

Ventral abdominal and umbilical hernia in sheep in Babylon

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Abstract

In this clinical study a thirty six of sheep from both sex (age: 2 months – 5 years) with umbilical and ventral abdominal hernias were examined in the teaching clinic in College of Veterinary Medicine in Al-Qasim Green University – Babylon – Iraq within 5 years. This study showed that the sheep affected by umbilical hernia was 41.66% and by ventral abdominal hernia was 58.34%. Umbilical hernia was more common in younger ages while ventral abdominal hernia was more common in the older ages. The study also showed the successful surgical treatment using horizontal mattress interrupted with simple interrupted suture with minimal complications.

الفتق البطني و السري في الاغنام في بابل

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الملخص

في هذه الدراسة السريرية تم فحص 36 خروف باعمار من شهرين الى خمس سنوات يعاني من حالة فتاق سري او بطني ومن كلا الجنسين في عيادة الحالات السريرية في كلية الطب البيطري – جامعة القاسم الخضراء- بابل – العراق. وقد اظهرت الدراسة ان نسبة الخراف المصابة بالفتق السري كانت 41.66 % ونسبة الخراف المصابة بالفتق البطني كانت 58.34 % والفتق السري كان اكثر شيوعا في الحيوانات صغيرة العمر مقارنة بالفتق البطني الذي ظهر اكثر في الاعداد الكبيرة واطهرت الدراسة نجاح العلاج الجراحي باستخدام طريقة المنجد المتوازي المتقطع مع البسيط المتقطع وبدون مضاعفات تذكر.

Introduction:

Hernias are passage of an organ or tissue through an opening which may be natural or acquired (Jettennavar *et al.*, 2010; Das *et al.*, 2012). It can affect both small and large animals. Hernias interfere with the reproduction and production of the animals (Purohit, *et al.*, 1983; Keown, 1988).

Hernia can be divided according to the site into abdominal, umbilical, scrotal, inguinal, femoral, perinial and diaphragmatic or according to the etiology into congenital and acquired or clinically into reducible or irreducible (Fahd and Ahmed, 2007).

The anatomical structures of hernia include; hernia sac, hernia ring and hernia content(s) (McIlwraith, 1984; Nelson, 1988). Diagnosis

depends on clinical, physical, and sometimes required advanced diagnostic tools such as X ray, ultrasound examination, etc. (Ahmad *et al.*, 2000; Abdin-Bey and Ramadan, 2001)

Complications of the hernia include strangulation, incarceration of the contents, adhesions, infection in addition to the effect of the general appearance of the animal (Al-Sobayil and Ahmed, 2007).

Ventral abdominal hernia is defined as any hernia that pass through part of the abdominal wall ventral to the stifle skin fold other than natural orifice (Krishnamurthy, 1995; Yasin, 2004), it is commonly acquired due to a defect in the abdominal wall musculature (West, 1977) caused by injury (kick, horn thrust or blunt trauma, abscess in the abdominal cavity, abdominal distention or straining during pregnancy and parturition, or occur without

trauma due to weakness of the prepubic tendon) (Purohit *et al.*, 1989; Bolbol and Ramadan, 1992; Gahlot, 2000; Das *et al.*, 2012). The sites of the ventral abdominal hernias anywhere from the lateral site of the thoracic cavity to the iliac crest.

Umbilical hernia is the one that occur at the umbilical ring it is frequently congenital (at birth) or shortly after (Edwards, 1992), and rarely due to infection or trauma or it may be present as cough and dyspnea (John, and Robert, 1973; Venclauskas *et al.*, 2008).

The aim of this study is to determine the incidence of abdominal hernia in sheep in Babylon, and demonstrate the factors of age, sex, and reduction state of the content. This study also described the successful surgical procedure by herniorrhaphy using horizontal mattress interrupted and simple interrupted suture pattern.

Materials and methods

During the period of about 5 years (October 2011- March 2015) thirty six animals with abdominal hernias (21 ventral abdominal hernias and 15 umbilical hernias) were examined and diagnosed in the teaching clinic in College of Veterinary Medicine in Al-Qasim Green University – Babylon – Iraq. The case history and inspection showed a swelling in the abdominal region which may be decreased in size when put the animal in dorsal recumbence (except in 2 cases). After palpation to the hernial ring and aspiration to the swelling contents (a numbers of cases with a history of trauma or abscess) the treatment was achieved by herniorrhaphy. The type of hernia, sex and age of animals, the cause of hernia, clinical reduction of the hernial contents and the recurrence of the hernia were recorded. The surgical site was prepared for aseptic surgery and by using sedation with xylazine hydrochloride (2%) in a dose of 0.2 mg/kg B.W. intramuscularly (Hassan, 2008). The animal in dorsal recumbence and using local anesthesia by ring block using lidocaine hydrochlorid (2%).

