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## **SURGICAL TREATMENT OF ANOMALOUS MILK SUCKING IN FRIESIANS DAIRY CATTLE**

(With 1 Table and 14 Figures)

By

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**العلاج الجراحي لسلوك الرضاعة الشاذة في الأبقار الفريزيان الحلابة**

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ظهرت العديد من الحالات السلوكية الشاذة بين الأبقار الحلابة بمزرعة شبرا شهاب و التي تميزت بعبادة الرضاعة سواء من ضرعها او من ضرع احد الأبقار الأخرى بالقطيع مما ادي الي قلة انتاجية اللبن وقد فشلت كل وسائل السيطرة علي هذه الظاهرة سواء بالعزل أو بتركيب الحلقات الأنفية ذات البروذات الحاده ولذلك تم التدخل جراحيا للقضاء علي هذه الظاهرة الشاذة ومن خلال ذلك ابرم الباحث تعديل طريقة الأستئصال الجزئي للسان وقارنها بالطرق المعتاده وهي الأستئصال الجزئي للغشاء السفلي المبطن للسان والأستئصال الجزئي الوتدي لطرف اللسان واتضح من خلال هذه الدراسة أن الأستئصال الجزئي المعدل للسان يتميز بندرة حدوث تهتك للجروح مما يؤدي الي سرعة الالتئام وعدم حدوث مضاعفات عقب الجراحة وعلي هذا تم التخلص من هذه الظاهرة الشاذة علاوة علي عودة الحيوان لتناول العليقه بصوره طبيعيه وكذلك استعادة أنتاجيته لبين خلال فترة وجيزة عقب الجراحة.

### **SUMMARY**

Anomalous milk inter-sucking, galactophagia, was observed in 20 cows out of 1200 ones in Shubra Shehab Dairy Farm at Kalubia Governorate; moreover, self sucking was also noticed even after the isolation of the cows showing this maladaptive behaviour. Despite several trials of isolation and application of bull rings with spikes, the problem persisted and there was a great fear from spreading of this anomalous behaviour by imitation from the other cows through out the farm. Surgical interference was decided and performed via three different techniques; Sublingual mucosal resection (10 cases), Partial glossectomy (5 cases), and a new modified full thickness partial glossectomy technique (5 cases). The time

of the first Post-operative food prehension and the post-operative complications were recorded for each technique. The modified partial glossectomy technique was found to have the lowest risk of suture disruption and post-operative complications when it was compared to the partial glossectomy and sublingual mucosal resection techniques. Furthermore, the rapid healing process of the operated wounds minimizes the chances of infection; in addition to allowing the operated animals to consume their normal amount of food as soon as possible, and their rapid return to normal productivity.

*Key words: Anomalous, Sucking, Friesians*

## INTRODUCTION

Galactophagia, anomalous milk sucking, is a behavioral problem, usually occurs in the dairy breeds, in which an adult milking cattle suck the udder of other members of the dairy herd (Gromers 1977; Marthe and Susan 1983, and Frases and Broom 1990). In many cases the anomaly is related to a husbandry factor, mainly in open farms; subsequently, its frequency is increased as a result of imitation (Waterhouse 1979; Kesjes *et al.*, 1985 and John Webster 1987). The condition begins in the calf-hood as non-nutritive sucking mainly in the bucked-reared calves. Because of insufficient sucking through bucket feeding, non-nutritional sucking occurred, the calf licked and sucked itself, other calves, walls, or any other inanimate objects to satisfy their sucking desire (Phillips, 1993). Galactophagia is such a negative habit that the herd becomes no longer economic thus it needs to be dispersed (Wood *et al.*, 1967 and Marthe and Susan (1983). This maladaptive behaviour could lead to a series of complications, for instance, significant loss of milk, teat damage, pathological changes, and deformation of the udder as well (Frases and Broom 1990).

Despite using of the old mechanical methods, application of bull rings with spikes or modern electrical devices, this condition is a problem which may persist in many cases. Surgical interference is the most successful treatment (McLormack 1976, Jennings 1984 and Kesjes *et al.*, 1985).

