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STUDIES ON SOME CONGENITAL ANOMALIES IN RUMINANTS

(With 5 Tables and 26 Figures)

By

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دراسات على بعض العيوب الخلقية في المجترات

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تم إجراء هذه الدراسة على عدد ١٣٤ حيوان (٥٤ من الأبقار ، ٢٦ من الجاموس ، ٣٨ من الماعز و ١٦ من الأغنام) مصابة بعيوب خلقية مختلفة. وقد تم الاعتماد على تاريخ الحالة والفحص الإكلينيكي في عملية تشخيص و دراسة هذه الحالات بالإضافة إلي الفحص الإشعاعي لبعض الحالات. وقد تم تقسيم العيوب الخلقية المسجلة في هذه الدراسة على حسب الجهاز المصاب إلى أربعة مجاميع تشمل العيوب الخلقية التي تصيب الجهاز العضلي الهيكلي وقد تم تسجليها في عدد ١٩ حيوان، العيوب الخلقية التي تصيب الجهاز الهضمي وتم تسجيلها في عدد ٣٨ حيوان، العيوب الخلقية التي تصيب جدار البطن والجهاز البولي والجلد وتم تسجيلها في عدد ٦٦ حيوان بالإضافة إلى الحويصلات الخلقية وتم تسجليها في عدد ١١ حيوان . وقد تم إجراء العلاج الجراحي لمعظم هذه الحالات وكانت النتائج مرضية.

SUMMARY

The present study was carried out on 134 animals (54 Cattle, 26 Buffaloes, 38 Goats and 16 sheep) affected by different congenital anomalies. Diagnosis of these anomalies was based on case history and clinical examination of the animal in addition to radiological examination of some cases. Congenital anomalies recorded in the present study were typed depending on the affected system into four groups including congenital anomalies affecting musculoskeletal system were recorded in 19 animals, congenital anomalies affecting digestive system in 38 animals, congenital anomalies affecting abdominal wall, urinary system and skin in 66 animals and congenital cysts in 11 animals.

Surgical correction was performed in most cases and satisfactory results were obtained.

Key words: *Congenital, Anomalies, Ruminants*

INTRODUCTION

Congenital anomalies are abnormalities of structure and function present at birth (Leipold, 1982). The overall level of incidence of congenital defects ranges considerably in surveys from 0.2 to 3.0 percent (Andrews et al., 1992). In cattle, sheep and swine the incidence usually ranges from 1 in 500 to 3 in 100 birth (Baird et al., 1987, El-Hamidi et al., 1989; Engelken et al., 1992 and Huston, 1993).

Most hereditary abnormalities are caused by mutation in abnormal gene, structural or numerical aberrations of chromosomes or environmental factors (Nigam et al., 1984, Andrews et al., 1992 and Huston, 1993).

The frequency of individual defect or defects of each body system and the total number of defects will vary among breeds, geographical locations and season (Leipold, 1982 and Dennis, 1993).

Leipold (1982) stated that developmental defects may be lethal, semi-lethal, compatible with life and have little defect, may impair viability or have an esthetic effect. Although economic losses due to congenital defects are less than those from infectious, chemical and nutritional agents, they may be economically important to individual cattle breeders. Collectively in cattle, congenital defects cause economic losses by increasing perinatal calf mortality and by decreasing the value of viable defective calves.

Various congenital anomalies in ruminants had been documented (Hossain & Rahman, 1980; Misk et al., 1982; Leipold, 1982; Nigam et al., 1984; Ali & Hossain, 1986; Ali et al., 1986; Kenawy 1988; Ahmed & Misk, 1990; Dennis, 1993; Hiraga & Dennis, 1993 and Abdel-Wahed, 2000).

The aim of the present study is to state different congenital anomalies in ruminants with special reference to diagnosis and possible surgical treatment.

MATERIALS AND METHODS

The present study was carried out on 134 animals affected by different congenital anomalies (Table 1). The animals (54 cattle, 26 buffaloes, 38 goats and 16 sheep) were of both sex and from one-day up

to 7-year-old. Animals were presented to Assiut University Veterinary Teaching Hospital or managed during field training in Assiut and Sohag Villages.

Diagnosis of congenital defects were based on history of the case and clinical examination of the animal. Radiological examination was performed in some cases. Surgical correction was applied when applicable to keep the animal survive for variable time post-operation or at least until become fit for slaughtering. Surgical operations were performed under effect of tranquillizers (Rompun in a dose rate of 0.05 mg/Kg bw for cattle, buffaloes and goats, 0.2 mg/Kg bw for sheep) and local infilteration analgesia using xylocaine Hcl 2% solution. Postoperative care was applied and follow up of the cases was performed for 1-2 months.

Table 1: Congenital anomalies recorded in the present study.

