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Results

Personels involved in the study were capable to collect specimen very gently and accurately within relatively short time. During the study we selected 784 samples consisted of 174, 392 and 218 samples collected from abattoirs during the period of 2007, 2008 and 2009 respectively. Encephalopathy, which is a specific lesion for BSE, was not detected in all of 784 samples by hematoxyline and eosin (H&E) staining. This is also the case in IHC staining proteinaceous infectious (PrP) could not be detected in all of 784 samples, as seen in Figure 2. In performing IHC staining in order to get accurate specificity of the test we used positive BSE paraffin blocks from Veterinary Laboratory Agency (VLA), Weybridge, UK

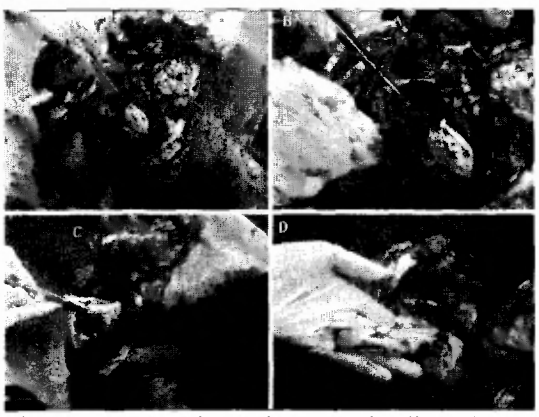

Figure 1. Preparation to locate and collect obex

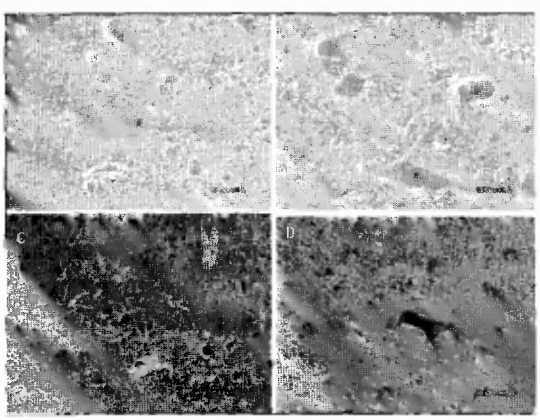

Figure 2. IHC staining. A,B: Indonesian feedlot cattle showed negative to BSE; C,D: positive control for BSE from VLA, Weybridge,UK

Discussion

In the study it was obviously shown that feedlot cattle, which are high risk animals, were all negative for BSE. Based on the findings therefore it is assumed that the rest of non-feedlot cattle were likely to be negative for BSE. Additionally the study shows that the Indonesian Research Center for Veterinary Science (IRCVS) has the ability in terms of skill and a reliable technique to diagnose BSE and therefore other regional veterinary laboratory could adopt the technique. Eventhough it was declared that so far Indonesia is free from BSE it is suggested that regional laboratories routinely conduct surveillants for BSE to monitor the status of the disease consistently.

Conclusion

The IRCVS has the capability in terms of skills and laboratory technique to diagnose BSE. BSE, was not detected in all of 784 samples by hematoxyline and eosin (H&E) staining. This is also the case wth IHC staining, proteinaceous infectious (PrP) could not be detected in all of 784 samples originated from feedlot cattle aged 1.5-6 years.

Acknowledgement

We thank to Dr Marion Simmons for Posit providing BSE positive paraffin blocks from Veterinary Laboratory Agency (VLA), Weybridge, UK to be used for the study.

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The Application Of Immunohistochemistry To Detect Prion Protein (Prp) Of *Bovine Spongiform Encephalopathy* (BSE) in Feedlot Cattle To Anticipate BSE Emergence In Indonesia

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Keywords: BSE, prion protein (PrP), immunohistochemistry, feedlot cattle

Introduction

Bovine Spongiform Encephalopathy (BSE) is a fatal, degenerative and progressive disease affecting neurological system of cattle, due to proteinaceous infectious or prion (PrP). The disease was firstly reported in Brirain in 1985 and confirmed microscopically in 1986 (WELLS *et al.*, 1987). Since 1986 more than 25.000 cattle were infected and it spread to 23 countries by the end of 2004. The dieasease was affecting adult cattle because its long incubation period (1.5-8 years). It was stongly assumed that the transmission of the disease is by cnsumption of contaminated meat bone meals (MBM) (BRADLEY and WILESMITH, 1993).

In Asia BSE was firstly occurred in Japan with 14 cases during the period of 2001-2004 (YOKOYAMA, 2004). In Indonesia BSE is classified as exotic disease (Minister of Agriculture Decree No. 367/Kpts/ T.N 530/12/ 2002) based on the fact that no cases being reported. Strictly anticipation is needed, including the control of MBM importation, for the possible occurrence of BSE in Indonesia because the disease is becoming widely spread among countries.

According to OIE (2008) diagnosis of BSE was made based on clinical signs, vacuolation of the brain microscopically and identification of the accumulation of PrP using immunohistochemical (IHC) test, immunoblotting and PrP detection by electron microscope. The aim of this study is to declare that Indonesia is free from BSE by testing feedlot cattle, since they were served as high risk animals, by the use of standard methods for BSE. The findings were then could be served as a reference to declare that Indonesia is free of BSE based on actual data during the period of 2007-2009. In this study, we used standard laboratory tests for BSE, namely histopathological (HP) and immunohistochemical (IHC) stainings. The latest was developed in the study to anticipate the emergence of BSE in Indonesia and it will be adopted amongs regional veterinary laboratories throghout the country.

Materials and methods

Preparation to collect obex was adopted from audio visual filmed by the National Institute of Animal Health (NIAH), Japan, in 2004. The samples were namely obex (part of medulla cord), as developed by Veterinary Service, APHIS.USDA (2008). Figure 1 demonstrated how to collect it.

The specimens were collected from feedlot cattle slaughtered at abattoirs. During the year of 2007-2009 three abattoirs were selected and they were located in West Java (Santori abattoir, Bekasi and Bojong Kokosan abattoir, Sukabumi) and Dharma Jaya abattoir, Cakung, East Jakarta. The number of samples collected in 2007, 2008 dan 2009 were 241, 424 dan 237 samples respectively, with the total number of 902 samples. Only 784 samples were originated from adult cattle (1.5 to 6 years) used for BSE testing in this study.

The samples were processed and stained with with hematoxilin and eosin (H&E) while IHC was performed according to HSU *et al.* (1981), using avidin biotin peroxidase complex (ABC) but modified as suggested in the *manual* of Veterinary Laboratory Agency (VLA), Weybridge (2005) using a commercial kit (LSAB-2 System peroxidase universal kit, DAKO, No. K 0672, Denmark). The primary antibody used was anti prion protein R 145 (VLA, Weybridge, UK) and SAF 54, catalog no. A03204 (SPI-BIO, France) as mentioned by (OKADA, 2004).