The objective of this study was to correct this maladaptive behaviour surgically and through which a partial full thickness glossectomy technique was suggested. In addition the presented



technique was compared with the already used techniques, the wedged shape partial glossectomy (PG) and the sublingual mucosa resection (SLM).

## MATERIALS and METHODS

A cohort of 20 cows was sedated via intra-muscular injection of xylazine HCl 20% (Xylapin)\* 0.25 ml / 100 kg / Body weight (bwt) and restrained in the lateral recumbent position.

A mouth gage was used to keep the mouth opened, then the tongue was grasped and extended; afterwards, a tourniquet was placed around the base of the tongue as close as possible to the frenulum. After routine surgical preparation of the tongue, 2% lidocaine\*\* was applied as a local infiltration analgesic at the operation site.

The sublingual-mucosal-resection technique was performed in 10 cows. An elliptical incision was started 2-3 cm caudad to the tongue's tip, till it was ended craniad to the frenulum attachment and of 5cm wide at its widest part (Kesjes et al 1985). After excision of the incised sublingual mucosa, simple interrupted sutures (6 cases) and interlocking sutures (4 cases) were applied for coaptation of the wound edges including the mucosa and some muscles using chromic cat gut No 2 (Fig 3&4).

The partial glossectomy technique was performed in five cases by removal of a triangular portion from the whole thickness of the tip of the tongue's tissue (Jennings 1984). Coaptation of the wound edges was performed by 2 to 3 interrupted sutures through the muscular layer using chromic cat gut 2/0. The edges were brought together with non-absorbable synthetic interrupted sutures to appose the edges of the mucous membrane (Fig 7- 10).

The suggested full thickness partial glossectomy technique was performed in five cases. An elliptical incision was made through out the full thickness of the tongue and in the area between the sublingual blood vessels. Such an incision was started 3 - 4 cm caudad to the tip of the tongue while ended just craniad to the frenulum attachment; in the mean time; it was about one third of the tongue width in its widest part.

\* Xylapin, Alvetra GmbH, D-Neumunster, Germany.

\*\* Lidocain 2%, Alexandria Co. for Pharm. and Chem. Ind. Alexandria-Egypt.

As soon as the excision was completed, the wound edges from both dorsum and ventrum of the tongue were brought together including muscles and mucosa in one suture row with non-absorbable synthetic interrupted suture (Fig 11 - 14).

Regarding the post-operative care, plenty amount of water was allowed soon to the cows after the operation, whereas food was offered 12 hours latter. Sutures were removed one week PO, and the operated animals were rechecked weekly for three to four weeks. Healing was considered to be completed when the stitches marks nearly disappeared within two weeks PO.

### Results

In the present study, the inter-sucking behaviour was recorded (Fig 1) in 20 cows and represented about 1.7 % from the herd size. Besides galactophagia, self sucking was also recorded among these cows. Due to failing of all traditional control methods as isolation and application of bull rings with spikes (Fig 2), three different surgical interventions were the last trial. Animals started eating 12 hours post-operatively (PO) in all cases treated with SMR, while after 24 hours with PG and MPG techniques (Table 1).

**Table 1:** Shows the number of operated animals, the time of the first PO food prehension and the observed PO complications.

| Operation | No. of animals | P O food prehension |          | P O complications    |               |               |
|-----------|----------------|---------------------|----------|----------------------|---------------|---------------|
|           |                | 12 Hours            | 24 Hours | Disruption Of suture | Delayed >3wks | Healing >4wks |
| SMR       | 10             | 10                  | ---      | 10                   | 7             | 3             |
| PG        | 5              | ---                 | 5        | 5                    | ---           | 5             |
| MPG       | 5              | ---                 | 5        | 1                    | ---           | ---           |
| Total     | 20             | 10                  | 10       | 16                   | 7             | 8             |

The traditional techniques have two PO complications in common: partial suture disruption and delayed healing, 75% cases (10 SMR and 5 PG) (Table 1). With regard to SMR technique, not only disruption of the sutures, 70% of the cases, was noticed in the middle and the most caudal part of the surgical wound (Fig. 7&8), but also more than 4 wks were needed for complete healing. Unlike SMR, PG's suture disruption was observed at the tongue's tip; in addition, complete healing required more than 4 wks (Fig 12). Whereas both SMR and PG techniques resulted in more PO complications, MPG's treated cases



showed only one case having small hematoma under the last stitch at the cranial end of the surgical wound. Afterwards; healing was completed one week latter (Fig 16).