	Cattle	Buffaloes	Goats	Sheep	Total
1- Polymelia	4	-	-	-	4
2-Polydactyly	1	-	-	-	1
3-Diprosopus	-	1	2	-	3
4-Peromelia	-	-	-	1	1
5-Torticollus	2	-	1	-	3
6-Arthrogryposis	-	-	1	-	1
7-Knuckling	2	-	-	-	2
8-Prognathism	1	2			3
9-Brachygnathism	-	1	-	-	1
10-Palatoschiasis	1	-	-	-	1
11-Atresia ani	10	-	12	7	29
12-Atresia ani with rectovaginal fistula	4	-	-	1	5
13-Atresia ani with anury	-	-	-	3	3
14-Umbilical hernia	27	21	4	3	55
15-Urethral dilatation	1	-	8	-	9
16-Epithelogenesis imperfecta	-	-	-	1	1
17-Skin fold	1	-	-	-	1
18-Branchial cyst	-	-	2	-	2
19-Thyroid cyst	-	-	1	-	1
20-Tassel cyst	-	-	7	-	7
21-Dermoid cyst	-	1	-	-	1
Total	**54**	**26**	**38**	**16**	**134**

RESULTS

Based on the affected system, four groups of congenital anomalies were diagnosed. Anomalies affecting musculoskeletal system occurred in 19 out of 134 animals (14.2%), anomalies affecting digestive system in 38 out of 134 (28.4%) and anomalies affecting abdominal wall, urinary system & skin in 66 out of 134 (49.2%) in addition to congenital cysts in 11 out of 134 (8.2%).

CONGENITAL ANOMALIES OF MUSCULOSKELETAL SYSTEM (Fig. 1-13).

Nineteen animals out of 134 were recorded suffering from congenital anomalies of musculoskeletal system and illustrated in the following table (Table 2):

	Cattle	Buffaloes	Goats	Sheep	Total
1-Polymelia	4	-	-	-	4
2-Polydactyly	1	-	-	-	1
3-Diprosopus	-	1	2	-	3
4-Peromelia	-	-	-	1	1
5-Torticollus	2	-	1	-	3
6-Arthrogryposis	-	-	1	-	1
7-Knuckling	2	-	-	-	2
8-Prognathism	1	2	-	-	3
9-Brachygnathism	-	1	-	-	1
Total	**10**	**4**	**4**	**1**	**19**

Congenital duplication (polymelia, polydactyly and diprosopus) was observed in 8 cases.

Four cases of polymelia in calves were examined one day following parturation.In three cases the additional limbs (two supernumerary limbs in two cases and one supernumerary limb in the third case) were originating from the subcutaneous tissue of the back (notomelus). They were excised surgically followed by suture of the s/c and skin as usual. In the fourth case, the additional limbs (two supernumerary limbs) were attached to the abdominal wall. In this case the additional limbs were excised and the surrounding abdominal muscles were bluntly dissected and then retracted to cover the abdominal defect. The muscles were coaptated layer by layer using chromic catgut no.3 then the skin was closed as usual. Follow up of these cases revealed complete recovery with satisfactory healing.

One case of polydactyly in 3-year-old cattle was admitted to the clinic. Clinical examination revealed presence of supernumerary digit on

the right thoracic limb. Radiological examination indicates presence of excess normal digit with three phalanges but without proximal sesamoid bones. Angiography showed normal blood supply to the additional digit. Amputation of the excessive digit was performed. Follow up of this case revealed complete recovery.

Three cases of diprosopus, in two kids and one buffalo calf, were presented to the clinic just after parturation.Diprosopus of each kid was appeared as two heads fused caudally and two separated oral cavities each has upper and lower jaws. One kid has three eyes and the other one has four eyes, the central two were fused together. Each kid has two ears. One kid was died few hours after presentation while the other kid was died after three days.

Diprosopus in buffalo calf was represented by two fused heads with one oral cavity containing two tongues, two fused mandibulae and two fused premaxella.It has also three eyes and two ears. The calf was died 28 days following parturation.

A 7-day-old lamb was presented with peromelia of the left thoracic limb.Absence of the manus from the affected limb was a clear clinical sign. No surgery was indicated for such case.

Three cases of torticollus, in 40-day-old & 55-day-old calves and 10-day-old kid, were recorded.Clinical examination revealed deformity of the neck.The animal always press his neck to the side of the chest on one side and persistently on the same side. The affected animal was moved stiffly with rigidity of muscles of the neck. No surgical treatment was applied for these cases but supportive treatment includes analgesic and anti-inflammatory drugs were used.

One case of bilaterally symmetrical arthrogryposis was recorded in 3-day-old kid presented to the clinic suffering from contraction of its four limbs.Flexion and rigidity of the joints of the thoracic and pelvic limbs as well as atrophy of the muscles were clear clinically. The animal was died one week after parturation.

Two cases of knuckling were registered in 4-day-old and 6-day-old calves.Animals were presented to the clinic suffering from flexion of the phalangeal joints of both thoracic limbs and animals bear weight on the dorsal aspect of the digits. Clinical examination showed complete flexion of the fetlock and pastern joints of the affected limbs and contraction of the flexor tendons. Plain radiography indicates normal bony structure of the fetlock and interphalangeal joints.Surgical interference of these cases was performed by tenotomy of the superficial

flexor tendon at the mid-metacarpal region followed by application of plaster bandage. Extension of the phalangeal joints was observed directly after operation and animals bear weight on the ground aspect of the hoof. Follow up of these cases indicated complete recovery and limbs were returned to normal function.

