, 2105 Accepted: 23 Feb, 2015</p>	<p>Abstract A total of 426 sheep and goats with various types of surgical affections were included in this study. The affected animals were admitted to the veterinary clinics distributed all over Qena district, Egypt. The incidence of these affections varied in both species. The incidence of recorded affections included; abscesses (54 %), cysts (11.03%), udder and teat affections (8.92%), intestinal prolapse and atresia ani (8.45%), ocular affections (6.1%), urogenital system affections (4.93%), hernias (3.76%), craniofacial defects (1.64%) and arthrogryposis (1.17%). Surgical and/or medicinal treatment trials were undertaken for the affected animals with uneventful results. In certain congenital defects the treatment was not recommended. Keywords: Surgical affections; sheep; goats; Qena governorate; Egypt</p>
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To cite this article: Abdel-Hady AAA, MA Sadan and HA Abdel-Kawy, 2015. The common surgical affections in sheep and goats at Qena governorate, Egypt. Res. Opin. Anim. Vet. Sci., 5(2): 84-93.

Introduction

Sheep and goats are an important part of livestock in Egypt, producing milk, meat, hide and wool. Various surgical affections have been recorded in these animals resulting in low productivity and high economic losses (Zabady et al., 2004; Abu-Seida and Ahmed, 2007).

Abscess is a collection of pus that hollows out a cavity in the tissues by destroying and expanding them (Misk et al., 2008). Abscess should be differentiated from other swellings by exploratory puncture which reveals synovial fluid in bursitis; serous fluid in cysts; blood in hematoma; nothing or intestinal content in hernia.

Hernia is the protrusion of an organ or tissue through an opening (Jettennavar et al., 2010). This opening may be caused by a tear in the abdominal wall or a natural opening like the inguinal canal or femoral canal (AL-Sobayil and Ahmed, 2007). Any trauma caused by horn thrust, kick, and violent contact with blunt objects or by an abdominal distension due to

pregnancy or straining during parturition may lead to ventral abdominal hernia (Jettennavar et al., 2010). However, improper closure of umbilicus at birth due to hypoplasia of the abdominal muscles resulted in umbilical hernia (Senna et al., 2003). In addition, outbreaks of umbilical hernias in herds using newly introduced service sires have suggested that an autosomal dominant gene with incomplete penetrance was involved. Moreover, many umbilical hernias were secondary to umbilical sepsis (Labik et al., 1977). Most umbilical hernias were reducible and their size was noticed to increase with coughing (Abdin-Bey and Ramadan, 2001). Scrotal hernia is a rare disorder in small ruminants (Roberts, 1988). It forms as an extension of inguinal hernia, when the abdominal organs protrude through enlarged inguinal ring into the scrotum (AL-Sobayil and Ahmed, 2007). Unilateral scrotal hernia in male lambs of the Merino, Hampshire, Suffolk and in the Arabic Naimi breeds was described (Carr, 1972; Roberts, 1988; Senna et al., 2003 and AL-Sobayil and Ahmed, 2007). Scrotal hernia is usually

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caused by a trauma such as a horn injury in group-housed males. In addition to physical examination, plain or contrast radiography and trans-scrotal ultrasonography can be used in the diagnosis of scrotal hernia in sheep and goats (Abdin-Bey and Ramadan, 2001). Cyst is a sac containing liquid or semi-solid substances and mostly has an inner lining secreting membrane. Either congenital types as tassel cysts or acquired types as thyroid cysts were reported (Valentine, 2004; Abu-Seida, 2014). Diagnosis usually depends upon clinical history, exploratory puncture and nature of the aspirate, radiographic examination and sometime histopathological examination of the cystic wall after surgical excision (Valentine, 2004).

Persistence penile prolapse means prolapse of penis from prepuce all the time or inability of the animal to retract the prolapsed penis into the prepuce (Misk et al., 2013). Diagnosis depends on case history and clinical signs as ulcerated penis due to long period outside prepuce.

Rectovaginal fistula with atresia ani 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 (Farhoodi et al., 1987). Usually the abnormality is associated with atresia ani in which the rectum ends as a blind pouch immediately cranial to the imperforated anus (Senna et al., 2003; Bademkiran et al., 2009).