## DISCUSSION

The present study revealed that 1.7 % of the herd in Shubra Shehab Dairy Farm show both inter- and self-sucking behaviour, likewise, Similar situations were reported in different animals by several authors. Although the number of the cases depends on the herd's size, it varies between 0.2 and 7.5% (Albright and Arave, 1997). The same habit was recorded in a Friesian dairy herd, bucket reared during its calf-hood period. This anomalous behaviour might lead to economic losses due to the health problems and the loss of milk (Wood *et al.*, 1967 and Marthe and Susan, 1983; Phillips 199 and Albright and Arave 1997).

Just as cows showed galactophagia, so did a feral goat (O'Brien 1982) and female Chimpanzee (Oda 1997). Both of the latter cases lost their offsprings at the time of parturition; consequently, this initiated an oral contact with their turgid udder to alleviate discomfort; at that point, self sucking have been developed.

The present study revealed that all surgical techniques (SMR, PG, and MPG) were effective for the treatment of cattle sucking themselves or other cattle. The long run benefit from the surgical procedures are more satisfactory than that gained by the bull-ring method (McCormack , 1967; Jennings 1984 and Kesjes *et al.*, 1985). The animal's capability of normal prehension of pellet ration and hay was not impaired in the all treated cases, but the food prehension started 12 hours PO in the cases treated with SMR while it took 24 hours in the other cases treated with PG and MPG techniques. This may be attributed to the post-operative pain associated with these techniques which may dissuade the animals from feeding (Jennings 1984).

The healing process was completed early in the cases treated with MPG technique than those treated with PG and SMR techniques. Regarding MPG technique, healing was completed within 2 week in 100% of the cases. All cows treated with SMR technique, healing was completed within more than 4 wks. Despite that McCormack (1967) refereed the success of this procedure to the use of a wide area of the ventral mucosa of the tongue, we found that it caused a great tension on the suture and along with the tongue movement suture disruption and

delayed healing took place. With regard to PG technique, because of healing by second intention after suture disruptions, complete healing occurred within more than 4 wks, which may be attributed to the mechanical irritation to the apex of the tongue during food prehension.

From this study we can figure out that the excision of an elliptical segment from the full thickness of the tongue proper, away from it's apex, shorten the healing process at least by 2 wks. The intrinsic muscles run usually in diverse directions to form the tongue proper; additionally, they are responsible for the change of the tongue shape during swallowing, chewing and vocalization (Frandsen 1986 and Pasquini and Tom 1987). By using MPG technique, we can avoid SMR technique's great tension as well as PG technique's mechanical irritation during food prehension which lead to suture disruption and delayed healing. Both of narrowing of the tongue width and the scare formed after complete healing prevent the animals from rolling their tongue and inter-sucking as well. Moreover, the short period of healing processes reduce the chances of infection, and minimize the post-operative pain, leading to the rapid return of the operated cows to the normal food intake and productivity. Due to the fact that anomalous milk sucking leads to great economic losses, further studies are necessary to monitor the problem nation wide; moreover, a husbandry related plains ought to be drawn in order to avoid its occurrence in the following generations. Finally, by the time the problem is recorded among a dairy herd, it is essential that surgical interference be taken as a radical treatment.

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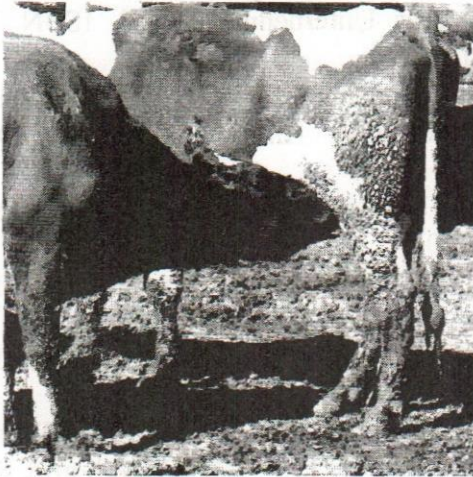


Fig 1: A cow is showing the inter-sucking behavior.