One case of brachygnathism in 40-day-old buffalo calf and three cases of prognathism,one case in 30-day-old calf and two cases in 4-year-old and 5-year-old buffaloes, were recorded during the period of the present study. Clinically the lower jaw is shorter than the upper jaw in case of brachygnathism while it is longer than the upper jaw in case of prognathism.Wounds and lacerations of the soft tissues within the mouth were observed in both conditions.Slight impediment was detected during prehension of the food.No surgery was indicated for such cases.

CONGENITAL ANOMALIES OF DIGESTIVE SYSTEM (Fig. 14–16)

Thirty eight animals out of 134 were registered suffering from anomalies of digestive system either alone or in combination with other anomalies as showed in the following table (Table 3)

	Cattle	Buffaloes	Goats	Sheep	Total
1-Palatoschiasis	1	-	-	-	1
2- Atresia ani	10	-	12	7	29
3- Atresia ani with rectovaginal fistula	4	-	-	1	5
4- Atresia ani with anury	-	-	-	3	3
Total	**15**	-	**12**	**11**	**38**

Palatoschiasis was recorded in 6-month-old calf. Inspection of the animal revealed run out of food material through the nostrils during mastication with presence of dried food around it. Inflammation of the tissues within the nasal cavity was observed. The animal not doing well due to failure to receive proper nourishment. Examination of the oral cavity revealed presence of clift hard palate which extends backward to include the soft palate. Surgical correction was difficult and trails to suture the edges of the clift has been failed.

Atresia ani was met with in 29 male animals (10 calves , 12 kids and 7 lambs). Animals were presented usually on the first or second day following parturation suffering from tenesmus, perineal distention especially if pressure is applied on the abdomen and manifestation of abdominal straining and discomfort. By examination, the anal opening

was absent. All cases of atresia ani were treated by creation of anal opening. Follow up of these cases indicates complete recovery and animals doing well.

Atresia ani with rectovaginal fistula was recorded in 5 female animals, 15-day-old lamb, 20-day-old, 28-day-old, 2-month-old and 5-month-old calves. Animals did not show any marked signs except imperforated anus and excretion of the feces through vulva. Surgical interference was performed including creation of anal opening and closure of the fistula. A cutaneous horizontal incision was made between the anus and vulva. The incision was further extended craniad and the adhesions around fistula were dissected and the fistula was severed. The rectal defect was sutured horizontally while the vaginal one was sutured vertically. Follow up indicates complete recovery except in one calf the operation was repeated for the second time.

Three cases of a newly born lambs had atresia ani with anury were met with in the present study. Absence of tail and imperforated anus were the clear clinical symptoms of these cases. Tenesmus, perineal distention and manifestation of abdominal discomfort were present. Surgical creation of anal opening was applied. Follow up indicates doing well of the animals with complete recovery.

CONGENITAL ANOMALIES OF ABDOMINAL WALL , URINARY SYSTEM AND SKIN (Fig.17 – 24)

Sixty six animals out of 134 suffering from umbilical hernias,urethral dilatation, epitheliogenesis imperfecta and skin fold were recorded during the period of the present study and illustrated in the following table (Table 4)

	Cattle	Buffaloes	Goats	Sheep	Total
1-Umbilical hernias	27	21	4	3	55
2- Urethral dilatation	1	-	8	-	9
3-Epitheliogenesis imperfecta	-	-	-	1	1
4-Skin fold	1	-	-	-	1
Total	**29**	**21**	**12**	**4**	**66**

Fifty five animals (27 cattle , 21 buffaloes , 4 goats & 3 sheep) were admitted to the clinic having umbilical hernias. Clinical findings revealed that, the hernias were varies in size & shape, the hernial contents were easily to be reduced into the abdominal cavity (reducable hernias) and the hernial ring was easily to be palpated which may be oval or rounded in shape and varies from 4 - 8 cm in diameter.

Open reduction of the hernias was applied. The healing was obtained without any complications except in two calves the hernia was recured and operations were performed for the second time with satisfactory recovery.

Urethral dilatation was registered in 9 animals (8 kids and 1 calf) presented to the clinic few days after parturation. Dysurea and swelling at the ventral aspect of penile urethra are the main signs. By palpation the swelling appears as fluid filled structure, the animal try to urinate and small amount of urine dribbled from the preputial orifice. Exploratory puncture of the swelling indicates urine. Urethral dilatation was corrected surgically by creation of urethral fistula at the caudal part of the swelling. Follow up period revealed repair of all cases.

Epitheliogenesis imperfecta was diagnosed in one lamb in the present study .The lamb was presented to the clinic one day following parturation with prolapse of the viscera and absence of the skin at the level of umbilicus. After pre-operative preparation, widening of the opening was performed followed by reduction of the prolapsed abdominal contents. The opening was sutured using chromic catgut no.2 followed by dissection and coaptation of the skin edges. Healing was obtained 10 days post-operatively.

A 3-year-old cow was presented with presence of skin fold originating from the area between the horns. The fold was about 30cm in length, 5cm in width and 2cm in thickness. The history of the case revealed presence of this fold sence birth. Surgical excision of the fold was carried out from its base followed by skin suture. Surgery revealed no connection between the skin fold and any vital structure beneath it. Recovery of the animal was obtained.

CONGENITAL CYSTS (Fig. 25 & 26).

