B. INGHAM *ET AL.*: OCCURRENCE OF TETANY IN LITTERS OF NEW ZEALAND WHITE RABBITS

Radiograph of young New Zealand white rabbit. Left above: enlarged view of thoracic spine showing fracture-dislocation of vertebrae. Left below: young New Zealand white rabbit in tetanic spasm.

Occurrence of Tetany in Litters of New Zealand White Rabbits Associated with Spontaneous Vertebral Fractures and Limb Malformations

[WITH SPECIAL PLATE]

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The New Zealand white rabbit is widely used in research institutions, particularly in the testing of drugs for teratogenicity. This preliminary communication describes the occurrence of spontaneous tetany in a breeding colony producing animals for this purpose. The colony consists of some 80 breeding does. They and their progeny are fed entirely on diet 18 (Bruce and Parkes, 1947). To date, eight affected litters have been recorded with 25–50% of the young in a litter exhibiting the condition.

The first signs appeared in the young about the fourteenth day after birth, when weakness and dragging of the hind limbs became apparent. Attacks of tetany supervened, the animal showing a complete board-like rigidity before slowly toppling on to its side, where it remained with spasm of the musculature of the whole body (see Special Plate, left below). At this stage, during the periods between the attacks of spasmodic contraction, the muscles remained easily excitable, and the slightest touch would evoke a burst of contractions. Trismus made it difficult or impossible for the young to feed naturally, or for them to be fed even with the aid of a fountain-pen filler; after

a period of hours to days they died after severe tetanic convulsions. Animals less severely affected recovered. After a period of months some of the recovered animals were indistinguishable from normal; others showed weakness of the spine and splay deformity of the feet.

X-ray examination of the severely affected young revealed the presence of fractures and fracture-dislocation of the thoracic vertebrae, generally at the level T7-T8 (Special Plate, left above). Irregular calcification of the teeth was noticed. Gross examination of the nervous system revealed no detectable abnormality. The parathyroid glands were enlarged, and in one case cystic. The blood calcium level was around 15 mg./100 ml. by Nuclear Fast Red method (Kingsley and Robnett, 1961).

Breeding experiments revealed that in one group of affected animals the parentage of the syndrome could be traced back to a single male with inheritance through some of his sons and daughters. The incidence appears to be equal in the two sexes. Treatment of the severely affected young with massive doses of calcium gluconate, and vitamins A, D, and E, were all equally fruitless. Further investigations are in progress.

B. INGHAM, B.V.M.S., M.R.C.V.S.,

D. W. BRETNALL, B.SC.,

May & Baker Ltd., Dagenham, Essex.

D. H. M. WOOLLAM, M.D., SC.D., M.R.C.P.,

J. W. MILLEN, M.D., D.SC., SC.D.,

Department of Anatomy, University of Cambridge.

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Medical Memoranda

Case of Cardiac Lymphangitis with Atrioventricular Block

[WITH SPECIAL PLATE]

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Interest has recently been shown in the pathology of the cardiac lymphatic system, and there is both experimental (Kline *et al.*, 1963; Miller *et al.*, 1963) and clinicopathological evidence (Kline *et al.*, 1964) to suggest that an impairment of lymph flow can cause myocardial damage and endocardial fibroelastosis. It has been pointed out that in the heart as elsewhere in the body disordered lymph drainage predisposes to inflammation and to infection (Miller *et al.*, 1964a), and this has in fact been demonstrated in experimental bacterial endocarditis (Miller *et al.*, 1964b).

Cases of heart-block associated with an abnormality of the cardiac lymphatic vasculature have been the subject of previous papers, but they have been rare. The present apparently unique case has already been briefly reported (Rossi, 1964) and is now described in greater detail.

CASE REPORT

A woman aged 78 was admitted to the Fatebenefratelli Hospital, Milan, in June 1963 with a left hemiplegia of a few days' duration and suspected myocardial infarction. No past history of severe

infectious disease was obtained. Since 1960 she had been moderately hypertensive with average blood-pressure readings of 180/100 to 200/110 mm. Hg, rising to 210/120 at the onset of her hemiplegia. From 1960 till May 1963 electrocardiograms had shown complete heart-block, with a ventricular rate between 40 and 50 a minute.

On admission the patient was mentally confused, and complained vaguely of chest pain and headache. She was found to have a severe left hemiplegia with marked facial involvement, a pulse rate ranging between 54 and 70, and a blood-pressure of 140/90 mm. Hg. The white-cell count was 10,000/c.mm., and the haemoglobin, red cells, blood sugar, and blood urea were normal.

Two electrocardiograms (see accompanying tracings) were recorded at three days' interval, with similar findings. The second tracing showed complete A-V dissociation, with an atrial rate of 84 and a

E.C.G. showing heart-block.