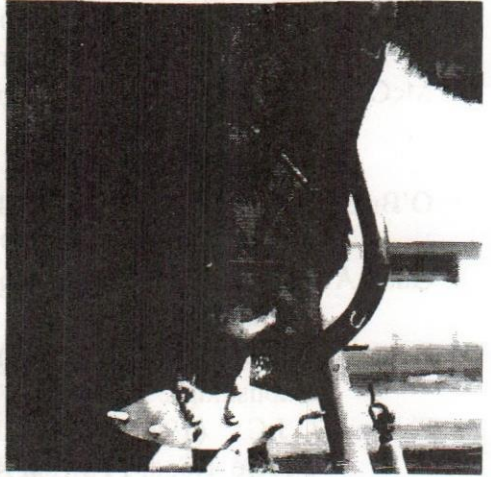


Fig 2: A bull ring with spikes is applied to the nose of a cow as an old mechanical means for prevention of inter-sucking behavior.

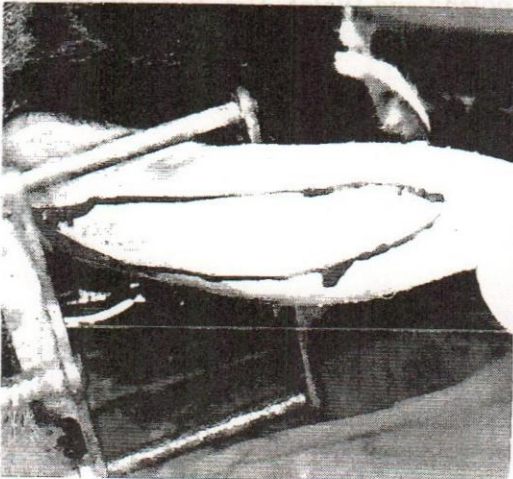


Fig 3: The ventral surface of the tongue shows an elliptical incision through the sublingual mucosa. It is begun just anterior to the attachment of the frenum till about 3-4 cm from the tip of the tongue.

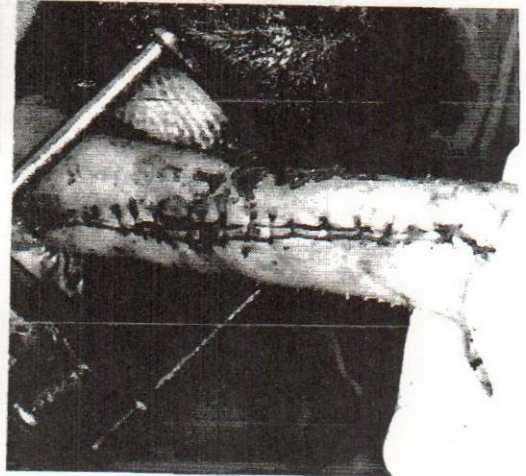


Fig 4: The suture is over-sewn with a continuous interlocking pattern of No.1 cat gut.



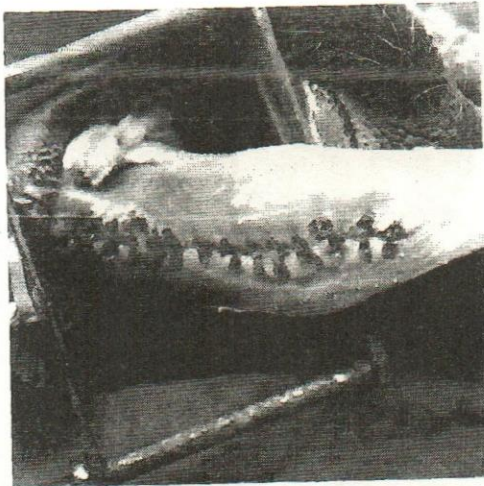


Fig. 5: Suture disruption is seen after one week post-operatively mainly at the middle and caudal parts of the wound.

