Polyneuritis of Pregnancy

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IN view of the fact that pathological examination became possible in this rare condition, the following case appears worthy of record.

Mrs. R.A. (31249), aged 21 years, was admitted at about 30 weeks in her first pregnancy. She complained of weakness of the legs and tingling of the feet during the last 24 hours. An examination disclosed some paresis of the seventh cranial nerve, the patient being unable to close her eyelids adequately, and also unable to smile or whistle. There also appeared to be some weakness of the twelfth cranial nerve, for there was some difficulty in articulation. The fundi were normal. There was a suggestion of increased sensibility over the left hand. The hand-grips were diminished, as also flexion of the arms. In the legs, extension was diminished, and flexion was almost completely abolished. Reflexes were diminished in the upper extremity and absent in the lower; joint sense was very vague in the feet. In short, atypical as the picture was, it was more suggestive of poliomyelitis than of a true polyneuritis. Various pathological examinations were made. The Wassermann and Kahn reactions were negative in blood. The urine showed some red blood-cells in centrifugalized deposit, but not any albumin or casts. Cultures yielded *B. coli*. Lumbar puncture, unfortunately, contaminated cerebro-spinal fluid with blood. It was, however, sterile. A blood count showed: red blood-corpuscles, 4,600,000, normal in appearance and staining; haemoglobin, 80 per cent; colour index, 0.87; white blood-corpuscles, 13,000 (of which neutrophils provided 81 per cent). There was some tachycardia. Gradually, some cough and also a degree of cervical rigidity developed, and the patient died seven days and three hours after admission. Vomiting occurred after admission. At necropsy, performed by Dr A. B. Bratton, the findings were: "(L.C.C. Central Histological Laboratory, No. 717/34): Haemorrhagic broncho-pneumonia in lower lobe of left lung; great congestion of lungs; haemorrhages beneath pleura and in substance of lower lobes. Subpericardial haemorrhages; cloudy swelling of myocardium. Cloudy swelling of liver; considerable inflammatory infiltration of portal system. Oedema of spleen. Oedema congestion and cloudy swelling of kidneys, with a few small foci of subacute inflammation; dilatation of both pelves. A few petechiae in mucosa of bladder. Not any abnormality in brain. Degeneration of some anterior horn cells in spinal cord, especially in lumbar region."

REFERENCES.

In recent years several articles have appeared in the medical press of this country and of the U.S.A. dealing with similar conditions. Thus Theobald[1] stated in an article on toxaemia that he felt it possible that the severe form of peripheral neuritis found in this country might be a form of beri-beri. This same opinion he repeated in another general article.[2] He does not give, however, any means of identifying precisely the condition to which he refers. Berkwitz and Lufkin[3] described a condition which they termed 'toxic neuronitis' in pregnancy, characterized by degenerative changes in peripheral nerves and anterior horn cells with petechial haemorrhages in the brain and spinal cord. The condition usually appeared after uncontrollable vomiting, and these authors comment on the resemblance of their post-mortem findings to those present in beri-beri and pellagra. Nevertheless, gross toxic signs were not found in liver or kidneys. These authors advocate termination of pregnancy by way of treatment, and advise a full neurological examination in all cases of hyperemesis gravidarum. The authors state that the terms 'peripheral neuritis', 'polyneuritis', and 'toxic myelitis' are applied by others to the same condition as toxic neuronitis of pregnancy, of which they could find only some 60 cases reported altogether. Wilson and Garvey[4] review the literature, quoting especially cases occurring similar to their own during the puerperium. Severe persistent vomiting, profound mental disturbances, and polyneuritis characterized these cases. There was only one autopsy, and then general toxic changes alone were found, without any abnormality in the spinal cord.

An article by McCoogan[5] should be mentioned. It refers avowedly to acute anterior poliomyelitis in pregnancy, but the difficulty of differential diagnosis is emphasized. This appears to rest on the incidence of the condition in association with an epidemic of poliomyelitis, and on slight increases of white cells, globulin and sugar in the cerebro-spinal fluid, together with an early rise in the colloidal gold curve in that condition.