Penile urethral dilatation is a painless, fluctuating and glistening cystic like pouch covered externally with healthy skin. It varied in size from a small bean like swelling to a large mandarin like size. It extended in front of the scrotum to variable distance on the ventral aspect of the penis (El-Seddawy, 1994; Senna et al., 2003).

Hypospadia is often accompanied with hypoplasia of the cavernosum urethra. The urethra opens anywhere along its length at one or more locations. Hypospadia is classified based on the location of the urethral opening as glandular, penile, scrotal, perineal, or anal (Kahn et al., 2005). There has been only one report of hypospadia in goat kids (Bokhari, 2013).

The most frequently coexist defects of the urinary tract in goats are inter sexes, testicular hypoplasia and unilateral cryptorchidism (Al-Ani et al., 1998; Senna et al., 2003). Pigmentary keratitis, ulcerative keratitis, hyphaema, hypopyon and microphthalmia were among the most common ocular affections recorded in ruminants (Misk and Ismail, 1986).

Meningocele is the protrusion of the membranes of the brain or spinal cord through a defect in the skull or spinal column. The sac of the meningocele is composed of more or less complete outer layer of skin over an irregular layer of dense collagenous tissue mixed with various amounts of fat. The inner lining of the

meningocele is a thin, smooth layer of flattened cells (Senna et al., 2003). A case of newly born sheep with an abnormal structure attached to the area of the parotid region was reported by Ali et al. (1987). The structure consisted of upper and lower jaws, tongue and teeth.

Chronic septic mastitis in small ruminants mainly caused by *Staphylococcus* spp. Other pathogens such as *Streptococcus* spp., *Enterobacteriaceae*, *Pseudomonas aeruginosa*, *Mannheimia haemolytica*, *Corynebacteria* and fungi may contribute in the occurrence of the disease. In addition, severe cases of mastitis related to incorrect preventative strategies have been attributed to the pathogens of *Aspergillus fumigatus*, *Serratia marcescens*, *P. aeruginosa* or *Burkholderia cepacia* (Gonzalo et al., 2004).

Gangrenous mastitis is caused by virulent strains of organisms producing thrombosis of mammary vessels, infarction and gangrene. *Staphylococcus aureus* and *E. coli* with *Clostridium welchii* produce this condition (Ribeiro et al., 2007).

Supernumerary teats are often seen on the posterior surface of udder and in between the teats. These teats may be functioning or nonfunctioning.. It has been reported that, presence of supernumerary teats frequently interferes with free milking process and may predispose to mastitis (Abd El Hady, 1993). Congenital anomalies of the distal part of the limbs are common in animals (Senna et al., 2003; Smolec et al., 2010). Arthrogyposis is common in ovine (Edward et al., 1989). Contracted flexor tendons and arthrogyposis are caused by autosomal recessive gene and it is the most prevalent abnormality in the new born calves (Senna and Abu-Seida, 2004; Shukla et al., 2007). Congenital intestinal prolapse through the persistent umbilical opening in the new born kid has been reported earlier (Senna et al., 2003; Jana, 2004). Little is known about the prevalence of surgical affections in small ruminants at Qena governorate, Upper Egypt. The present study was suggested to investigate the incidence of surgical affections in sheep and goats and the trials for their surgical treatment under field relations in this area.

Materials and Methods

Animals

The present study was carried out on 426 cases including 316 sheep and 110 goats of local breeds. All cases were collected from different localities at Qena governorate, Egypt during the period between 1st of April 2012 and 20th of July 2014.

Case history and clinical examination

The history of each case was taken from the animal's owner. The data regarding age, sex, species, breed, time of onset of the disease, previous medication and health status were recorded. Clinical signs

including any changes on the animal behaviour, appetite, nature of excretion and secretions, locomotion disorders, swellings and expressions of pain and other alignments were recorded. Each case was closely inspected for detection of any structural and/or functional disorders of the affected region. The affected parts and/or lesions were manipulated to detect their nature, consistency and tenderness. Exploratory puncture was done whenever indicated to reveal the physical characters of the existence fluids or contents in the examined lesions. Physical examination including pulse and respiration rates, body temperature and lymph nodes was performed to determine the health status of animal.

