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Prevalence And Management Of Subcutaneous Bursitis In Cattle And Buffalo

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ABSTRACT

Acquired subcutaneous bursitis is a common condition seen in both buffaloes and cattle. The aim of this current investigation was to state the most prevalent types of subcutaneous bursitis in cattle and buffaloes. The study was carried out on 81 cases (63 buffaloes and 18 cattle). The affected adult buffaloes were 49 cases which affected with Olecranon bursitis (32 animals); pre-sternal bursitis (11 cases) pre-carpal bursitis (6 cases), while the young buffaloes were 14 calves that affected with Olecranon bursitis (2 calves), pre-sternal bursitis (8 calves) and pre-carpal bursitis (4 calves). Only two cases out of 18 cattle were affected with pre-sternal bursitis while the remained animals have pre-carpal one. Subcutaneous bursitis was diagnosed based on case history, clinical signs and exploratory puncture. Olecranon and pre-sternal bursitis were treated medically and surgically while pre-carpal bursitis was treated medically only.
In conclusion Olecranon, pre-sternal and pre-carpal bursitis is considered the most common acquired subcutaneous bursitis in buffaloes and cattle. They could be corrected medically and/or surgically with encouraging results.

1. INTRODUCTION

Bursa is a small fluid-filled sac of white fibrous tissue and lined with synovial membrane. It provides cushion between bone, tendons and muscles around a joint, filled with synovial fluid and found around almost every major joint of the body (Honnas et al., 1995). A synovial bursa is a simple sac present at a point of unusual pressure between a tendon and ligament and some underlying structures, commonly bone. Sub tendinous bursae are found at birth and known as congenital bursae or deep bursae (Ahmed and Radad, 2006).

Subcutaneous bursa develops after birth as a result of unusual pressure at the level of body prominences. These bursae are known as acquired bursae or superficial bursae (Misk, 2008). They are located between the skin and fascia covering body prominences. Bursitis is either acute or chronic. Acute bursitis presents as dry, serous or purulent. Chronic bursitis may follow the acute form and can be cystic, proliferative, fibrous or hemorrhagic (Ahmed and Radad, 2006)).

Olecranon bursitis is the inflammation of the acquired subcutaneous bursa that present between the Olecranon tuberosity of the ulna and skin (Hayat, Han et al., 2009). Pre-carpal bursitis or hygroma of the knee is considered subcutaneous aseptic bursitis at the anterior aspect of the carpal joint (Ibrahim, 1987; Misk, 2008).

Pre sternal bursitis is inflammation of the subcutaneous bursa develops at the anterior aspect of the brisket between the anterior extremity of the sternum and skin (Ahmed and Radad, 2006).

A common cause of bursitis is direct trauma that gives rise to acute bursitis when it is sever and chronic when it is mild and repeated (Cohen et al., 2005; Ahmed and Radad, 2006).

The symptoms associated with bursitis may be acute characterized by painful swelling or may develop into an abscess or chronic form. The later is more common and appears as fluctuating or fibrous and painless mass (Venugopalan, 1982; Dietz, 1984 and Wyn-Jones, 1988). Chronic bursitis is characterized by accumulation of excessive fluid, thickening of the wall of bursa by fibrous tissue, extrusions of fibrous bands or septa within the bursal cavity and generalized subcutaneous thickening (Anteplioglu et al., 1984; Ahmed and Radad, 2006).

Diagnosis of bursitis usually depends on history, location, clinical findings and exploratory puncture (Ibrahim, 1987; Ahmed and Radad, 2006).

Treatment of bursitis in the initial stages consisted of eliminating the cause of the trauma, cold hydrotherapy and rest; early hygroma can be treated with repeated aspiration of the bursal contents

weekly with careful aseptic condition (Arican et al., 2005; Samsar and Akin, 2006).

Chronic bursitis is treated by topical application of absorbent like iodine ointment, DMSO, or incision of bursa with application of an irritant to its interior. Aspiration of the contents and injection of an irritant solution like 4 % tincture iodine or 3-5 % carbolic acid leads to destruction of the bursal lining followed by granulation, cicatrisation and obliteration of cavity (Arican et al., 2005; Ahmed and Radad, 2006; Hayat et al., 2008).

