

*Brief Communication*

ISOLATION AND IDENTIFICATION OF BOVINE VIRAL  
DIARRHEA/MUCOSAL DISEASE VIRUS (BVD/MD VIRUS)  
FROM AN ATYPICAL CASE RESEMBLING MALIGNANT  
CATARRHAL FEVER (MCF)

The clinical and pathological picture of the BVD/MD complex is most protean, and the majority of cases run a subclinical course (*Bruner & Gillespie 1966*). The disease complex has been recorded in many countries and on all continents (*Mills et al. 1965*). In Scandinavia a BVD/MD-like disease, the "Umeå disease", was described by *Nystedt* in northern Sweden in 1960 and later proved to be a mixed infection of bovine parainfluenza virus type 3 and BVD/MD virus (*Dinter & Bakos 1961*). In 1961 the Umeå syndrome was reported in Denmark by *Borgen & Dinter* and in Finland by *Rislakki*. In Norway the picture of the BVD/MD complex has been known for many years although no isolation of the virus has yet been described\*. The isolation and identification of the virus from an atypical case of BVD/MD in a heifer is described in the following.

The one year old heifer, together with 10 other young animals, were housed separately from the rest of the herd. Before admission to the clinic the heifer showed anorexia, cachexia and diarrhea. None of the other animals showed signs of illness. The heifer was markedly depressed, recumbent, feverish and showed respiratory embarrassment. There were multiple small, crusty skin lesions on the neck and the back. The conjunctival, nasal and oral mucosae were hyperemic with mucopurulent discharges, but signs of keratitis were not observed. There were several red, small ulcerations in the oral cavity, and the feces had a mucoid consistency. Parenteral treatment with antibiotics and glucose was without success and the heifer died on the 8th day of hospitalization.

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\*In 1967 a strain was isolated at the National Veterinary Institute (Krogstrup, personal communication).

At necropsy, the carcass was severely dehydrated. The anterior superficial lymph nodes were enlarged. The upper respiratory tract was hyperemic. Hyperemia and ulceration were observed on the buccal mucosa, the tongue and the palates. In the oesophagus erosions of various sizes were arranged in a linear fashion. There were multiple erosions in the rumen and small ulcers in the fundus region of the abomasum. Erosions in the mucous membranes of the small intestine and pseudomembranes in the cecum, colon and rectum were prominent. The mesenteric lymph nodes were swollen. Histologically, the skin lesions revealed epidermal necrosis and hyperemia. The intestinal mucosa was necrotic and the underlying tissue infiltrated with leucocytes.

Bacteriological examination of the liver, spleen and intestine revealed only coliform bacteria. No bacteria were isolated from the lung. Using primary calf kidney cell cultures, virological examination of the lung resulted in the isolation of a cytopathogenic agent which was specifically neutralized by antiserum prepared against the Oregon C24V strain of BVD/MD virus (*Gillespie et al.* 1960).

The sporadic character of the described case of BVD/MD, and further, the cutaneous lesions, together with the other symptoms, could easily cause the case to be confused with MCF, although ophthalmia and nervous symptoms, which are common but not constant features of MCF, were not observed. The gross morbid changes did not differ much from those which have been described for BVD/MD and MCF. It was not until after the histopathological examinations had been performed that the diagnosis of MCF with its pathognomic changes in the vascular and lymphoid tissues (*Jubb & Kennedy* 1970) could be excluded. The clinical syndromes of both BVD/MD and MCF may be most variable and overlap each other, thereby making a definite diagnosis on a clinical basis difficult, if not impossible (*Bruner & Gillespie*). According to *Andrewes & Pereira* (1967) some cases of atypical MCF may be due to BVD/MD virus. Furthermore, in 1961 *Nielsen* described the clinical, and *Basse* the pathological, picture of 48 cases of what they called "Atypical catarrhal fever in cattle". No conclusions were drawn concerning the etiology, but attention was focused on the striking similarity to what *Ramsey & Chivers* in 1953 described as "Mucosal disease of cattle". The case described in this report also showed marked

similarity to the above cases and could have been promptly considered a case of "Atypical catarrhal fever", unless a virological examination had been performed. Due to the diversity of the clinical and pathological pictures of BVD/MD and MCF emphasis is made on the importance of virological examinations as the only way of making a definite etiologic diagnosis.

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(Received September 13, 1971).