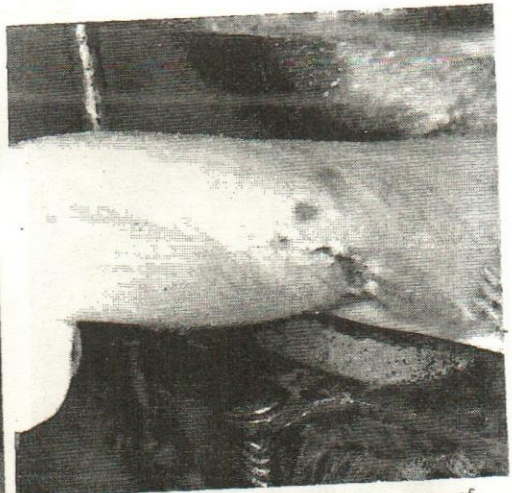


Fig. 6: The ventral surface of the tongue shows an area of incomplete healing, just anterior to the attachment of the frenum 4 weeks post-operatively.

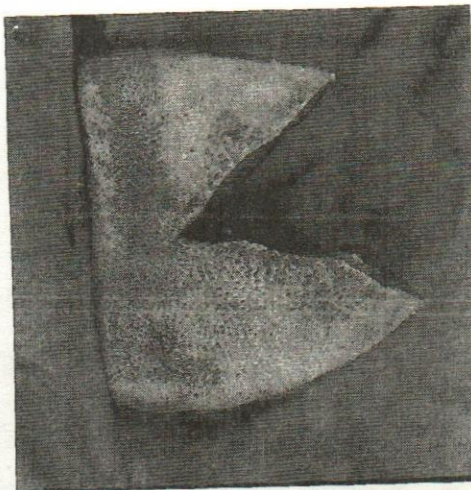


Fig. 7: The tip of the tongue shows excision of a triangular segment involving the whole thickness of the tongue substance.

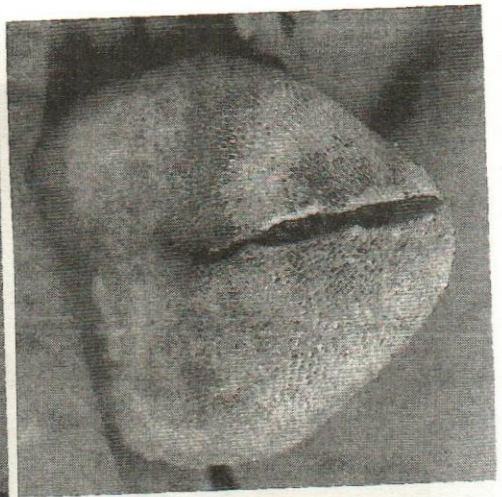


Fig. 8: The tip of the tongue after coaptation with 2-3 interrupted sutures pattern of No.00 cat gut.

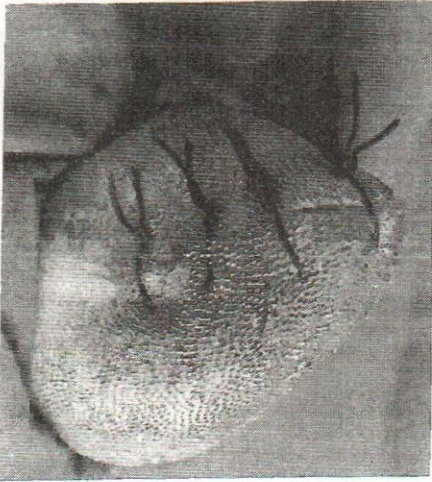


Fig. 9: The tip of the tongue is over-sewn with simple interrupted suture pattern of No. 3 polyester silk.



Fig. 10: The tip of the tongue shows signs of incomplete healing and sloughing 3 weeks post-operatively.