Eleven animal out of 134 were recorded affected by 4 types of congenital cysts as shown in the following table (Table 5)

	Cattle	Buffaloes	Goats	Sheep	Total
1- Branchial cyst	-	-	2	-	2
2- Thyroid cyst	-	-	1	-	1
3- Tassel cyst	-	-	7	-	7
4- Dermoid cyst	-	1	-	-	1
Total	-	**1**	**10**	-	**11**

Branchial cysts were diagnosed in two goats admitted to the clinic with history of swelling at the upper part of the neck. Clinical

examination revealed presence of flactuating, painless and cold swelling behind the mandibular angle. Exploratory puncture revealed a white liquid material. Surgical excision of the cysts were carried out. Follow up indicates complete recovery.

One goat was presented with bilateral swellings in the exact location of the thyroid gland. By palpation, the swellings were cold, flactuating and painless. Exploratory puncture showed brownish fluid comes out from the needle. The animal appears stunted in growth, sluggish in behavior and with rough sparse hair coat. The case was diagnosed as thyroid cysts. Evacuation of the cysts was applied with parenteral administration of dietary iodine requirements. Follow up of this case is not recorded.

In the present study, tassel cysts were recorded in 7 goats (unilateral in 6 cases and bilateral in one case). Clinically there is flactuating, painless, cold, rounded swelling situated at the base of the tassel. Exploratory puncture showed thin, clear fluid comes out from the needle. Evacuation of the cysts were carried out and touch with tr. of iodine for the inner lining was performed.

Three-year-old buffalo was presented with presence of swelling at the level of ventral aspect of the left ramus of the mandible. By palpation the swelling was soft, cold and painless.Nothing appeares with exploratory puncture. Surgical incision was performed at the most lower part of the swelling revealed presence of a muddy, doughy, thick and gryish materials. The case was diagnosed as dermoid cyst. Evacuation and dressing of the cyst was performed.

DISCUSSION

In the present study, congenital anomalies were recorded affecting either a single structure or involve several body systems. A similar findings were observed by Dennis (1993). Congenital anomalies of musculoskeletal system are a common problem in veterinary practice.19 cases out of 134 were mit with in the present study affected by anomalies of musculoskeletal system including congenital duplication (polymelia, polydactyly and diprosopus) peromelia, torticollus, arthrogryposis, knuckling, prognathism and brachygnathism.

Congenital duplications form a graded series from slight duplication to near separation of two individuals. Hiraga and Dennis (1993) stated that congenital duplications in farm animals, especially

cattle, represents one of the largest group of congenital anomalies and are a common causes of dystocia.In the present study congenital duplications were less common representing 8 cases out of 134.

Polymelia or additional limbs are not uncommon and are classified by anatomic location into notomelus at the back, cephalomelus at the occipital region, thoracomelus at the thorax and pygomelus at the pelvic region (Dennis, 1974; Dennis, 1975 and Andrews, 1992).

Four cases of polymelia, three notomelus and one connected with abdominal wall, were diagnosed in the present study. Surgical excision of the supernumerary limbs was the radical treatment of this anomaly. Surgery was performed successfully without any overt complications.

Polydactyly is defined as an increased number of digits. It seems to be inherited as a polygenic (Leipold, 1982). One case of polydactyly was recorded in the present study. Our results are in agreement with that given by Andrews et al., (1992) and Dennis (1993) in reporting that polydactyly is not a common anomaly. Surgical management is uneventful in such cases.

Diprosopus is a monster with cranial duplication varies from duplicated rostral end of the mandible to complete diprosopus. It has been reported in cattle, sheep, pigs, cat and water buffaloes (Misk & Hifny, 1988 and Hiraga & Dennis, 1993).In the present study diprosopus was recorded in two kids and one buffalo calf. According to the available literatures it is the first record in goat. In agreement with that given by Misk and Hifny (1988) surgery of diprosopus is not recommended as complete separation is impossible.

Peromelia is the failure of distal parts of the limb to develop (Dennis, 1993). Peromelia was stated by Hawkins et al. (1983) and Baird et al. (1994). One case of peromelia in lamb was recorded along the presented cases.It is a type of congenital anomalies which cannot be corrected surgically and the goat can tolerate absence of the distal part of the limb going only on three limbs .

Several congenital anomalis involve the spinal column and include atlantooccipital fusion, kyphosis, lordosis, scoliosis and torticollus were mentioned by Leipold et al. (1993). These defects may occur alone or associated with defects of other body systems, particularly those of C.N.S.

Torticollus is a congenital defect characterized by twisting of the neck. Three cases out of 134 were diagnosed suffering from torticollus.

The cause can not be actually established and surgery was not recommended for this defect.

Arthrogryposis defined as permanent abnormal joint fixation or contraction present at birth (Leipold, 1982). It is a common ovine syndrome of diverse causes-recessive inheritance, viruses, phytoteratogen and unknown (Hamana & Leipold, 1980 and Leipold et al., 1993). Arthrogryposis may affect one leg or all four legs. It has been reported from most parts of the world and in many breeds of cattle (Nawrot et al., 1980). One kid was reported affected by arthrogryposis in the present study. No suggestion of surgical correction for such cases is stated in the available literatures and the case was left without any surgical interferance.

