Effects of Teat Dilators, Teat Cannula and a Natural Teat Insert (NIT) on Teat Cistern Lining During Temporary Cessation of Milking

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Introduction

Injured teats are often rested by temporary cessation of milking. To prevent teat canal adhesions during that period teat dilators or teat cannulas have been used. However, inflammation and injuries have been reported with the use of teat dilators and teat cannulas.[1,4] The objective of this study was to evaluate a natural insert for the teat canal (NIT) during temporary cessation of milking.[3]

Material and Methods

Fifteen lactating Holstein cows were used for this experiment. All teats of three cows each were inserted with a teat dilator,[a] a gut string teat dilator,[b] a teat cannula[c] (Fig. 1) or a NIT[d] (Fig. 2). The composition of the NIT is similar to the natural teat canal sebum. The NIT is sterile. All teats of three control cows were not treated. Milking was ceased for 5 days. All devices were left in the teats during that period. Before the start (day 0) and at the end (day 6) of this experiment all teats were examined using endoscopy via the teat canal.[2]

Results

All teats were grossly normal on day 0. All teats that were inserted with a teat dilator, a gut string teat dilator or a teat cannula showed severe proliferative inflammation and injuries of the teat cistern lining on day 6. All teats that were inserted with a NIT and all control teats were grossly normal on day 6 (Fig. 3 to 8).

Discussion

Our findings indicate that teat dilators and teat cannulas may harm the teat cistern lining when left in the teat during temporary cessation of milking for 5 days. This is in agreement with earlier reports.[1,4] We hypothezise that teat dilators and teat cannulas pierce the teat cistern lining; in particular when cows lay down and teats get bent. Because no such alterations were found when using the NIT we conclude that the NIT is compatible with the inner lining of the teat. The NIT kept the teat canal open for 5 days, and adjusted to the teat canal. In preliminary studies the NIT often disintegrated within 10 days. The NIT did not affect milk electrical conductivity and somatic cell count when left in the teat canal during cessation of milking for 5 days.[3] The NIT might be a useful device to prevent teat canal adhesions in injured teats during temporary cessation of milking.

[a] Wollzitzenstift; Selectavet, Germany
[b] Dilatationsstift; WDT, Germany
[c] Bykanula®; Essex, Germany
[d] NIT; Eickemeyer, Nashville, Tennessee, Tel 1-888 TALK VET, Fax 1-888 FAX VETS

References

1. Höptner, C. 1994. Documentazione sugli effetti collaterali nell'applicazione di stiloidi e cateteri mammari nella bovina Milano, Universita, Tesi di Laurea. 2. Medl, M., K. Querengässer, C. Wagner, S. Paarmann and P. Rüsch. 1994. Zur Abklärung und Behandlung von Zitzenstenosen mittels Endoskopie. Tierärztl Prax 22:532-537. 3. Seeh, C., R. Schlenstedt, K.H. Stengel, T. Geishauser, K. Failing, M. Zschök and H. Bostedt. 1997. Prüfung eines neuartigen Strichkanalstabes zur Behandlung von Strichkanalwunden unter besonderer Berücksichtigung der endoskopisch dokumentierten

Schleimhautverträglichkeit im Vergleich zu konventionellen Zitzenstiften und Verweilkanülen. Dtsch Tierärztl Wschr 104:277-284. 4. Witzig, P., P. Rüsch and M. Berchtold. 1984. Diagnose und Therapie von Zitzenstenosen beim Rind unter besonderer Berücksichtigung des Röntgens und der Thelotomie. Vet Med Nachr (Bayer) 2:122-132.

Figure 1. Teat dilator (left), gut string teat dilator (middle), and teat cannula (right).