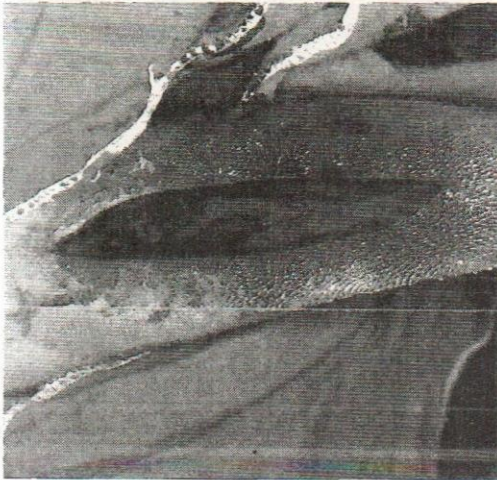


Fig. 11: The dorsal surface of the tongue shows an elliptical incision involving the whole thickness of the tongue substance. The incision is begun 3 - 4 cm caudal to the tip of the tongue and extend just anterior to the attachment of the frenum.



Fig. 12: The dorsal surface of the tongue shows the presence of an elliptical defect after removal a segment involving the whole thickness of the tongue substance.



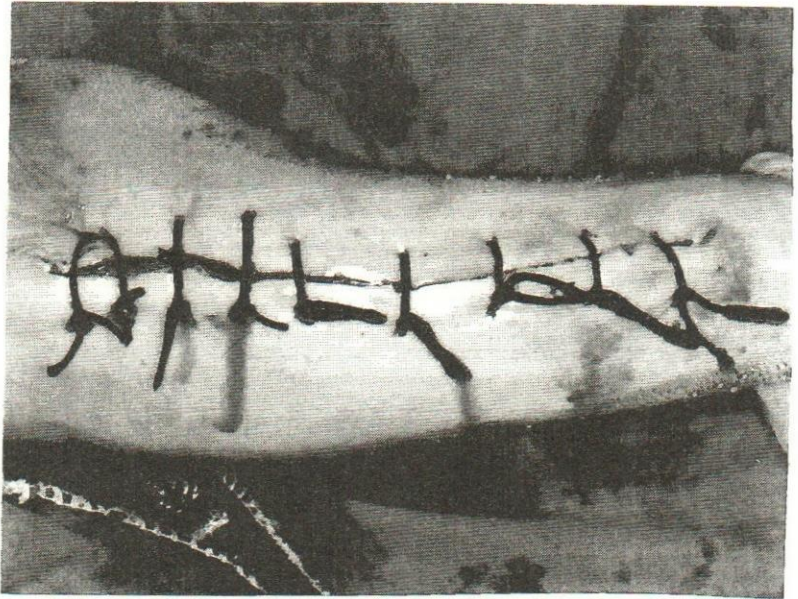


Fig. 13: The ventral surface of the tongue after the suture is over-sewn with a simple interrupted pattern of No.3 polyester silk.

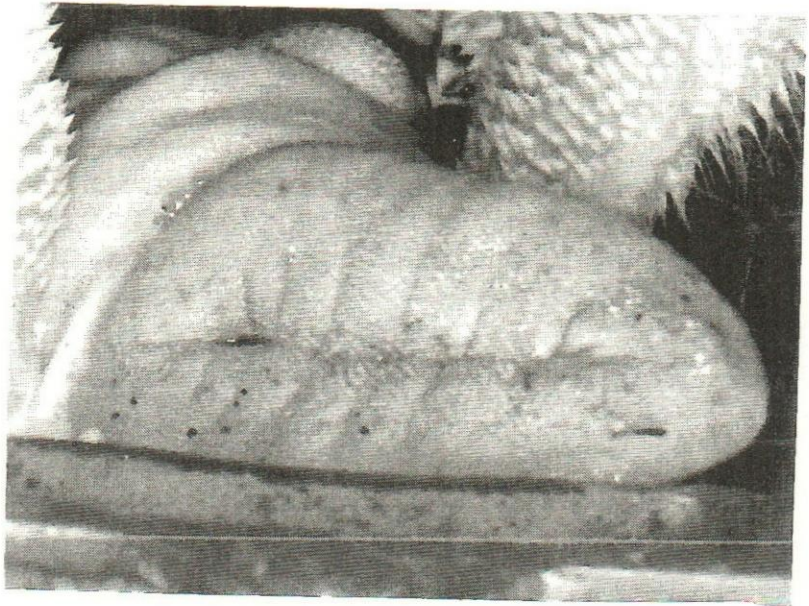


Fig. 14: The dorsal surface of the tongue shows signs of complete healing 2 weeks post-operatively.