Surgical resection of the bursa was preferable, rapid and economic healing was observed after surgical intervention than during conservative or medical methods of treatment for chronic bursitis (Honnas et al., 1995; Ahmed and Radad, 2006).

The present study was aimed to record the most prevalent types of subcutaneous bursitis in both cattle and buffaloes and to investigate the possible treatment options under field conditions.

2. MATERIALS AND METHODS

2.1. Animals

The current study was carried out on (81) animals including; buffaloes (63) cases and crossbreed cattle (18) cases affected with different forms of acquired subcutaneous bursitis. The examined animals were collected from the clinic of surgery department, Faculty of Veterinary Medicine, Alexandria University, different localities, at Kafr-El-Sheikh province clinics and from some private animal farms during the period from January 2015 to December 2016.

2.2. Diagnosis

Diagnosis was based on history and clinical examination. Detailed history of each case was obtained from the owner which include time onset of affection, previous medication and pain manifestation. Each case was visually inspected and the affected part was manipulated to detect the nature of the swelling. Exploratory puncture was performed under a septic condition to reveal the physical characters of the fluid.

2.3. Treatment

Animals were controlled for conservative or medical treatment in standing position under the effect of 2% Xylaject Hcl (0.05 mg/kg) giving I/M. if required.

- Acute cases of bursitis (5) cases was treated medically, the swelling was prepared aseptically. A 16-gauge needle was applied to evacuate the swelling contents. A dose of 100 mg of Hydrocortisone mixed with One million I.U. of aqueous penicillin 3 times with one-week interval.
- Chronic cystic bursitis was treated medically by Application of absorbent ointment topically as iodine ointment (mega mast) twice daily for 5 successive days, this group includes (7) animals. Aspiration of serous fluid and injection of an irritant like povidone iodine (8 ml povidone iodine in 50 ml distilled water) every weak for 2-3 times, this group included (8) animals.
- Another seven cases of chronic cystic bursitis were incised and evacuated followed insertion of drain soaked in betadine which changed daily until complete healing.
- All cases of fibrosed, proliferative form of Olecranon bursitis and other cases of bursitis which not respond to medical treatment were subjected to surgical excision in lateral recumbent position. Animals were tranquilized using 2% Xylaject Hcl (0.05 mg/kg) intramuscularly. The operation site was prepared for aseptic surgery, and a field block was performed using Lignocaine HCL 2%, an elliptical skin incision was performed at the lateral aspect of the swelling. The bursal swelling was bluntly and/or sharply dissected from the skin. The swelling should be kept intact. Hemorrhage was controlled by force-pressure, ligation and/or packing. After complete removal of the swelling, excess skin was excised and sutured using silk stitches in interrupted, horizontal mattress pattern. Silk was removed 10-14 days postoperatively.
- Chronic cystic pre-carpal bursitis (26 cases) was treated medically in standing position. The lowest part of the swelling was prepared aseptically. A 16-gauge needle was applied to evacuate the swelling contents. A dose of 100 mg Hydrocortisone mixed with One million I.U. of aqueous penicillin was injected and then a pressure bandage was applied. The treatment was repeated once or twice with 3-4 days' intervals until complete recovery.

3. RESULTS

All bursal swellings appeared gradually without any perceptible signs of inflammation. Fluctuating swelling was the most characteristic sign of bursitis in acute form. Some swellings were found as hard fibrous masses and few cases (3) have hard part and fluctuating part.

Exploratory puncture in all cases of bursitis revealed umber-colored synovial fluid, which can be extruded freely with fingers pressure over the swelling. The clinical signs of subcutaneous bursitis and predilection seats in all forms were diagnostic and exploratory puncture was highly confirmative.

Three types of bursitis were met with in this study; olecranon bursitis in buffalo (acute and chronic), chronic pre-sternal bursitis in buffalo and cattle, pre-carpal bursitis in buffalo and cattle.
Different forms of bursitis in both buffaloes and cattle were shown in tables, 1&2

Olecranon bursitis was prevalent in adult buffaloes (42%) followed by pre-sternal bursitis which was more prevalent in buffalo calves. In the contrary, pre-carpal bursitis was more prevalent in adult female cattle (20%) table, 3.