Surgical techniques

Risky animals were stabilized before surgical interferences. In dehydrated animals, rehydration was done by administration of warm, sterile isotonic fluids parenterally before and during the surgery. Skin preparation was conducted by routine operation either in standing position or recumbency. All surgeries were carried out under the effect of Xylazine hydrochloride (Xylaject®, ADWIA, Egypt) which was administered at a dose rate of 0.025 mg/ Kg B.W. Local infiltration of a variable amount of 2% Lignocaine hydrochloride (Depocain®, The Arab Company for Gelatin and Pharmaceutical Products. A.R.E.) was applied whenever required.

Abscesses: Immature abscesses were ripened by daily application of iodine ointment. After 7 days, the abscess was opened and squeezed to evacuate most of the content. The abscess cavity was irrigated with hydrogen peroxide solution and explored by finger for the presence of foreign bodies. The wall of the cavity was touched with Tr. iodine then a gauze pack soaked in tincture iodine was applied and removed after 24 hours. Deep abscesses were drained by counter opening. Critical abscesses were opened bluntly through layer by layer incision to avoid injury of vital structures. Chronic abscesses were excised without opening (Misk et al., 2008).

Ventral abdominal hernia: Two elliptical incisions were made on either side of the swelling and the adhesions between the parietal peritoneum and skin were dissected using both blunt and sharp dissection. The hernial ring was exposed and freshened before its suturing by interrupted horizontal mattress pattern using silk sutures. The excessive skin was removed before suturing of the wound edges using silk sutures (Jettennavar et al., 2010).

Umbilical hernia: Two elliptical incisions were made on either side of the swelling. In case of ram or buck, a curved incision was performed just in front of the

hernial swelling with the concave side toward the preputal orifice. The skin flap was bluntly dissected and reflected backward. Hernial sac was grasped and the content was pushed back to abdominal cavity. The sac was removed and the edges of the ring were scratched and taken into apposition using horizontal mattress technique. After closing the ring, skin edges were closed with silk by horizontal mattress suture (Gohar et al., 1987).

Scrotal hernia: A longitudinal skin incision was made at the base of the scrotum. The content was reduced, the spermatic cord was twisted and a ligature silk was tied at its neck. The testicle was then removed. The inguinal ring as well as the dead space was then closed with catgut No. 2. The skin wound was sutured with silk using simple interrupted pattern (AL-Sobayil and Ahmed, 2007).

Cysts: Tassel and interdigital cysts were excised surgically (Misk and Misk 2013; Abu-Seida, 2014). Thyroid cysts were aspirated and Lugol's iodine solution was injected inside cysts.

Persistent penile prolapse: It was treated by penile amputation (Susan, 2004).

Penile urethral dilatation: It was corrected surgically by establishment of urethral fistula at the most upper part of the dilated urethra. Utilizing fine scissors, a large elliptical skin incision was made at the upper part of the dilated urethra. The incision was extended through the dilated urethral wall. Urethral fistula was established by suturing the skin edges with the lining mucosa of the urethral dilatation. The remnant of the dilated urethra below the urethral fistula was obliterated by several interrupted horizontal mattress suture (El Seddawy, 1994).

Hypospadias: Treatment was conducted under effect of local analgesia along the edges at both sides of ventral fissure and continuous silk sutures were applied along its whole length just to cover the mucous membrane and close lumen.

Ulcerative keratitis: It was treated by flushing of the eyeball with by 2% Boric acid solution. Antibiotic eye drops (Opticlox®, Norbrook Laboratories Limited, Newry) and antibiotic ointment (Terramycin® (Pfizer, Pfizer Manufacturing Belgium NV/SA purs-Belgium) were applied for five successive days. In addition, 1% atropine sulphate solution 3-4 times daily was applied topically to relieve the pain as well as intramuscular injection of a broad spectrum antibiotic (Pen Strep, Norbrook Laboratories Limited. Newry. BT35 6jp. Distributed by: Norbrook Laboratories (GB) Limited.

The green, Great Corby. Carlisle, CA4 8LR) at a dose of 1ml/10 kg B.W was given for three successive days. Cauterization of the ulcer by tincture of iodine was carried out at once.

Hyphaema: Treatment was performed by topical application of 1-2% epinephrine solution for 24 hours only. Then 1% atropine sulphate solution was applied topically to dilate the pupil until all haemorrhage disappeared.

Hypopyon: Paracentesis and aspiration of the hypopyon by using sterile needle and the anterior chamber is reformed by antibiotic solution (Opticlox® Norbrook laboratories limited the Green, Great Corby, Carlisle, CAA8LR).