Strauss and Macdonald[6] described three cases of somewhat similar characteristics as those of Wilson and Garvey (*supra*), though apparently milder. The onset was with hyperemesis in each case. All improved when treated with liver, yeast and Iron. Wilson and Garvey suggested that the condition is probably a deficiency disease similar to beri-beri, and advised that vitamin B be given as a prophylactic in all cases of hyperemesis. Ungley[7] describes the occurrence in members of one family of recurrent

lower motor neurone paralysis, such recurrences of a previously exhibited condition developing during either pregnancy or the puerperium. It is not easy to decide whether some of these were of the type under consideration, but others probably were.

Another article to which reference must be made is that by Plass and Mengert,[8] which is a thorough and masterly survey both of the condition and of the literature which has arisen around it, together with case reports. These authors describe the condition as preceded by hyperemesis, and characterized by muscular weakness (this being greater in extensor than in flexor groups); anaesthesia, which is variable in degree and extent; variable hyperaesthesia, specially elicited by placing nerve-trunks under tension; tachycardia, which they found constant and of early appearance; loss of reflexes, and loss of memory with disorientation as to time and place. They also found laboratory investigations gave only negative assistance in diagnosis. They considered the prognosis to be poor, though death was usually due to intercurrent disease. Recovery, when it occurred, was found to be very slow in most instances, though reasonably complete ultimately. As to aetiology, some difficulty was felt in deciding between toxic and vitamin B deficiency theories. Therapeutic abortion was often disappointing, but the results reported by Strauss and Macdonald, inadequate though they were for dogmatism, were yet a sufficient indication of a hopeful direction of treatment.

Mention must be made also of a leading article in the *British Medical Journal*,[9] in which a suggestive and broad, though somewhat incomplete, review is made of the subject as a whole. Since this date some six further articles have appeared in literature of the U.S.A. bearing on this subject. Fouts, Gustafson and Zerfas[10] record the case of a primigravida who commenced vomiting at about the seventh week of gestation, and shortly after began to exhibit loss of power in and wasting of the legs. She was emotionally unstable and soon developed loss of memory for recent events. There was some tachycardia, but not any gross evidence of toxaemia. Intensive exhibition of food and preparations of high vitamin B content was followed by rapid improvement, the mental condition improving first. The patient was detained in hospital until after her confinement, and contractures at the knees developed. When discharged six weeks after delivery she was still ataxic. The only other reference[11] traced in literature of this country is the history of a patient, in India at the time, upon whom therapeutic abortion

was performed. This was followed rapidly by improvement, though complete recovery apparently took nearly a year.

Discussion.

The difficulty of nomenclature has been felt by many writers, for the condition appears more akin to poliomyelitis than to polyneuritis. Toxic neuronitis has several supporters in the U.S.A. Differential diagnosis presents great difficulties. Distinction must be made from anterior poliomyelitis and from peripheral neuritis. Furthermore, cases of more or less transient unilateral, or more limited, pareses occur which are almost certainly embolic in origin, and must not be confused. Aetiology is undecided, vitamin B deficiency has received such a consensus of support that it must be considered very seriously. On the other hand, post-mortem findings are consistent in revealing evidence of general toxaemia. It is, on the whole, probable that a combination of both these factors is necessary to produce this clinical entity. Comparing the references in literature of the U.S.A. with those in the literature of Britain, it would appear that this condition is, as yet, much more uncommon here than there. Indeed, some writers in the U.S.A. go so far as to recommend routine administration of vitamin B preparations to all patients exhibiting excessive vomiting in pregnancy as a prophylactic measure in case polyneuritis should be about to develop. Treatment should be directed towards elimination of any toxins. Prevention of deformity and maintenance of adequate circulation in disused muscles by massage are obviously indicated. In the absence of any more pronounced indication, administration of vitamin B by means of liver and yeast is called for, possibly with the addition of iron.

Summary.

There is here presented what would appear to be the first British report of an authentic case of acute polyneuritis of pregnancy with complete autopsy.

A brief review is included of the more recent literature on the subject, by means of which the clinical aspect of the condition is portrayed, together with suggestions for treatment.

I wish to express my thanks to Dr. J. C. Evans for his help in following the neurological aspect of this case, as well to Dr. Bratton.

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