

Our ref: VSJ/25/1

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cc Mrs T M Phillips

**BSE: BRAIN STEM NEURONAL CHROMATOLYSIS -
"BOVINE BRAIN DISORDER"**

1. I discussed this newly recognised condition with Martin Jeffrey on 21 October 1992 and Ray Bradley on 22 October 1992.
2. Martin Jeffrey has examined all brains submitted from Scotland for BSE diagnosis for histopathological changes and clear evidence of a differential diagnosis. Whole brains have, and continue to be, examined but only those found negative for BSE are subjected to a detailed histopathological examination.
3. Because of the very large numbers of brains submitted for diagnosis in England and Wales, a reduced level of examination of the medulla was introduced at an early stage. Whole brains are not submitted as a routine and the detailed data revealed by Martin Jeffrey's research is not available. It is possible to diagnose BBD on medulla only but this demands a high level of interpretive skill and experience, not generally available in VICs.
4. An earlier screening of 200 whole brains negative BSE cases in England was carried out by Gerald Wells at the CVL and this revealed only 1 case of bovine brain disorder. This study was broadly equivalent to that carried out by Martin Jeffrey and would suggest that there is a localised incidence of this disease. However, to obtain further information and to confirm whether this is in fact the case, a further research project is being carried out on between 1,500 and 2,000 BSE brains from England which are being collected between May 1992 and May 1993. These are being sent for examination by Martin Jeffrey at Lasswade and this should allow us to compare the incidence in different parts of the country of this new disease. To date, 4 such brains have been examined and all are negative for Bovine Brain Disorder (BBD).
5. Research is ongoing into the condition and will be based on -
 - 5.1 epidemiological studies,
 - 5.2 biochemical studies (minerals, trace elements etc),
 - 5.3 animal transmission studies,
 - 5.4 check for scrapie associated fibrils,
 - 5.5 research into the PRP gene in positive cases.

These research projects are dependent on the availability of unfixed brain and tissues and it will be necessary for cases to be identified before fixation and for appropriate samples to be collected at the laboratory/disposal site of the carcass. Of the 25 cases so far identified, most have been in beef animals with a mean age of 9 years old (the

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youngest case was 6 years old). Beef animals suspected of BSE and aged greater than 6 years old constitute a small proportion of all Scottish brains submitted and, by collecting appropriate samples from all such animals, unfixed material from BBD cases will be available. (Approximately one-third of all brains submitted for BSE diagnosis in this group of animals have proved historically to be BBD positive). To date, samples have only been collected from one such animal which was despatched to Perth VIC and transmission studies on material from this animal are ongoing in mice. No biochemical studies or examination for SAFs have yet taken place. A copy of the protocol for notifying SVICs of appropriate animals from which samples should be collected is attached.

6. The aetiology of the condition is unknown but some of the cases have never been fed animal protein. Ray Bradley thinks the data do suggest a localised distribution of cases and that the aetiology is quite likely to be biochemical. Martin Jeffrey observes that there is a strong similarity between the histopathological picture in BBD and that produced by ME7 strain of scrapie in mice. The results of the ongoing research programme described at paragraph 5 will obviously be of great interest and may well shed further light on the cause of the condition.

7. There have to date been 42 cases of BBD out of a total of 2,598 brains submitted for BSE diagnosis in Scotland. The incidence of the condition appears to be 1 in 10,000 of beef suckler cows.



W L GARDNER
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