An elliptical incision was made around the hernial swelling or incision was made median on the hernia saving skin for normal closure (In umbilical hernias in the male animals, the

incision was cranial or on one side of the preputial orifice) the skin and subcutaneous tissues were carefully dissected and the hernial ring was identified and any surplus tissue was excised, and after that the inner hernia sac was opened to break any adhesions and the content was returned to the abdominal cavity with making refreshment to the edges of the ring by scalpel. Then the suturing of the hernia ring had been carried out by using nylon (No.1or 2) in horizontal mattress interrupted and another row by using simple interrupted suture pattern within the muscles (the suture materials not penetrate to the peritoneal cavity) for guarantee there was no spacing between knots and for good approximation (especially in large diameter rings). The subcutaneous fascia was sutured with chromic catgut (No.0 or 1) in simple continuous pattern and the skin is closed with silk (No. 0 or 1) in simple interrupted pattern. Systemic antibiotics were given intramuscularly for 5 days using penicillin (10000 I.U. /kg B.W.) and streptomycin (10mg. / kg B.W.) (Hassan, 2008). The external sutures were removed at day 10 after surgery. The animals were followed for a period of two months to insure healing and assess for recurrence.

Results

During the study period 15 animals with umbilical hernias and 21 with ventral abdominal hernias were examined. 19 animals were male and 17 were female. The age ranges from 2 months to 5 years. The size of the hernias rings ranges from 2 cm in diameter to 12 cm in diameter and the size of the sac was up to one foot (30 cm) in diameter. Type of the hernia and sex distribution in regard to the years of the study is shown in table (1) while table (2) shows the distribution of hernial cases according to the sex, age, cause, reduction state and recurrence of the hernia.

The umbilical hernias were almost congenital and were small in size in the early cases and large in the older animals.

The causes of ventral abdominal hernias were one case had an abscess in the abdominal wall, nine cases are due to post partum weakness and separation of muscles fibers following repeated deliveries and some had twins deliveries, five cases due to a history of trauma

and six cases there were no obvious predisposing factors to the hernia.

Following the surgical operation all hernias were successfully reduced with minimal

complications and excellent healing of the surgical scar without recurrence confirmed by inspection and palpation of the operation site. During the follow up period, three female animals had developed new hernias at other sites.

Table (1): The sex and type distribution of the hernia in sheep in regard to the study years.

Year	Umbilical hernia		Ventral abdominal hernia	
	Male	Female	Male	Female
2011	1	2	2	2
2012	1	1	3	1
2013	2	1	2	3
2014	2	2	3	2
2015	1	2	2	1

Table (2): The distribution of cases in regard to the sex, age, cause, reduction state and recurrence.

Type of hernia	Animal sex		Animal age	Cause	Reduction state of hernia		Recurrence
	Male	Female			Reducible	Irreducible	
Umbilical (15)	7	8	2 Months -2 Years	Congenital	15	0	0
Ventral abdominal (21)	12	9	6 Months -5 Years	1 Following abscess Post partum 5 Trauma 6 Unknown	19	2	0
Total	19	17					3 At other sites
	36						



Fig. (1): Reducible ventral abdominal hernia in female sheep (right side).



Fig. (2): Irriducible ventral abdominal hernia in male sheep (right side).



Fig. (3): Reduction of the hernia contents into abdominal cavity.

