

**Trigeminal Neuropathy in Connective Tissue Diseases.** By B. TAIT and B. ASHWORTH (*Rheumatism Research Centre and University Department of Neurology, Manchester Royal Infirmary*)

Six patients aged 33 to 66 years with various connective tissue diseases developed trigeminal neuropathy. They were not a homogenous group. Three had progressive systemic sclerosis (PSS), two had systemic lupus erythematosus (SLE) with features of PSS, and one had dermatomyositis. All noted numbness over the involved area of the face, and in some the tongue and buccal mucosa were affected. In some patients this was preceded by pain and in one pain was a feature for a year after the onset of the lesion. The onset was subacute and took up to one month to reach maximum development. Subsequently the signs have remained unchanged for periods of up to 6 years. The involvement varied in distribution but usually followed the divisions of the trigeminal nerve. In one case there was bilateral involvement, but in the remainder the involvement was largely unilateral, affecting one, two, or three divisions. The blink reflex was recorded in three patients: one showed a normal response, one showed an increase in latency, and in one there was virtual absence of the first component. There was a similar delay in response to supraorbital stimulation, suggesting that the delay is in nerve conduction. Evidence from these cases suggests that trigeminal neuropathy is a consequence of the connective tissue diseases but that the association is rare.

*Discussion*

DR. K. MUIRDEN (*Melbourne*) This is an important symptom to bring out, largely because in some cases there is a possibility of easing the pain of the trigeminal neuralgia. In two of our patients the pain was intermittent and it tends to be ignored because of the severity of the other symptoms. In these two patients we obtained improvement by the use of the drug Tegretol, and in one it was almost completely relieved. Have you had experience of this drug in this condition?

DR. TAIT No, we have not, but in our patients pain has never been a prominent feature, and three of the six had no pain at all. One had mild pain persisting for a year. This did not trouble her unduly and specific therapy was not given, although certainly one would expect Tegretol to help should pain be a problem.

DR. D. A. PITKEATHLY (*Manchester*) There was one patient (I think she was one of your series) who presented with trigeminal neuropathy as the sole manifestation of her disease, and later developed signs of systemic lupus erythematosus. I think this is a point to remember, that these conditions, particularly SLE, can actually present as cases of isolated trigeminal neuropathy.

DR. D. N. GOLDING (*Harlow*) I am most interested in this paper because, in 42 cases of peripheral neuropathy associated with rheumatoid arthritis, we had only one with cranial nerve involvement.

**Amyloid Deposition in Cartilage.** By E. G. L. BYWATERS and J. DORLING (*M.R.C. Rheumatism Unit, Canadian Red Cross Memorial Hospital, Taplow*) Published in full with the Discussion thereon in this issue of the *Annals* (1970), 29, 294.

**Elasticity of Synovial Fluid.** By A. J. PALFREY and D. V. DAVIES (*St. Thomas's Hospital Medical School, London*)

All fluids exhibit elastic properties which can be investigated using the Weissenberg Rheogoniometer as a cone and plate viscometer. The measurements required are those used in determining the viscosity of the fluid, but the calculations differ. In experiments in which the cone is subjected to a sinusoidal movement through small angles, the calculation is straightforward, but the curve is interrupted at the natural frequency of the torsion head. In experiments in which the cone rotates, the calculation uses measurements of the torque and of the normal force exerted by the fluid. The latter can be measured only at shear rates in excess of  $100 \text{ sec.}^{-1}$  and therefore it is possible to determine the elasticity only at those shear rates. The torque tracing exhibits a steady value preceded by an initial peak that corresponds to the immediate viscosity. Similarly, the normal force tracing shows an initial peak followed by a steady value. Four measures of the elasticity can thus be calculated at each shear rate.

These calculations are illustrated by data from fluids taken from the atlanto-axial, radio-carpal, and tibio-tarsal joints of healthy adult cattle, and compared with similar results from human fluids aspirated from patients with various types of arthritis. The role of elasticity in the functioning of synovial joints is assessed.

**Articular Gelling in Osteoarthritis—A Bioengineering Study.** By V. WRIGHT, R. GODDARD, D. DAWSON, and M. D. LONGFIELD (*Rheumatism Research Unit and Institute of Tribology, University of Leeds*)

An arthrograph has been devised and constructed for the measurement of stiffness at the knee joint. A sinusoidal motion is imposed upon the knee passively, and the resisting torque, recorded from strain gauge plates bonded on to a lever, is plotted against angular displacement.

Normal subjects and osteoarthrotic patients have sat in one position for varying periods and torque/displacement records have been taken. In normal subjects there was no increase in stiffness, but in many patients with osteoarthritis there was a marked increase. The stiffness of the normal joint averaged about 20 kg./cm., but for articular gelling figures as high as 102 kg./cm. were found. Analysis of the records demonstrated that there was an increase in elastic stiffness and an increase in dissipatory forces, but that the former far outweighed the latter. This suggests that the phenomenon is not due to a gelling of synovial fluid but to a change in the periarticular structures.

**Preliminary Studies on the Development of a Synthetic Polymer with Flow Characteristics of Normal Synovial Fluid.** By G. NUKI, J. FERGUSON, K. BODDY, and M. POND (*Centre for Rheumatic Diseases and University Department of Medicine, Royal Infirmary, Glasgow; Fibre Science Department, University of Strathclyde; Scottish Research Reactor Centre, East Kilbride; and University Department of Veterinary Surgery, Glasgow*)