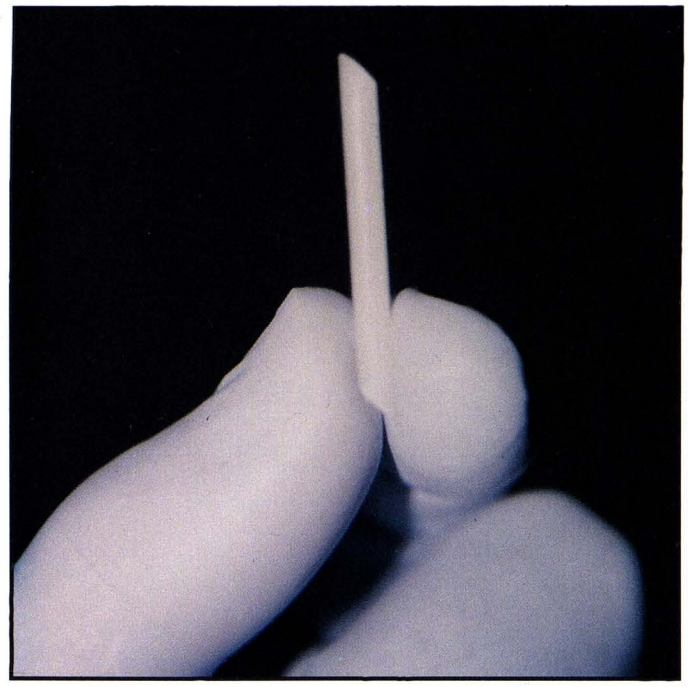

Figure 2. Natural teat insert (NIT).

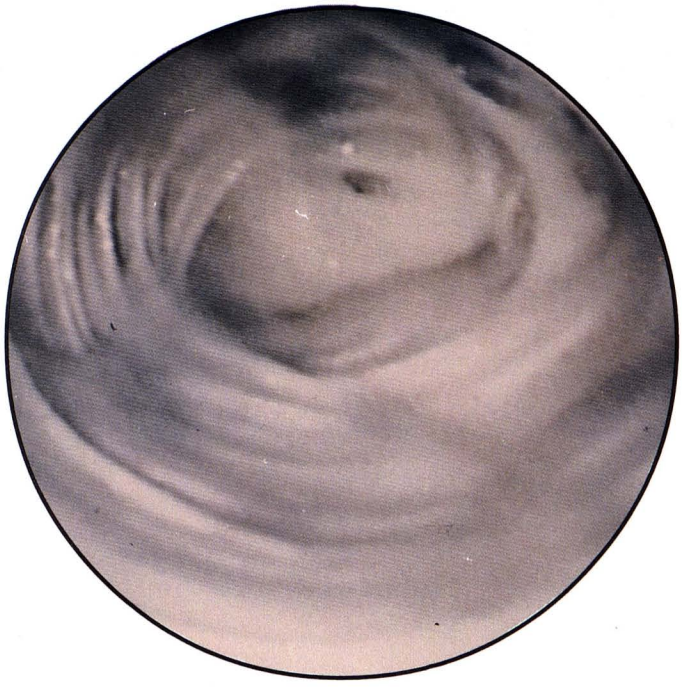

Figure 3. Normal teat cistern lining before insertion of a teat dilator. The picture was taken using an endoscope inserted through the teat canal.

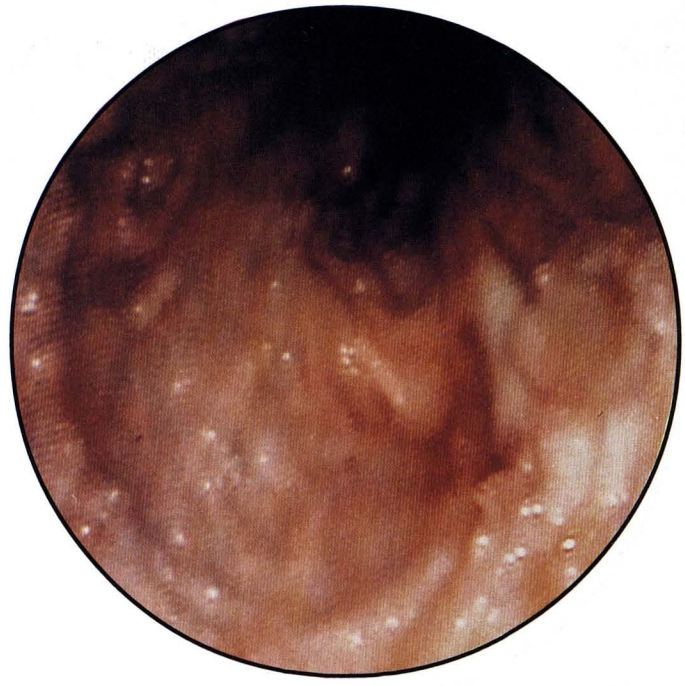

Figure 4. The same teat after insertion of the teat dilator for several days. Highly inflammed teat cistern lining.