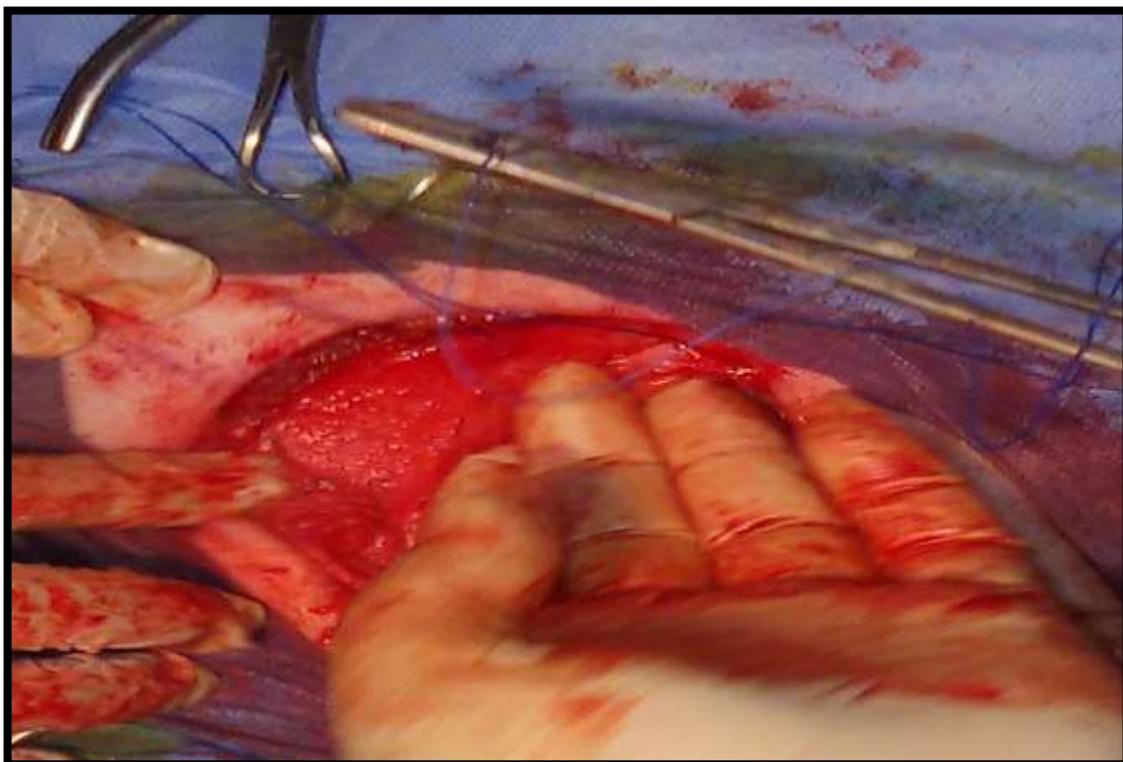


Fig. (4): Suturing the hernial ring by horizontal mattress interrupted and simple interrupted suture patterns with nylon (no.1).



Fig. (5): Represent the site of hernia after the operation.

Discussion

This study illustrates that hernias of different types are common in sheep which agree with (Alsobayil and Ahmed, 2007) and in contrast with (Deborah *et al.*, 2013). Umbilical and ventral abdominal hernias are common in sheep in Iraq (Yasin, 2004; Hassan, 2008). According to the age in this study the umbilical hernia are most common in young ages due to congenital nature of the defect and it is frequently small (Frank, 1964; Dennis and Leipold, 1968; Ramadan, 1994). In older ages it is larger due to increased body weight, increased intra abdominal pressure and due to neglected the small sized early hernias. (Field, 1988; Abdin-Bey and Ramadan, 2001) while ventral abdominal hernia occur at older ages (Abdin-Bey and Ramadan, 2001) as it is commonly acquired (Gohar *et al.*, 1987; Das *et al.*, 2012) the study reveals that the causes of ventral abdominal hernias were post partum weakness and separation of muscles fibers following repeated deliveries, history of trauma and following abscess (Das *et al.*, 2012). In some cases there were no obvious predisposing factors to the hernia and it could be due to congenital weakness in the abdominal wall muscles or unnoticed trauma.

Regarding the sex of the animals, males are more prone to ventral abdominal hernia resulting from trauma and this agree with (Krishnamurthy, 1995; Gahlot, 2000) while females are affected due to weakness in the abdominal wall following pregnancy and parturition and this agree with (Noakes *et al.*, 2009; Jettennavar *et al.*, 2010). Reducible hernia are commonly presented than irreducible in agreement with (Khope, 1989 ; Hassan, 2008) because the animals with reducible hernias have a good general health than those with irreducible hernias that appear more risky making the owners to sell or slaughter them to avoid the cost and risk of the operation. Several techniques of herniorrhaphy were applied in veterinary medicine (Shoukry *et al.*, 1997; Alsobayil, and Ahmed, 2007; Jose, 2011) one of them and most common in treatment of hernia in sheep is overlapping horizontal mattress interrupted. The other method which used in this study was a horizontal mattress interrupted with simple interrupted to suture the hernia ring with very good results with no recurrence and minimal complications.

In our study three animals had recurrent hernia in other sites may be explained by the persistence of the weakness in the body wall so they should avoid being pregnant in the future (Noakes *et al.*, 2009).

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