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## Abstract

### **Concurrent bovine viral diarrhoea virus and *Salmonella typhimurium* DT104 infection in a group of pregnant dairy heifers**

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*Veterinary Record* (1996); 138, 485-489

Two days after being imported into the United Kingdom one of a group of 30 pregnant dairy heifers showed clinical signs of bovine viral diarrhoea virus (BVDV) infection and subsequently died. Before it died the heifer was BVDV antigen-positive and antibody-negative. The gross post mortem findings were suggestive of mucosal disease but in addition to noncytopathic BVD virus, *Salmonella typhimurium* DT104 was cultured from tissues and gut contents. The other heifers were screened for *S typhimurium* by culturing faeces, and serology showed that 13 (45 per cent) of the group seroconverted to BVDV in the three weeks between samplings and the remainder were seropositive, indicating previous exposure. During this period four heifers showed clinical signs of acute BVDV infection but recovered uneventfully. Four animals (14 per cent) were positive for *S typhimurium* DT104 on faecal culture, and three of these excretors concurrently

seroconverted to BVDV. Of the 29 heifers remaining in the group, one aborted in late gestation, 26 bore live calves and two delivered stillborn calves. Pre-colostral blood samples from the calves showed that their dams' pre-existing antibody titres correlated well with in utero fetal protection. In non-immune dams, exposure to BVDV between 69 and 120 days of gestation led to the birth of live persistently viraemic calves. Infection between 120 and 140 days of gestation led to the birth of live calves with evidence of congenital damage to the central nervous system, and infection later than 140 days of gestation led to the birth of live, normal calves with high pre-colostral antibody titres to BVDV. One calf which sucked colostrum was antibody and virus antigen-positive when sampled at 12 hours old but regular blood sampling failed to detect viraemia again until the calf was seven weeks old when it became persistently viraemic.