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Title	DIAGNOSTIC ULTRASONOGRAPHY OF THE BOVINE UDDER
Author(s)	TAKEDA, Tadayoshi
Citation	Japanese Journal of Veterinary Research, 37(2), 133-133
Issue Date	1989-06-20
Doc URL	https://hdl.handle.net/2115/3175
Type	departmental bulletin paper
File Information	KJ00002377278.pdf

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DIAGNOSTIC ULTRASONOGRAPHY OF THE BOVINE UDDER

Tadayoshi TAKEDA

Veternary Hospital
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan

B-mode ultrasonography was performed on the udders of 51 healthy Hostein cows, 4 perinatal cows, 21 clinical cases and 17 udders form an abattoir. Histopathological examination was performed on 13 cows, and compared with echo findings.

1. In all healthy lactating cows, the glandular parenchymal region appeared as an non-structual area with fine diffuse echo spots. The lactiferous ducts appeared as anechoic tubular areas contiguous with the gland sinus, which was visualized as a large anechoic area. The teat sinus appeared as an anechoic area contiguous with the gland sinus. The imaging patterns of the lactiferous ducts and the gland sinus varied among individuals.

2. In the observations of the perinatal cows, the gland sinus was clearly from about 10 days before delivery. The subcutaneous tissue of the udder showed edematic findings several days before and after delivery.

3. Abscesses were visualized clearly as localized regions in 6 cases. The properties of each abscess (concentration of pus and formation of the abscess wall) could be estimated from ultrasonography and, in several cases, clinically non-palpable masses (smaller or deeper) were able to be visualized.

4. Observations of diffuse mastitis cases were performed in 11 cases of acute purulent mastitis, 6 cases of chronic diffuse mastitis and 10 cases of subclinical mastitis. In the acute purulent mastitis cases, there was marked enlargement and increases or decreases of the border-line echos of the lactiferous ducts. The echo of the glandular parenchymal region was decresed wholly or partially in cases with serious clinical symptoms. In the cases with chronic diffuse mastitis, a striking increase of the border-line echo of the gland sinus was observed. Diffuse small cordal echoes had a tendency to be present in the cases in which fibrosis of the lobules was marked. In the cases with subclinical mastitis, milder findings similar to those of chronic mastitis were obtained. In the observations of diffuse mastitis, no close relationships between the echo findings and the histopathological ones or the ability to produce milk were seen.

5. Abnormality of the test sinus was visualized in the cases that showed a lack of milk flow caused by teat lesions.