Knuckling is common and present in most breeds. It was recorded in Gersey cattle and it is considered to be caused by an autosomal recessive gene. Knuckling may affect one or both front limbs and occasionally affect the hind limbs (Andrews et al., 1993). Only two cases out of 134 were recorded affected by knuckling of both thoracic limbs in the present study. Tenotomy of the contracted superficial flexor tendons was the radical treatment of this anomaly. This result was in agreement with that given by Oehme and Prier (1974) in reporting that contracted tendons in the new born is the primary indication for tenotomy. The result of the operation was encourging and no post-operative complications were recorded.

Brachygnathism (parrot mouth) and prognathism(saw mouth) are common ovine defects (Dennis, 1974 and Dennis, 1993). Brachygnathism has been reported as part of the syndrome of generalized degenerative joint disease in Angus calves (Jayo et al., 1987). The defect is seen in various breeds of cattle. Brachygnathism and prognathism are genetically transmitted (Leipold et al., 1993). Prognathism is less common than brachygnathism and is seen primarily in ponies and dwarf miniature horses (Wiggs and Lobprise, 1997). Three cases of prognathism and one case of brachygnathism were recorded in the present study. Animals can survive with these congenital anomalies without any considerable disturbances. The mode of food prehension and water drinking were not affected and not differ completely from normal. Injuries and lacerations of soft tissues may interfere with the process of mastication but doesn't affect the animal health except in severe cases.

Congenital anomalies of digestive system are common in veterinary practice. 38 cases out of 134 were registered in the present

study involve the alimentary tract including palatoschiasis, atresia ani, atresia ani with rectovaginal fistula and atresia ani with anury.

Palatoschiasis -or clift palate was recorded only in one calf during the period of the present study.Oehme and Prier (1974) stated that clift palate is seen most often in piglets and occasionally in calves. The incidence may vary in different species and localities. Andrrws et al. (1992) and Leipold et al. (1993) reported that clift palate occur as an individual condition but is normally associated with other conditions particularly arthrogryposis. In the present study clift palate was recorded as an individual condition. Surgery to repair of clift palate performed at earily stage of life .In old ages surgery is difficult and useless (Andrews et al., 1992).

The most common defect of the gastrointestinal tract recorded in the present study was atresia ani. Similar result was reported by Dennis (1974 & 1993) and Saperstein (1993). Atresia ani has been reported in all food animal species and is leathal in males but is compatible with life in most females because of an associated rectovaginal fistula. Atresia ani is considered to be inherited as an autosomal recessive gene. It develops when dorsal part of cloacal palate fails to form (Dennis & Leipold, 1972; Dennis 1993 and Saperstein, 1993).

In the present study atresia ani was recorded also associated with rectovaginal fistula and with anury. This is in agreement with that given by Saperstein (1993) in reporting that lack of tail and/or urogenital defects often accompany atresia ani. Surgical creation of anal opening as early as possible is essential to save the animal life specially in male animals.

Congenital anomalies of abdominal wall, urinary system and skin were prevalent in veterinary practice. Sixty six cases out of 134 were recorded including umbilical hernias, uretheral dilatation, epitheliogenesis imperfecta and skin fold.

Umbilical hernia was the most common anomaly recorded in cattle and buffaloes. This result was in agreement with Priester et al. (1970), Hayes (1974), and Saperstein (1993) in reporting that umbilical hernia was the most common bovine congenital defect. There are several modes of inhritance in cattle including incomplete dominance, recessive and dominant with incomplete penetration as well as environmental cause (Blood & Radostits, 1989 and Saperstein, 1993).

Cases of umbilical hernias can be corrected surgically without any post-operative complications. Recurrency recorded in two cases may

be due to closure of the hernial ring with absorbable suture materials which losses its tensile strength before healing of the hernial ring.

Congenital dilatation of the penile urethra has been reported in the available literatures (Nigam et al.1984; Dass et al. 1987; Makady et al., 1987; Karras et al., 1992; Ladds, 1993 and Abdel-Wahed, 2000). Dilatation of penile urethra was recorded in several cases and it was considered to be a common defect specially in goats. Surgical creation of perminant urethral fistula is considered to be the only solution for this anomaly and was performed without any post-operative complications.

Epitheliogenesis imperfecta has been reported in Holstein, Ayrshire and Jersey calves. It is characterized by presence of areas of varing size devoid of skin or mucous membrane. The defects are often distal to the tarsal and carpal joints, on muzzle, tongue, hard palate, cheeks and nostrils (Andrews et al., 1992 and Steffen, 1993). Along our present study, epitheliogenesis imperfecta was recorded only in one lamb. The defect was present at the umbilical region with prolapse of the abdominal viscera. Surgical reduction of the abdominal viscera and trials for coaptation of the skin was the available method for treatment of this case.

According to the available literature, presence of a skin fold originating from the area between the horns in cattle was recorded for the first time.The skin fold was found not attached with any vital structure, so its excision was performed without any post-operative complications.

Cysts occur in the form of swelling containing fluid, semifluid or solid structures.Congenital cysts may be due to the failure of an embryonic cavity to close (Frank, 1981). Developmental cysts, usually located at specific anatomical sites, include branchial cysts in the neck, false nostril cysts in horses and in the tassel of goats (Radostits et al., 1994). Cysts can be classified into epithelial cysts, retention cysts, exudation cysts, parasitic cysts and degenerative cysts.

