

## Congenital anomalies in cattle and buffalo within Mudaina city in Basrah province between period 2007- 2009.

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### Abstract:

A clinical study of congenital anomalies in cattle and buffalo was done within Mudaina city. This study revealed an incidence of congenital anomalies between 2007-2009 which were: Fused heads, unilateral knuckling at front knee, hydrocephalus and eye flap, supernumerary pendulous leg, atresia ani, massive congenital ventral abdominal hernia, the upper and lower jaw and eyebrows are disappeared, multiple malformation of vertebral column and atresia ani et recti and the animal could not stand on its leg, and calf with malformation of vertebral column only, and the causes might environmental .

### تشوهات خلقية في الماشية والجاموس ضمن منطقة المدينة في البصرة بين فترة 2007-2009

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### الخلاصة:

دراسة سريرية على التشوهات الخلقية في الابقار و الجاموس اجريت ضمن منطقة المدينة. هذه الدراسة اظهرت حدوث تشوهات خلقية بين 2007-2009 والتي هي: رؤوس ملتحمة ، برجمة في مفصل الركبة وحيدة الجانب، موه الرأس و سدلة في العين، قائمة متدلّية زائدة، رتق الشرج، فتق بطني خلقي جسيم، اختفاء الفكين العلوي و السفلي و الجفون، تشوهات خلقية متعددة في العمود الفقري ورتق شرطي مستقيمي والحيوان لا يستطيع النهوض، وعجل مصاب بتشوه خلقي في العمود الفقري فقط و الاسباب ربما تكون بيئية.

### Introduction:

Congenital defects resulting from disruptive event at one or more stages in complexity integrated process of embryonic according to development (1 and 2).

These defects are usually classified the body system primarily affected. The defective neonates are adapted survivor from the disruptive event during embryonic or fetal

development. Defective development may also be expressed as embryonic loss. Fetal death, mummification, abortion, still birth or non viable neonate (3 and 4).

Congenital abnormalities may cause by genetic or environmental factors or by interaction of both (2).

Susceptibility to agents that effect development varies with fetal stage,

but in general decreases with gestation age. Before 14 days of gestation in cattle (period of pre-attachment), the zygote or embryo is resistant to agents that can cause congenital malformation (teratogens), but is susceptible to genetic mutation. During the embryonic period (14-42 day), the embryo is highly susceptible to teratogens, but this decrease with embryonic age, as the critical periods for the formation of various organs are passed. The fetus (42 day) becomes increasingly resistant to teratogenic agents with age, except for the late differentiating structures e. g. cerebellum, palate and urogenital system (1 and 4).

Genetic factors are inherited defects resulting from mutant genes or chromosomal abnormalities are seen in families in typical intergenerational and intragenerational patterns of inheritance such as the common simple autosomal recessive, e. g. syndactyly in cattle (4).

Genetic abnormalities may result in a wide spectrum of disorder that can vary from severe malformation with deformation to the presence of inborn errors of metabolism in animals that may be born apparently normal and develop storage disease later in life (3).

Included in the list of recognized environmental causes are maternal nutritional deficiencies, teratogenic drugs or chemical exposure, mechanical interferences with the fetus, some viral infections (5), toxic plant (3), radiology (6), rectal palpation for gestation diagnosis (7)

and toxic effects of any kind that dam would be exposed to during the early stage of organogenesis (8).

Susceptibility to injurious environmental agent depends upon the nature and severity (dose size and duration of application) of the insult, which decreases with fetal age.

The exact etiology of the most congenital defects is unknown (3).

Commonly reported congenital and inherited defects by species, include the following in cattle : arthrogryposis , cleft palate , internal hydrocephalus(as a result of obstruction of the ventricular system), syndactyly, umbilical hernia, schistosomus reflex cataracts and pervious urachus (4).

### **Materials and methods:**

The present study is based on several clinical cases of congenital defects in cattle and buffalo presented to the clinic for diagnosis and treatment in different areas of Mudaina city between 2007-2009.

The congenital defects were identified and recorded according to the affected part of the body. Some of the congenital defects caused dystocia and cesarean sections were done for the dams, some of animals found dead and the others died shortly after delivery. The clinical cases were subjected to a full study including clinical symptoms and diagnosis and treatment (surgical interventions).

### **Results:**

There were only rare incidence of teratological conditions in Mudaina

city, of which more than one interesting cases were reported .

A female calve which was born without complications by normal delivery showed as only recognizable congenital mal formation of vertebral column and was associated with artesia ani et recti and the animal can not stand on its leg (fig 1 and 2)

A male calve was deformed with 2 heads which born with Cesarean section. Both heads were normally developed but heads grown together, the calf has 4 eyes 2 ears, 4 nostrils and 4 horn stumps. From the neck on words caudally the entire appearance was anatomically normal. The calf died on the same day at the evening. (fig 3 and 4).

Another male calf was deformed with 2 fused heads , also born with cesareans section, the calf found dead .the calf has 3 eyes and 2 horn stumps 4 nostrils. from the neck on words caudally the entire appearance was anatomically normal(fig 5 and 6) in the same house before this case happened a 67 days old calve was affected with congenital anomaly in its front leg (unilateral knuckling at front knee) (fig 7).

A male calf was delivered normally, affected with a hydrocephalus and eye flap . All other bodily system appeared to be working normally. probably because of the excessive weight of the head and slow growth of the body the calve was unable to stand on its legs(fig 8,9 and 10).