Meningocele: The swelling was excised. An elliptical incision was performed around the base of the swelling. The meninges were sutured with catgut by interrupted stitches. The skin wound was closed with silk and the excess parts of the skin were removed.

Abnormal structure attached to the head: Complete excision of the abnormal structure was performed. Washing of the cavity with povidone iodine solution and application of a drain were performed.

Chronic purulent mastitis: Stab incision was performed on the lateral aspect of affected half and complete evacuation of the contents was performed (Paape et al., 2001).

Gangrenous mastitis: Treatment was performed by mastectomy as usual under the effect of local infiltration analgesia at the base of the udder in a form of ring block using 0.5% Lidocaine HCL solution (Chauhan, 1997).

Supernumerary teats: Supernumerary teats were removed early in life using curved scissor. In lactating and dry animals, the teats were blocked by 4 and 8% Lotagen® (Byk Gulden Konstanz, Schering-Plough Animal Health, Baulkham Hills, Australia), respectively (Abd El Hady, 1993).

Intestinal prolapse: The condition was corrected by flushing of the prolapsed part of intestine with sterile normal saline solution and reduction of the prolapsed part inside the abdominal cavity. The abdominal opening was closed with interrupted mattress silk sutures.

Atresia ani: A round skin incision was made on the proposed seat of anal opening. The rectal stump was bluntly dissected and identified. The rectal stump was sutured to the skin wound by four interrupted silk

stitches at 3, 6, 9 and 12 o'clock direction then the stump was opened at the middle and the collected meconium was squeezed and removed. Simple interrupted sutures were applied between the aforementioned stitches.

Atresia ani with rectovaginal fistula: The treatment was performed by anal reconstruction. A circular skin incision was made at the site corresponding to the anus and flap of skin was removed. The rectal pouch was bluntly dissected and retracted. The blind stump of the rectum was incised and sutured all around with the skin by using interrupted mattress silk sutures. A linear skin incision of 7–8 cm extended horizontally, midway between the anus and vagina was performed. The perineal tissue was separated by blunt dissection then rectal and vaginal walls were separated. The rectal and vaginal wall defects were sutured separately with chromic catgut no.1/0 by Cushing suture pattern. The perineal tissue and skin were closed in standard manner (Bademkiran et al., 2009).

Post-operative management

Daily dressing of the wound with povidone iodine solution was performed. The operated animal was kept in a clean comfortable place and supplemented with an easily digestible food. An appropriate course of antibiotic and vitamins were given until complete recovery. A prophylactic dose of anti-tetanus serum at a dose of 1,500 IU was given subcutaneously. The skin stitches were removed within 7-10 days post operative.

Results

As illustrated in Table 1, abscesses of various sizes and shapes were recorded in 230 animals including 188 sheep and 42 goats. The incidence of abscesses was 54% of the total examined animals. These abscesses were detected in parotid region (N=176 animals) (Figs. 1a), submandibular region (N= 5 animals) (Fig. 1b), umbilical region (one goat), at the thoracic region (N= 40) and at pelvic and thigh regions (N=8 animals). The pus colour was yellowish to greenish and the consistency was watery, milky, creamy, cruddy and cheesy. Treatment was performed for all cases with complete recovery and without any post operative complication except five cases in which the abscesses were reformed again and surgical treatment was carried out with uneventful recovery.

Hernias were recorded in 16 animals including 14 sheep and two goats representing 3.52% of the total examined animals. Ventral abdominal hernia was recorded in 10 animals including 8 sheep and two goats (Fig. 2a). The size of hernia varied from apple size to foot-ball sized. In six animals, the hernia swellings were reducible and in four animals were irreducible.

Table 1: Number and incidence of the common surgical affections in the examined sheep and goats