Branchial cysts, thyroid cysts, tassel cysts and dermoid cysts were recorded in 11 cases out of 134 during the period of the present study. Branchial cysts were recorded in buffaloes (Misk et al., 1994), in heifer (Smith & Gimspm, 1977) and in dog (Clark et al., 1989). In the present study branchial cysts were recorded in two goats. Branchial cyst develop from a remnant of the branchial apparatus of the foetus. Differential diagnosis of the branchial cyst from other swelling was confirmed by exploratory puncture and presence of white fluid contents (Misk et al.,

1994). Surgical excision is the radical treatment and was performed without any post-operative complications.

Thyroid cysts or congenital goiter was recorded in Merino sheep, Afrikaner cattle and goats (Radostits et al., 1994). One goat was mit with in the present study suffering from thyroid cyst. Bilateral swellings at the exact site of the thyroid in addition to the brownish fluid contents were the diagnostic signs of the thyroid cysts. It appears to be inherited as a recessive character. The essential defect is in the synthesis of abnormal thyroid hormone leading to increased production of thyrotropic factor in the pituitary gland, causing in turn a hyperplasia of the thyroid gland.

Tassel cysts occur unilaterally or bilaterally at the base of tassel. It is a common anomaly in a goats and recorded in 7 cases.Our result was in agreement with Smith and Sherman (1994) in reporting that tassel cysts are certainly not rare but rarely are of enough concern to reported in the literatures.

Dermoid cysts has been reported (Frank, 1981). One case of dermoid cyst in buffalo was recorded in the present study. Mudy content of the cyst was a diagnostic sign.

Managment of congenital cysts was easily performed either by surgical excision, by aspiration of the contents or by opening and evacuation of the contents.

From the surgical point of view, congenital anomalies in ruminants, can be classified into the following:

1- Congenital anomalies which can be corrected surgically and the animal may survive in a normal condition for long period of life such as atresia ani, atresia ani with rectovaginal fistula, atresia ani with anury, umbilical hernias, urethral dilatation, polydactyly, epitheliogenesis imperfecta and cysts.
2- Congenital anomalies which can be corrected surgically to help the animal to survive for a limited period of time until it slaughtered such as palatoschiasis, polymelia and kunckling.
3- Congenital anomalies which can not be corrected surgically and the animal may survive with slight impediment such as brachygnathism, prognathism, torticollus and peromelia.
4- Congenital anomalies which can not be corrected surgically and the animal was born dead or died just after parturation such as diprosopus and arthrogryposis.

In conclusion congenital anomalies in ruminants were considered to be a common problem in veterinary practice. They cause economic losses specially for individual breeders. Surgical interference is essential to save the animal life in most types of congenital anomalies.The animals which are affected by congenital anomalies and treated surgically must not be used for breeding.

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LEGENDS OF FIGURES

Fig. 1&2: Showing polymelia in a calf (notomelus): Before operation (A) and after operation (B).

Fig. 3: Showing polymelia in a calf (the excessive limbs were connected with abdominal wall): Before operation (A) and after operation (B).

Fig. 4: Showing dorsopalmar radiograph of polydactyly in a calf.

Fig. 5 : Showing diprosopus in a goat (A & B).

Fig. 6: Showing diprosopus in a buffalo calf: Rostral view showing two nostrils, two upper jaws and two lower jaws (A), dorsal view showing third eye between two connected heads (B) and X-ray picture showing the teeth and bones of both heads (C).

Fig. 7: showing peromelia in a sheep.

Fig. 8: showing torticollus in a goat (A) and in a calf (B).

Fig. 9: Showing arthrogryposis in a goot.

Fig. 10: Showing knuckling of the thoracic limbs in a calf: Before operation (A), after pperation (B) and X-ray picture showing normal bony structure of the digit and phalangeal joints (C).

Fig. 11: Showing prognathism in a calf. Lateral view (A) and rostral view (B).

Fig. 12: Showing prognathism in a buffalo.

Fig. 13: Showing brachygnathism in a buffalo calf.

Fig. 14: Showing atresia ani in a calf (A), in a lamb (B) and in a kid (C).

Fig. 15: Showing atresia ani with rectovaginal fistula in a calf (A) and in sheep (B).

Fig. 16: Showing atresia ani with anury in sheep.

Fig. 17: Showing different forms of umbilical hernias in cattle.

Fig. 18: Showing different forms of umbilical hernias in buffaloes.

Fig. 19: Showing umbilical hernia in goat.
Fig. 20: Showing umbilical hernia in sheep.
Fig. 21: Showing urethral dilatation in a calf: Before operation (A) and after operation (B).
Fig. 22: Showing urethral dilatation in a goat.
Fig. 23: Showing epitheliogenesis imperfecta in sheep.
Fig. 24: Showing skin fold in cattle: Before operation (A & B) and after operation (C).
Fig. 25: Showing branchial cyst (A), thyroid cysts (B) and tassel cysts (C) in goats.
Fig. 26: Showing dermoid cyst in a buffalo.