A mummified fetus (male) with a huge hydrocephalus was delivered

after Cesarean section, because of large fluid in the head . the skull was open and filled with fluid , penetration of the head to expose the fetus after surgical incision (fig 11 and 12)

A calf (male) with supernumerary pendulous leg in lumber region after normal parturition (fig 12). The leg was amputated surgically. Surgery was performed locally analgesia, lidocaine was used HC 2%. Xylazin was used intramuscularly for pre operative tranquilization at doses of 0.1 mg /kg in the calf(9).

A male calf with atresia ani only (fig14). Artesia ani was treated by excision of a circular piece of skin. A blind end of the rectum was stitched to the subcutaneous tissue with six interrupted sutures, the rectal pouch was incised and the rectal mucosa was sutured to the skin using a simple interrupted pattern (10 and 11).

Calf (male) had a massive congenital ventral abdominal hernia and protruded viscera are massively contaminated (fig15).

After dystocia and hard manipulation, the upper and lower jaw and eye lid are disappeared and cleft palate was obvious (fig16 and 17).

A calf affected with malformation of vertebral column it was 8 months of age (fig 18, 19).

These conditions, in some cases, surgery was considered advantageous to improve the condition and the other wasn't successful.



Fig:(1) A female calf affected with congenital mal formation of vertebral column and the animal could not stand on its legs.



Fig:(2) The same calf also affected with atresia ani et recti



Fig:(3) A calf with fused heads which had our eyes 4 horn stumps and four nostrils and 2 mouths



fig:(4) The same previous calf, from the neck on words caudally the entire appearance was anatomically normal.



Fig:(5) Another calf was deformed with 2 fused heads, was found dead after cesareans section.



Fig:(6)The same previous calf this picture showed 2 buccal cavity lower jaw was tear by manipulation.



Fig:(7) unilateral knuckling at front knee in a 57 days old calf.



Fig:(8) Hydrocephalus and eye flap in a male calf.



Fig:(9)A malformed calf could not stand because of heavy weight of the head.



Fig:(10) The same previous calf showed the congenital eye flap



Fig:(11)Mummified fetus (male) with a huge hydrcephalus the bone of skull was opened.



Fig:(12)The same deformed calf, the lower jaw was damaged during manipulation.



Fig:(13)A calf (male)with supernumerary pendulous leg in lumber region.



Fig:(14) A buffalo calf affected with atresia ani.



Fig:(15) A buffalo calf of buffalo (male) had a massive congenital ventral abdominal hernia.



Fig:(16)The present picture showed calf of buffalo after delivery the upper and lower jaw and eye lid are absent.



fig:(17) Calf with congenital mal formation of buccal cavity and absence of eyebrows.



Fig:(18) A calf affected with malformation of vertebral column.



Fig:(19)Another picture for the same calf affected with mal formation of vertebral column.

### Discussion:

Congenital anomalies can be divided into lethal and sub lethal groups depending upon the severity of malformation.

Calf was deformed with 2 fused heads, similar findings have been reported by (12) but the survival span of his case was 168days. The second case of fused head was found dead this come in contrast with (12).

Unilateral knuckling at front knee in a 57 days old calve this result was similar finding of (2) who reported bilateral knuckling at front pastern in a calf

Unilateral knuckling at front knee and then fused head no. 2 were happened in the same house This agrees with the report of (8) who reported an unusually high incidence of congenital abnormalities in small geographic area in cross bred of un related calves would suggest environmental rather than hereditary causes .

A malformations of vertebral column were reported by (13 and 7), but it was not mentioned before a

malformation of vertebral column together with atresia ani et recti and inability to stand.

Hydrocephalus was found in 2 cases, A mummified fetus affected with a huge hydrcephalus was exposed after Cesarean section and the other affected with hydrocephalus and eye flap and survive for a week these results come in agreement with (14) who reported hydrocephaly and showed the cause results of obstruction of the ventricular system during a critical stage of embryonic development, result early infant death.

Supernumerary pendulous leg in lumber region, this come in agreement with (15) who find that a calve with a supernumerary leg in the sacral region but with atresia ani and supernumerary limbs occur in all livestock species. Its assumed that an autosomal recessive gene is present in the indigenous cattle population in Bangladesh.

A male calve affected with atresia ani this come in agreement with the finding of (2) who reported atresia ani is the most common anomaly of digestive system was seen in 21 animals with a sex ratio four males and one female.

Male buffalo calf has a massive congenital ventral abdominal hernia, this case come in accordance with (14) who reported an abdominal hernia extended from the pubis to near the umbilicus. The lesion included bilaterally malformed or absent tibia and abdominal hernia in all animals.

A buffalo calve showed that the upper and lower jaw and eyelid are disappeared; these anomalies have not been previously documented in cattle.

The present study showed cases of multiple congenital malformations, this coincidence with the report of (13). A syndrome of multiple congenital malformations may occur because malformation of one portion of the body directly leads to malformation of the others. Chromosomal alteration typically leads to anomalous syndromes rather than single malformations. Teratogens may act simultaneously or successively upon various tissues during development.

### **Conclusion:**

The present study didn't provide any definite causes responsible for these congenital defects, but the distance between the affected herds argues about environmental influences. This study showed a syndrome of multiple congenital

malformation and some anomalies have not been previously documented in this city.

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