Acute aseptic cases of bursitis respond to aspiration of the bursal contents under complete aseptic condition and injection of 100 mg Hydrocortisone and One million IU of aqueous penicillin every week for 2-3 injections.
Injection of Hydrocortisone (100 mg) and aqueous penicillin (one million i.u.) in chronic cystic Olecranon bursitis had a good result (fig, 1) however one case required 5 times of aspiration and injection and the swelling in another case was returned again to its size after one month and treated by surgical excision.
Chronic cystic Olecranon bursitis treated by evacuation and insertion of betadine soaked drain has good results (fig, 2) if done under complete aseptic condition.
Treatment of chronic cystic Olecranon bursitis by absorbent ointment topically like application of iodine ointment (Mega mast) is effective especially after parturition (3 cases from 5 respond well) and removal of the trauma.
Intra-bursal injection of Betadine 8ml in 50 ml distilled water in chronic cystic Olecranon bursitis (fig. 3) is effective and all treated cases with this concentration respond well and the swelling disappear within 3-4 weeks without recurrence.
Three cases of chronic cystic Olecranon bursitis became fibrosed and surgical excision was effective and the wound healed by primary intention within two weeks and the stitches were removed 8-10 days' post operatively ((fig, 4).
Very large sized bursa, especially pre-sternal bursitis responds to lancing of the bursa at the most lower point for rapid evacuation and daily dressing allowed healing within two weeks, local application of iodine ointment (Mega mast) allowed absorption of the bursal fluid present in the cavity of bursa.

Pre-sternal bursitis was recorded in buffalo calves aging 2-8 months, started as fluctuating swelling at the pre-sternal region. The size of the bursa ranged from the orange size to the size of children head.

Table (1): Showing different forms of bursitis in buffaloes.

Type of bursitis Animal	Olecranon bursitis	Pre-sternal bursitis	Pre-carpal bursitis	Total
Adult buffalo	32	11	6	49
Young calves	2	8	4	14
Total	34	19	10	63

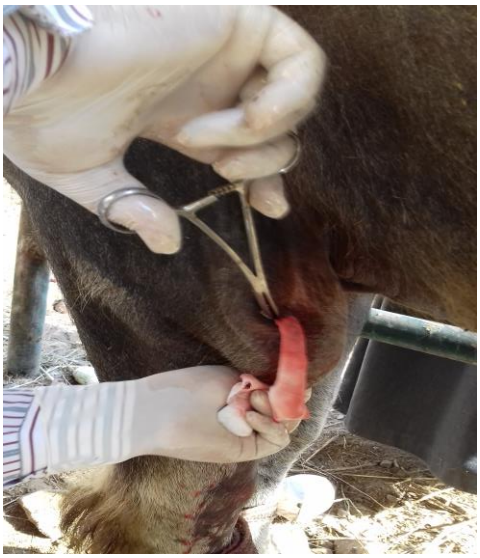
Table (2): Showing different forms of bursitis in cattle.

Type of bursitis Animal	Olecranon bursitis	Pre-sternal bursitis	Pre-carpal bursitis	Total
Adult cow	-	2	14	16
Young calves	-	-	2	2
Total	-	2	16	18

Table, (3): Showing number and percent of bursitis in buffalo and cattle.

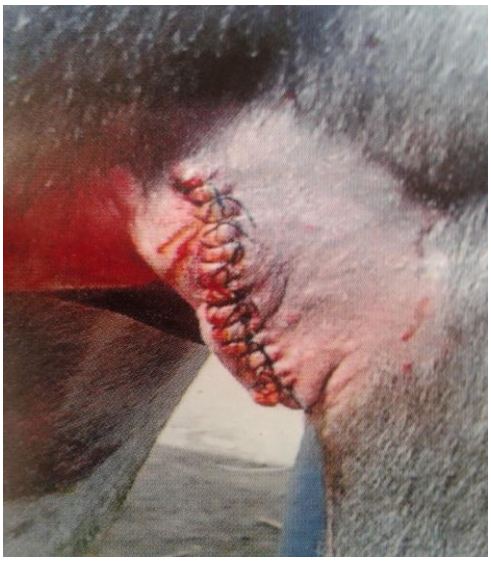
Type of bursitis Animal	Olecranon bursitis		Pre-sternal bursitis		Pre-carpal bursitis		Total	
	No	%	No	%	No	%	No	%
Buffalo	34	42%	19	23%	10	13%	63	78%
cattle	-	-	2	.02%	16	20%	18	22%

Fig, (1); Showing injection of Dexamethasone with aqueous penicillin.



