Thin Sclerae. A Clinical Illusion. P. J. Rooney, D. D. M. McGavin, G. R. Sutherland, and R. Railton (*The Centre for Rheumatic Diseases and University Department of Medicine, Glasgow Royal Infirmary; Departments of Ophthalmology and Radiology, Southern General Hospital, Glasgow, and Regional Department of Physics and Bio-engineering, Glasgow*)

Scleritis occurs in a significant proportion of patients with rheumatoid arthritis. It is often followed by patches of blue discoloration of the sclera. This discoloration is due to choroid pigment becoming visible beneath areas of sclera rendered translucent as a result of the inflammatory process. Such areas of discoloration are often referred to as areas of 'scleral thinning' and may be associated with clinical anxieties regarding rupture of the globe. Enucleation for imminent rupture is not infrequent, yet the true incidence and extent of thinning in such areas is unknown as no method of *in vivo* measurement of scleral thickness is yet available. Preliminary studies using B-scan ultrasonography to delineate scleral thickness in this group of patients are reported.

A standard ultrasonic machine for general application has been used (Nuclear Enterprises Disonograph 4102). A 5 MHz focused transducer was used and coupling was obtained through a direct water bath (Sutherland, 1974). Horizontal scans were made transversely through areas of scleral translucency in 8 patients with quiescent scleritis. The scans were made with the gaze averted to obtain maximal exposure of the abnormal areas of sclera. 8 comparable normal subjects were studied as controls. Measurement of scleral thickness was made on the polaroid print of the B-scan using a measuring microscope and the true scleral thickness calculated on the basis of a sound velocity in the sclera of 1620 m/s. The mean scleral thickness within 1 cm of the limbus in the normal group was $0.62 \text{ mm} \pm 0.13 \text{ mm}$ (SD) which compares well with

the anatomical observations reported. The standard error of paired observations using this technique is very small. In the abnormal eyes the mean was $0.56 \text{ mm} \pm 0.14 \text{ mm}$ (SD) but it was significant that only 3 of the 8 subjects showed local areas of thinning. 2 of these subjects showed a distinct step from the 'normal' to the thinned areas, a feature also visible clinically.

This limited study is important in showing a new technique which is atraumatic and safe and which offers a way of determining the natural history and prognosis of scleral translucency and scleral thinning following scleritis. This study shows conclusively that scleral translucency is not synonymous with scleral thinning and it may rationalize the indications for enucleation and scleral grafting in this problematical clinical situation.

Ups and Downs of Indomethacin Bioavailability. P. M. Brooks, M. A. Bell, J. J. Walker, A. C. Kennedy, R. D. Sturrock, and W. C. Dick (*The Centre for Rheumatic Diseases and University Department of Medicine, Royal Infirmary, Glasgow*)

This paper reports results obtained during the preliminary part of a combined clinical and laboratory programme of investigation into the drug indomethacin. Indomethacin plasma concentrations were measured by the method of Hucker and others (1966). Indomethacin 'profiles' were constructed by determining plasma levels at regular intervals after oral administration of a standard dose of drug. Duplicate estimates of plasma concentration gave a standard error of the difference of 0.05 mg/ml. Day-to-day reproducibilities of indomethacin profiles have been determined.

The indomethacin profile was reflected in the expected changes in clinical indices of disease activity (Lee and others, 1973).

Table of results

Normal controls			Scleritis group		
No.	Actual measurement on Polaroid film (mm) 5 mm from limbus	Calculated scleral thickness (mm)	No.	Actual measurement on Polaroid film (mm) 5 mm from limbus	Calculated scleral thickness (mm)
1	0.80	0.46	1	0.80	0.46
2	0.78	0.45	2	0.82	0.47
3	1.18	0.67	3	1.00	0.57
4	0.95	0.54	4	0.76	0.43
5	0.78	0.45	5	0.92	0.53
6	1.28	0.73	6	0.96	0.55
7	0.70	0.40	7	1.16	0.66
8	1.14	0.65	8	0.64*	0.37
Mean		0.54	Mean		0.50
SD		0.12	SD		0.09
SEM		0.04	SEM		0.03
1 cm from limbus			1 cm from limbus		
1	1.36	0.78	1	1.08	0.62
2	1.30	0.75	2	0.62*	0.35
3	1.08	0.62	3	1.24	0.71
4	0.80	0.46	4	0.96	0.55
5	1.24	0.71	5	0.80	0.46
6	0.96	0.55	6	0.82	0.47
7	0.82	0.47	7	1.40	0.80
8	—	—	8	1.00	0.57
Mean		0.62	Mean		0.57
SD		0.13	SD		0.14
SEM		0.05	SEM		0.05

* Limit of resolution of Disonograph 4102 calculated scleral thickness derived from estimated speed of ultrasound in scleral tissues and known magnification of polaroid film.