Type of affection	Subdivision	Sheep		Goats		Total	
		No	%	No	%	No	%
Abscesses	Parotid abscess	146		30		176	
	Submandibular abscess	4		1		5	
	Umbilical abscess	-	44.14%	1	9.86%	1	54.00%
	Thoracic wall abscess	34		6		40	
	Pelvic wall abscess	4		4		8	
Hernias	Umbilical hernia	2		-		2	
	Ventral abdominal hernia	8	3.29%	2	0.47%	10	3.76%
	Scrotal hernia	4		-		4	
Cysts	Tassel cyst	-		39		39	
	Thyroid cyst	4	1.88%	-	9.15%	4	11.03%
Urogenital system affections	Interdigital cyst	4		-		4	
	Persistent penile prolapse	4		2		6	
	Urethral dilatation	-		3		3	
	Hypospadias	3	3.52%	-	1.41%	3	4.93%
	Atrisia ani with rectovaginal fistula	8		1		9	
Ocular affections	Hyphaema	4		-		4	
	Hypopyon	3		-		3	
	Corneal ulcer	6	5.16%	4	0.94%	10	6.10%
	Pigmentary keratitis	8		-		8	
	Microphthalmia	1		-		1	
Udder and teat affections	Chronic septic mastitis	10		5		15	
	Gangrenous mastitis	3		3		6	
	Supernumerary teat type (1)	4		3		7	
	Supernumerary teat type (2)	2	5.40%	3	3.52%	5	8.92%
	Supernumerary teat type (4)	1		-		1	
Craniofacial defects	Supernumerary teat type (5)	3		1		4	
	Meningocele	4		-		4	
	Achondroplasia	2	1.64%	-	-	2	1.64%
Arthrogryposis	Abnormal structure attached to the head	1		-		1	
	--	5	1.17%	-	-	5	1.17%
Digestive system affections	Intestinal prolapse	4		-		4	
	Artesia ani	30	7.98%	2	0.47%	32	8.45%
Total		316	74.18	110	25.82%	426	100%

Open reduction was performed in all cases with uneventful recovery. Umbilical hernia was recorded in two sheep; the hernial swelling was small in size and reducible. Treatment was performed by open reduction and the animal was recovered without any post operative complication. Scrotal hernia was recorded in 4 sheep. Hernial swellings were medium sized and three of them were reducible and one was irreducible (Fig. 2b). Surgical treatment revealed complete recovery of all cases.

Cysts were recorded in 47 animals. Thyroid cyst was recorded in 4 sheep (Fig. 3a). Exploratory puncture revealed violet brown semitransparent fluid. Tassel cyst was recorded only in 39 goats (Fig. 3b); either unilateral in 30 animals or bilateral in 9 animals. Exploratory puncture revealed a transparent fluid. Interdigital cysts were recorded only in 4 sheep and located at the interdigital space between the claws (Fig. 3c). Exploratory puncture revealed sebaceous cheesy materials.

In the present study, 37 animals representing 8.69% of the total examined animals were suffered

from different types of udder and teat affections. These affections included chronic septic mastitis, gangrenous mastitis (Fig. 4a) and supernumerary teats. Chronic septic mastitis was recorded in 15 animals including 10 sheep and 5 goats. The affected quarter appeared swollen, hot and painful. Exploratory puncture revealed the presence of pus. Opening and evacuation of the affected half were performed with good results. Gangrenous mastitis was recorded in 5 animals including 3 ewes and two goats. Udder appeared as a dark green with firm consistency. Three animals were treated by partial mastectomy (two ewes and a goat) and two animals were treated by complete mastectomy (ewe and goat) with good results.

Supernumerary teats were recorded in a 17 animals. Four types were recorded in this study. Supernumerary teat type 1 was recorded in 7 animals including; 4 sheep and 3 goats (Fig. 4b). The extra teat had a special glandular tissue. Supernumerary teat type 2 was recorded in five animals including 3 goats and two sheep in which the teat had a special teat canal attached to the udder cistern. Supernumerary teat type 4



Fig. 1: Abscesses at the parotid region in a goat (a) and submandibular region in a sheep (b)

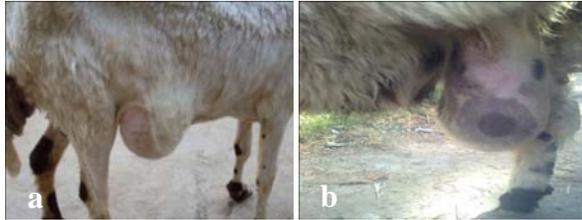


Fig. 2: Ventral abdominal hernia in an ewe (a) and scrotal hernia in a ram (b)



Fig. 3: Thyroid cyst in a one year old sheep (a) Tassel cyst in a two years old goat (b) and interdigital cyst of biflex canal in a three years old sheep (c)

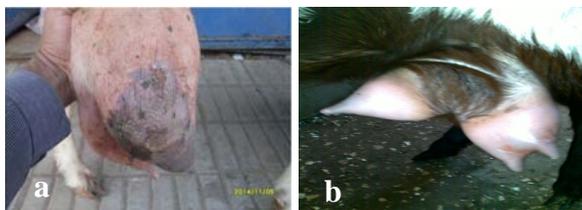


Fig. 4: Gangrenous mastitis in a 5 years old goat (a) and supernumerary teat type (1) in a two years old goat (b)

was recorded in one sheep with a special teat canal but not connected with the teat or udder cistern. Supernumerary teat type 5 was recorded in 4 animals including 3 sheep and a goat in which the extra teat appeared as just an elevation of the skin.