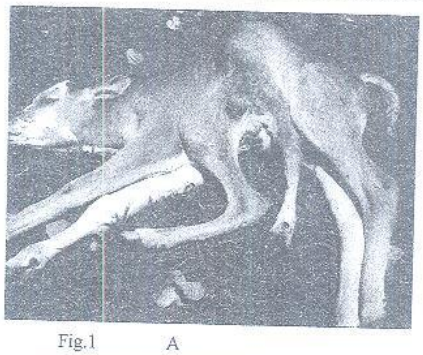


Fig.1 A

B

Fig.2 A

B

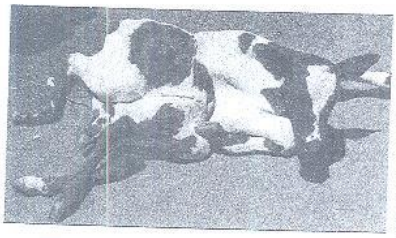
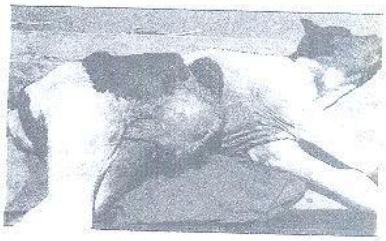


Fig.3 A



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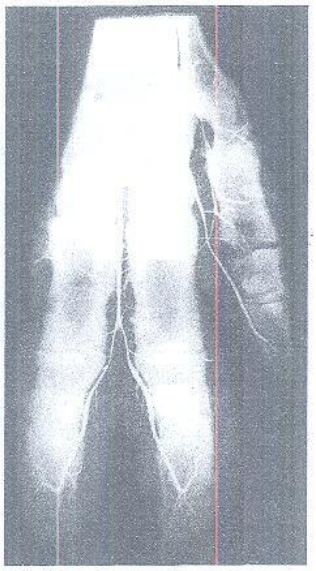


Fig.4

A

B

Fig.5

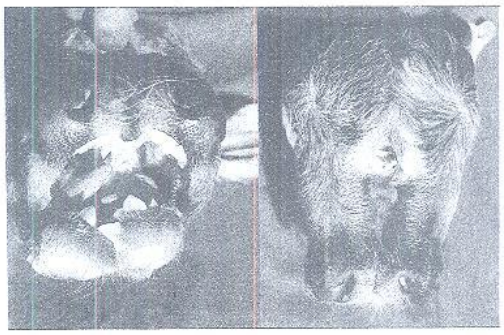


Fig.6 A

B

C

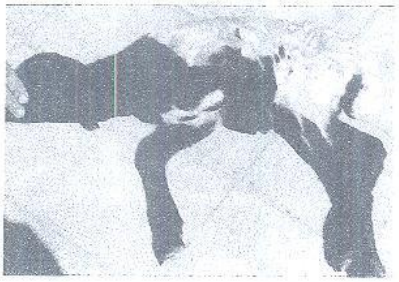


Fig.7

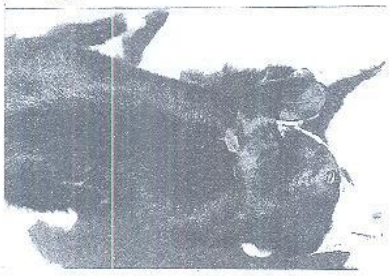
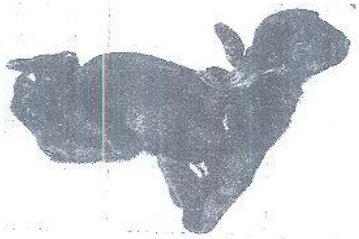


Fig.8 A

B



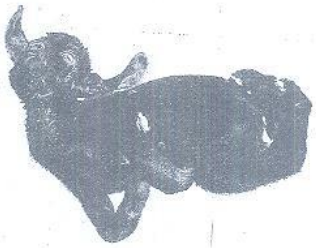
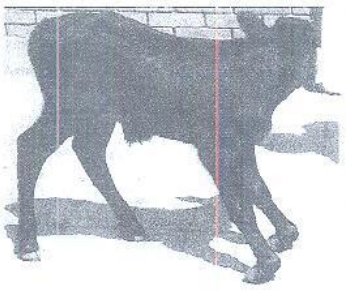


Fig.9



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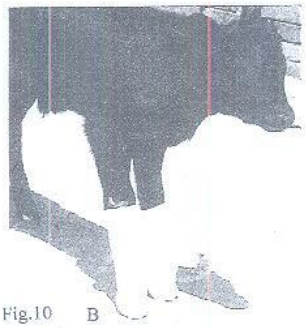