In 10 patients with classical rheumatoid arthritis indomethacin profiles and articular indices were determined before and after a period of one week's administration of probenecid (1 g daily). There were significant differences between the two indomethacin profile results, and the articular index fell significantly ($P < 0.05$) from a mean value of 17.6 ($\pm$ SEM 2.8) before treatment to a mean value of 12.5 units ($\pm$ SEM 1.1) after probenecid. Despite attaining very high plasma indomethacin concentrations after probenecid no patient complained of side effects. This effect of probenecid on indomethacin levels was noted in further studies after both oral and rectal administration. When frusemide was administered orally with indomethacin the indomethacin profile was reduced. These results are preliminary and based on a small number of patients but do raise the question of the advisability of concurrent administration of diuretics and indomethacin.

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Mark Twain and Rheumatology. G. Juttla and V. Wright (*Rheumatism Research Unit, The University of Leeds*)

The aphorism of Mark Twain that 'the advantage of medicine is the large return of conjecture one gets for such a small investment of fact' has been studied in an analysis of 1 222 articles in 15 journals by 2936 authors! Conjecture has been expressed as a percentage of fact. The journals analysed were from four areas: (1) medicine, (2) 'pure' science, (3) arts, (4) psychology. The medical journals were further subdivided into rheumatology, general medicine, and orthopaedic surgery.

It was found that there was little truth in Mark Twain's aphorism, with the exception of orthopaedic surgery, in that the ranking order of talkativeness was (a) orthopaedic surgery, (b) pure science, (c) arts, (d) general medicine, and (e) rheumatology. It was noted that medical journals required more authors to write an article than arts journals. There was some evidence that Mark Twain (an American) may have been influenced by local observations, in that the Americans were more talkative than those from the United Kingdom in science journals, orthopaedic surgery, and general medicine, whether this was judged by the country of publication, or the country of origin of the authors. In rheumatology, however, the British were the most talkative and were only outstripped (marginally) by authors in psychological literature. This last analysis was by place of publication; in terms of the country of origin the British fared rather better. When the data were analysed by the subject of the article it was found that clinicians and pathologists were more diffuse than surgeons and biochemists.

Generalized Osteoarthritis. A Problem of Definition. T. Benn and P. H. N. Wood (*ARC Epidemiology Research Unit, University of Manchester*)

The epidemiological outlook often appears to confound clinical concepts, particularly in regard to syndromes. Thus primary generalized osteoarthritis (GOA), as conceived by Kellgren and Moore (1952), is regarded clinically as being a separate disease from secondary or pauciarthritic forms of OA. However, a major distinguishing feature, the number of joints affected, failed to differentiate these syndromes clearly in a population survey (O'Brien and others, 1968). The situation is therefore analogous to the old controversy about the distribution pattern of blood pressure levels, and whether essential hypertension is a discrete entity.

We have pursued this question using data on 229 persons with various types of OA who were examined in a collaborative study by rheumatology clinics in England, France, Finland, Czechoslovakia, Bulgaria, and the U.S.S.R. 51 patients with coexisting diagnoses of RA, gout, or ankylosing spondylitis were excluded from the subsequent analysis. The frequency with which a double diagnosis of GOA and RA was assigned in the Finnish and Bulgarian clinics suggests that the concept of GOA may be different in these countries. Examination of the likelihood of particular sites being involved in relation to the total number of involved sites confirmed the clinical concept of separate syndromes of multiple and local OA with preferences for different sites. The results for the hip were consistent with their being more than one syndrome of OA in this joint, as Kellgren and Lawrence (1961) have reported. Multiple joint involvement was associated with raised ESR, serum uric acid, and rheumatoid factor (SCAT). It was concluded that numerical analysis supported GOA as a meaningful concept.

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Discography in Assessment of Lumbar Disc Disease. J. T. Patton (*Department of Radiology, Manchester Royal Infirmary*)

The technique of lumbar discography involves injecting a water-soluble contrast medium into the nucleus pulposus using a posterior midline approach and local anaesthesia under fluoroscopic control. The technique is not new (Lindblom, 1948) but is now made easier by image intensification with television amplification. The technique traditionally relies on two criteria as evidence of disc disease. (a) *Pain reaction.* Injection of the normal disc is painless and pain on injection is good evidence that the disc is diseased. Reproduction of the patient's symptoms is an accurate guide to the level where there is evidence of multiple disc disease. (b) *Radiographic appearances.* The distinction between normal and abnormal discs is so characteristic as to render (a) virtually unnecessary. The contrast medium currently used by the author is virtually painless on injection. The technique demonstrates disc prolapse both anterior and posterior, Schmorl's nodes, degenerative disc disease, etc.