Ocular affections were recorded in 23 animals representing 5.4% of the total examined animals. Pigmentary keratitis was recorded in 8 sheep. Clinically the pigments were seen in certain areas of the cornea or covering the whole corneal surface. No treatment was recommended in such cases. Ulcerative keratitis was recorded in 10 animals included; 6 sheep and 4 goats (Fig. 5a). Clinically there were partial or complete closure of eyelids, rubbing of the affected eye against objects, serous or mucopurulent discharge and presence of ulcer in the cornea. Corneal opacity was presented throughout all layers of the cornea and deep vascularisation was observed. Ulcers were small, rounded and superficial in all cases. Healing of corneal ulcer occurred in all animals with small scar tissue formation. Hyphaema was recorded in two sheep. Clinically, hyphaema was presented at the anterior chamber of the eye ball without any other ocular manifestations. The cornea was transparent and reflected the red colour of the discoloured aqueous humour or clotted blood at the floor of the anterior chamber. Treatment was performed with complete recovery. Microphthalmia was recorded in one sheep (Fig. 5b). It was a congenital defect characterized by a small eye ball. Hypopyon was encountered in two sheep with remarkable appearance of pus in the anterior chamber (Fig. 5c).

In the present study, several types of urogenital system affections in male were recorded in 21 animals representing 4.93% of the total examined animals. One of these affections was persistence penile prolapse and the others were congenital including penile urethral dilation, hypospadias and atresia ani with rectovaginal fistula. Persistent penile prolapse was recorded in four sheep and two goats. The penis protruded outside the prepuce due to inability to retract. All animals were recovered after phallectomy except one died. Penile urethral dilatation was recorded in three goats. It was seen along the whole length of the penile urethra in the perineal region started just below the ischial arch and extended to the base of the scrotum. Recovery was uneventful in all cases after creation of urethral fistula. Hypospadias was recorded in 3 sheep. The presence of urethral fissure at the ventral aspect of penile urethra was seen along the whole length of penile urethra or along penile urethra cranial to scrotum. The bared mucous membrane of the penile urethra was subjected to a variable degree of trauma. All treated cases were recovered.

Atresia ani with rectovaginal fistula was recorded in 9 animals including eight sheep and one goat representing 2.11% of the total examined animals. There was a pronounced protrusion of the perineal region and with deep palpation of abdomen (Fig. 7a, b), the meconium descended through rectovaginal fistula. All animals were recovered after anal reconstruction, suturing of the rectal floor and vaginal roof.



Fig. 5: Corneal ulcer in a two years old ram (a) Microphthalmia in a one month old lamb (b) and hypopyon in a two years old sheep (c)



Fig. 6: Meningocele in a one month old lamb (a) Achondroplasia in a newly born lamb (b) and abnormal structures attached to the parotid region in a one month old lamb (c)

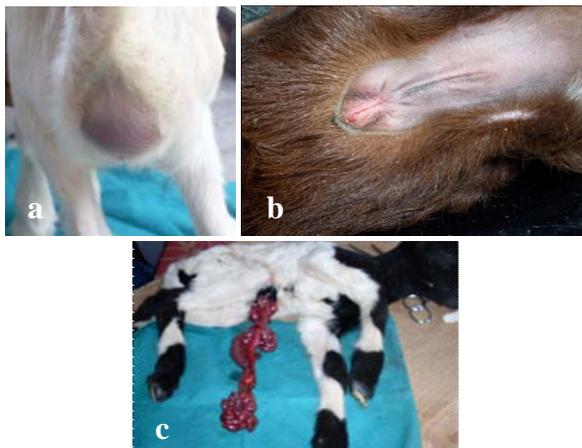


Fig. 7: Atresia ani in a two days old male lamb (a) and in two days old female lamb (b) Intestinal prolapse in a one day old sheep (c)