Fig, (2); Showing drain insertion into chronic cystic olecranon bursitis.

Fig, (3); Showing intra bursal injection of betadine.



Fig, (4); Showing surgical excision of chronic cystic olecranon bursitis.

4. DISCUSSION

Olecranon, pre-sternal and pre-carpal bursitis is considered the most common acquired subcutaneous bursitis in buffaloes and cattle. In buffaloes; Olecranon and pre sternal bursitis are the prevalent form while in cattle the pre-carpal bursitis is the common form of bursitis. These results come in agreement with the results reported by (Hayat et al., 2009 and Misk et al., 2013).

Diagnosis of different forms of bursitis was simple and depends mainly on the predilection seats of the swelling and exploratory puncture. In most cases one needle puncture was a must to evacuate the bursal contents; however, in chronic cases reapplication (redirection) of the needle was decided to evacuate multinodular swellings this result come in agreement with the results reported by (Ahmed and Radad, 2006 and Misk et al., 2013).

In the initial stages of acute bursitis, eliminating the cause of trauma, pressure bandage, cold hydrotherapy and rest may be applied as first steps of treatment that resemble the results mentioned by (Arican et al., 2005).

Acute aseptic olecranon bursitis was treated by aspiration of its contents with repeated injection of corticosteroids with aqueous penicillin was effective that results be agreed with (El-Guindy, 1988 and El-Sheik, 1996). In some cases, require to be evacuated for 2 additional times and recurrence occurs in two

cases. The result of such treatment is in agreement with that mentioned by (Honnas et al., 1995).

In chronic cystic bursitis the principle of treatment is prevention of more trauma to the region and aseptic needle aspiration of the contents followed by injection of corticosteroid that results in agree with (Durmus and Sagliyan, 2008).

Treatment of chronic cystic Olecranon bursitis by injection of povidone iodine (8 ml diluted in 50 ml distilled water) was effective in all treated cases with no recurrence and may attributed to the bond between Iodine and Povidone become destructed in water to liberate free Iodine which cause destruction of the inner secreting membrane of the bursa.

Insertion of a betadine soaked drain inside bursal lumen resulted in good results The process of evacuation is usually followed by application of drain, which is mostly gauze immersed in strong antiseptic this result as the results mentioned by (Kofler et al., 2004).

Although medical treatment of Olecranon bursitis has a good results surgical excision of the chronic cystic Olecranon bursitis appears to be the most suitable treatment in lateral recumbent position under the effect of tranquilizers and local infiltration analgesia, the swelling can be removed with satisfactory results and healing occurred by first intention that results come in agree with the results reported by (Ahmed and Radad, 2006; Tumariya, 2012).

Surgical excision of pre-carpal bursitis is not suggested as a treatment but repeated drainage and injection of anti-inflammatory into the bursal cavity and pressure bandage appear to be more satisfactory as mentioned by (Misk et al., 2008). The results of such treatment technique sometimes disappointed and recurrence of that affection may be a problem as results reported by (Jenning, 1984).

5. CONCLUSION

Olecranon, pre-sternal and pre-carpal bursitis considered the most common acquired subcutaneous bursitis in buffaloes and cattle. In buffaloes Olecranon and pre-sternal bursitis are the prevalent form while in cattle the pre-carpal bursitis is the common form of bursitis.

Diagnosis of all types of bursitis depends on case history, location of the swelling and exploratory puncture. Although conservative treatment showed high success rates, under field conditions the surgical excision appeared to have a more rapid healing, lower cost and was found better than conservative treatment especially in Olecranon bursitis while medical treatment is preferable in pre-sternal and pre-carpal bursitis.

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