B

C

Fig.10

A

B

Fig.11

Fig.12

Fig.13

Fig.14 A B C

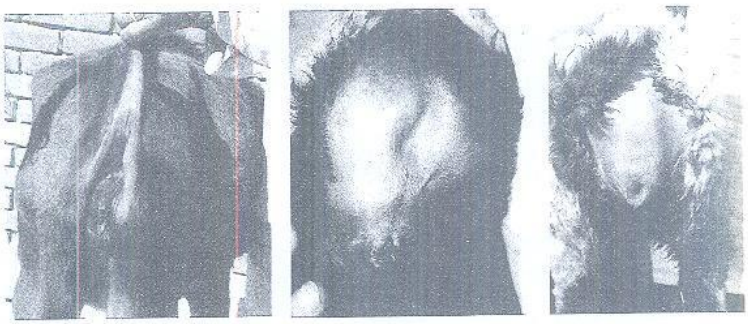
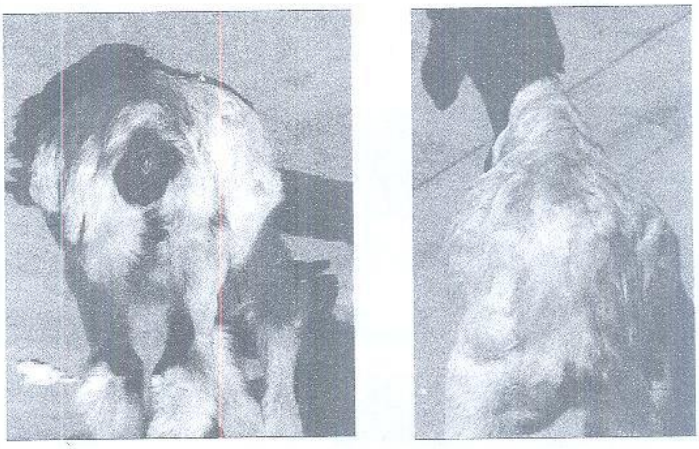


Fig.15 A B



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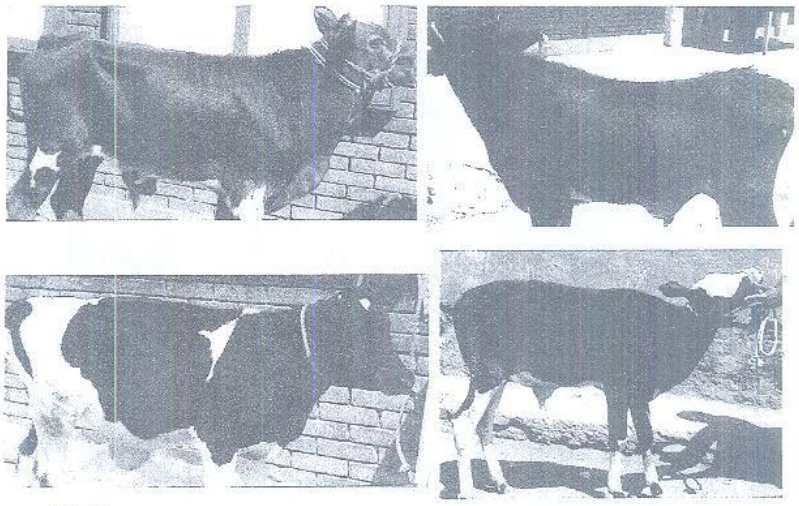


Fig.17

Fig.18

Fig.19

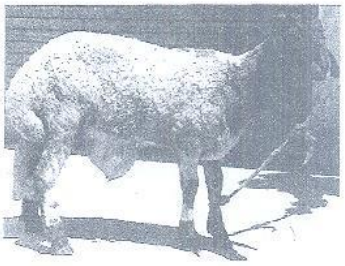


Fig.20

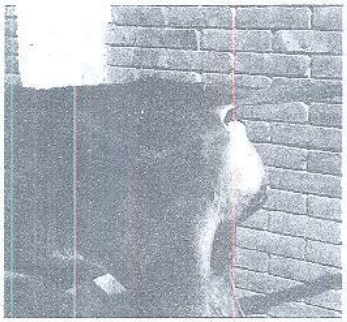


Fig.21 A

B

Fig22

Fig.23

A

B

Fig.24

C

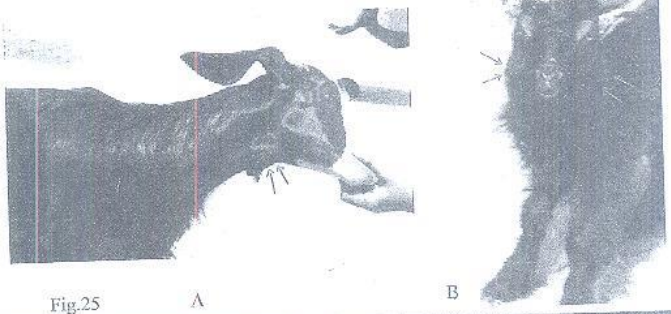
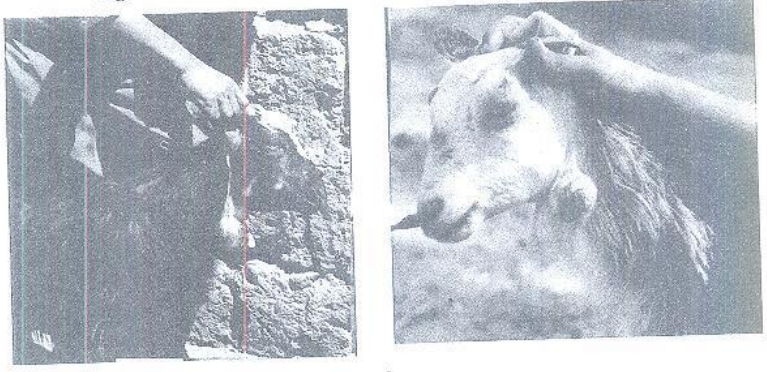


Fig.25 A B



C

Fig.26