Fig. 8: Arthrogryposis in a one day old lamb

Craniofacial defects included meningocele, achondroplasia and abnormal structures attached to the head were recorded only on 7 sheep representing 1.64% of the total examined animals. Meningocele (Fig. 6a), was appeared as protrusion of the meninges of the brain through a defect in the skull. The sac of the meningocele was composed of complete outer layer of skin. Exploratory puncture revealed clear fluid. Surgical excision of the swelling proved successful in four animals and 2 animals were died. In achondroplasia, the animal had a compressed skull; nose divided furrows and shortened upper jaw, giving the bulldog facial appearance (Fig. 6b). A newly born sheep had an abnormal structure attached to the area of the parotid region. The structure consisted of upper and lower jaws, tongue and teeth (Fig. 6c). Complete excision of the abnormal structure was performed.

Digestive system affections represented 8.82% of total examined animals. These affections included atresia ani (N= 30 sheep and 2 goats) (Fig.7a,b) and intestinal prolapse (N= 3 sheep) (Fig. 7c).

In the present study, arthrogryposis was recorded in four sheep with an incidence of 0.94% of the total examined animals. The tarsal and carpal joints were rigid with a remarkable flexural contracture (Fig. 8). No treatment was suggested for such cases.

Discussion

Qena governorate at Upper Egypt has a large number of sheep and goats of various breeds. The management practices of animals and geoclimatic conditions of Qena are favourable for the occurrence of various diseases. The incidence of the diseases varies with the species, ages, sex of the animal and season of the year (Samad, 2000). This is in agreement with the findings reported for surgical conditions affecting sheep and goats in this study. Abscesses were recorded in both species. It represents 44.14% in sheep and 9.86% in goats, a finding which was nearly concise with that reported by Bani Al-Harbi (2011) at Qassim region, Kingdom of Saudi Arabia. Causes of abscesses formation are variable and include a breach on the surface of the skin or mucous membrane and entrance

of pyogenic microorganisms through it, infected foreign bodies migrating from the lumen of digestive tract, non-sterilized needle used for intramuscular injection, punctured or penetrating wounds and lymphatic borne infection as in case of caseous lymphadenitis in sheep (Williamson, 2001; Valentine, 2004). The predilection sites of abscesses in both sheep and goats in the present study include parotid, submandibular, region, thoracic and pelvic regions. This result was in agreement with that given by Misk et al. (2008) who stated that the predilection sites of abscesses in different animals depend mainly on the way of entrance of the infection. Moreover, disruption in the management of newly born animals may contribute in the incidence of umbilical abscess (Smith, 1996). Exploratory puncture was highly diagnostic in case of abscesses. In addition, size, consistency, nature and colour of the contents play a considerable role in diagnosis and differential diagnosis of abscesses. Treatments of all cases depend on maturation and evacuation. Thorough examination of the abscesses cavity was essential to extract any migrating foreign bodies; otherwise the abscesses will continue to discharge pus after its opening (Misk et al., 2008). Hernias were recorded in 3.52% of all affected animals. Hernias were classified according to the location, clinical signs, contents and causes (Simth, 1996). The most common types of hernia observed in farm animals are umbilical, abdominal, inguinal, scrotal and diaphragmatic hernia (Valentine, 2004). In this study, umbilical, abdominal and scrotal hernias were only diagnosed. These results are in agreement with that given by Gohar et al. (1987). According to Braun and Cole (1985) the heritability of scrotal hernia has not yet fully understood. On the other hand, Carr (1972) assumed that due to inbreeding, Merino rams may be genetically predisposed to the development of scrotal hernia as a result of an inherited failure which is recessive in nature (Roberts, 1988). Nevertheless, most experts agree that an enlarged inguinal ring is a hereditary failure, so an affected ram and its siblings should not be used in breeding (Smith et al., 2006). Cysts in the present study recorded 11.03% were of the affected animals. Three types of cysts were recorded namely tassel cyst, interdigital cyst and thyroid cyst. Exploratory puncture was considered to be a highly diagnostic tool for differential diagnosis between different types of cyst (El Kasaby and Mohamed, 2010). As tassel cyst mostly secretes transparent and rarely turbid discharge and interdigital cyst revealed sebaceous cheesy material. In this respect, Abu-Seida (2014) used radiographical examination for diagnosis of wattle cyst in sheep and goats. Surgical excision of cysts was considered by many authors a radical treatment (Winter, 2011; Misk and Misk, 2013; Abu-Seida, 2014). However, in some locations the cyst can be removed easily without post-surgical