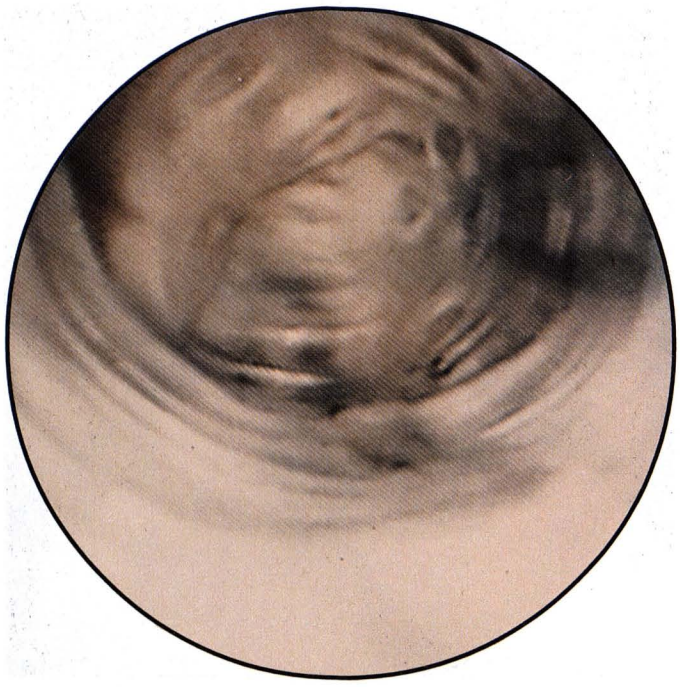

Figure 5. Normal teat cistern lining before insertion of a teat cannula.

Figure 6. The same teat after insertion of the teat cannula for several days. Highly inflammed and injured teat cistern.

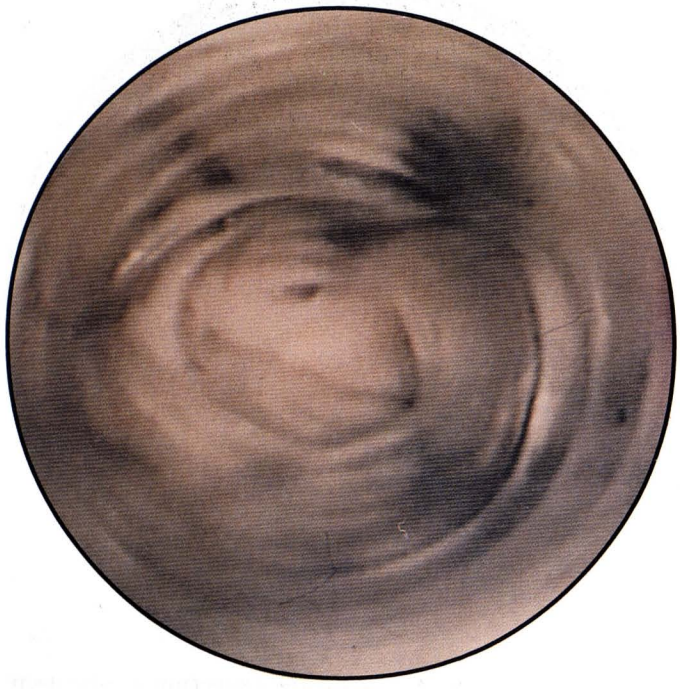

Figure 7. Normal teat cistern lining before insertion of the natural teat insert.

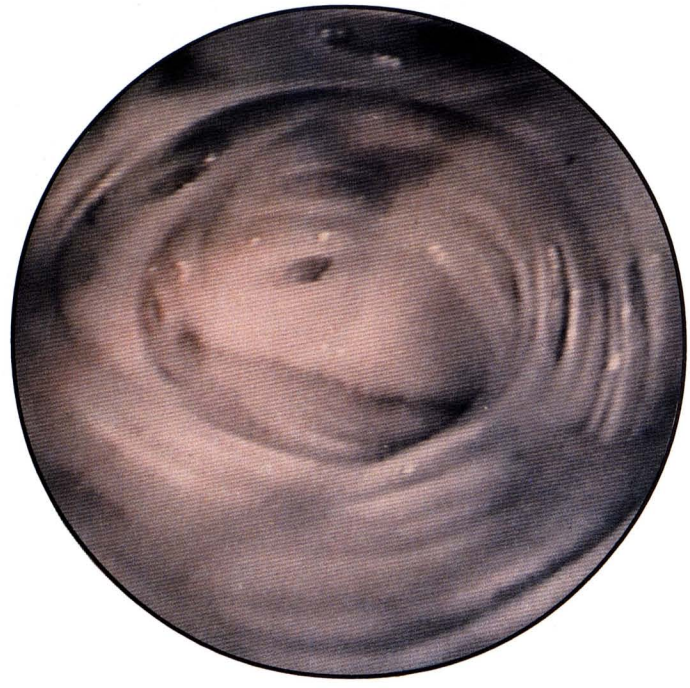

Figure 8. The same teat after insertion of the natural teat insert for several days. No alterations detectable.

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