complication such as tassel and interdigital cysts, other types were located in an area rich with vital structures and their radical excision was difficult such as branchial cyst and thyroid cyst. In such cases, incision of the cyst and applying the inner layer with tincture iodine was sufficient for treatment (Ashdown and Done, 2010). Valentine (2004) mentioned that wattle cysts appear to be a localized accumulations of lymphatic fluid in the area where wattles originate from the neck while Smith (1996) and Abu-Seida (2014) stated that wattle cysts are seen in Nubians and Nubian cross-breeds and the cysts are congenital but they may not be apparent until several months of age. Surgical excision was recommended by many authors (Senna et al., 2003; Valentine, 2004). The interdigital cyst is a rare condition seen in sheep (Misk and Misk, 2013). The interdigital pouch (biflex canal) is a peculiar tubular invagination of the integument opens at the dorsal aspect of the interdigital cleft. It is a bent tube, extends downward and backward and then curved sharply upward between the distal ends of the first phalanges. On sagittal section, it resembles the shape of the pipe, composing of a narrow long neck and a blind sac (Aslan et al., 2010). The skin of the pouch is thin, pale and bears fine colourless hairs, the follicles of which receive the secretion of several sebaceous glands (Ashdown and Done, 2010). The suspected aetiology for formation of the cyst may be due to inflammation and infection or may be simply as a result of obstruction of the opening of the pouch by foreign bodies or tuft of detached hairs or even inspissated secretion. Surgical excision of the interdigital cyst may be indicated to relieve lameness and improve the appearance of the limb (Ashdown and Done, 2010; Misk and Misk, 2013).

Regarding ocular affections pigmentary keratitis, hyphaema, ulcerative keratitis, hypopyon and microphthalmia were recorded in 23 animals. The same results were recorded by many authors (Gelatt, 1981). Cases of pigmentary keratitis were not treated as they not interfere with the animal vision. Hyphaemas were recovered spontaneously without any interference and medical treatment was sufficient for treatment of other conditions. In complicated cases of ulcerative keratitis, removal of hypopyon through a stab puncture at the limbus and the wound is sutured by simple interrupted stitches (Gellat, 1981). In the present study, congenital abnormalities at head region were recorded in sheep with an incidence of 1.64%. Meningocele was described in a lamb by Mehrdad et al.(2013) as a protrusion of the meninges of the brain through a defect in the skull. Achondroplasia was described as a compressed skull, divided nose and shortened upper jaw, giving the head a bulldog facial appearance (Ali et al., 1987). Both anomalies are live threatening but in some cases of meningocele the condition can be

corrected surgically by excision of the swelling (Kohli and Naddaf, 1998). Udder and teat affections were recorded in 8.69% of total affected animals. Chronic purulent mastitis, gangrenous mastitis and supernumerary teats were recorded in this study. The radical treatment of gangrenous mastitis was mastectomy while cases of chronic purulent mastitis can be corrected by vertical incision of the affected half and removal of the necrotic tissues and purulent materials (Bergonier et al., 2003). Some of supernumerary teats were left without any interference such as supernumerary teat type 1, 3 and 5 (Abd El Hady, 1993).

In regards to congenital malformations of the limb, arthrogryposis was recorded in lambs with the least incidence (0.94%) among the recorded affections. This defect might be due to the stiffness and rigidity of joints especially the tarsal and carpal joints. This result was in agreement with that reported by Edward et al. (1989). The presented cases were either stillbirths or survived but not cured. However, complete recovery was reported in affected calves after combined treatment with tenotomy, application of splint/cast and intravenous administration of oxytetracycline (Cihan et al., 2004). Although several cases of skin neoplasms were recorded in sheep and goats (Zabady et al., 2004; Abu-Seida and Ahmed, 2007), no neoplasms were reported in this study. This could be attributed to the distinct variations between the studied areas. Most of the recorded surgical affections resulted in high economic losses in the form of treatment cost, damage to hide, hair and wool, low milk and meat production or even death of the affected animals.

In conclusion, surgical affections are common in sheep and goats at Qena governorate may cause economic losses and most of these affections are curable.

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