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Regression of atheroma

Only the optimists among us believe that obstructive atheroma in the coronary arteries of our patients with angina might regress if we could persuade them to reduce the load of adverse factors in their life style. The effort required to lower blood pressure and blood fats and to stop smoking would be amply justified if that action inhibited the development of new atheroma or the progression of old lesions. What we know of the pathological features of atheroma does not, however, give grounds for optimism that diseased blood vessels can be restored to normal or near normal. The regression of experimental atherosclerotic lesions that can be induced by unnatural diets in animals probably has little or no relevance to human disease.

Interest has centred on the demonstration of changes in serial coronary angiograms, since it is atheromatous obstruction in the coronary arteries which is common and lethal and not (so much) atheroma elsewhere. As the technique has become safer and the quality of the pictures has improved, coronary angiography is being used more and more often. Coronary arteriograms are already commonly repeated to re-evaluate surgical indications or to assess the results of surgery; repeat studies are just as necessary to evaluate the effects, if any, of the expensive drug and restrictive dietary regimens which are handed out to patients with hyperlipidaemia.

Several reports have testified to the regression or even disappearance of coronary obstruction in individual patients. Usually the improvement in an artery has been a surprise observation in the occasional patient among larger groups reinvestigated for one reason or another, and the improvement has not been linked with suppression of hyperlipidaemia by diet or drugs.[1–4] Most of the obstructions which have lessened have been in the anterior descending branch of the left coronary artery, and it has been suggested that this artery may sometimes be the site of spontaneous thrombosis, possibly secondary to spasm, in patients who may not have atheromatous disease at all.[5] In a recent paper from Holland[4] four patients (out of 294) were described in whom narrowing of the anterior descending coronary artery showed regression in serial studies. All were men, aged between 32 and 49 years, and all were smokers, but only one of these patients had hypercholesterolaemia and its degree was slight. There was no evidence at all that the improvement seen had anything to do with medical treatment of atherosclerosis, if indeed the coronary lesions were atherosclerotic at all.

It is remarkable that atheroma in the aorta and iliofemoral arteries has not been studied serially more often. The reported studies have usually concerned patients with advanced disease which has continued to progress under observation. In a recent paper Barndt and his colleagues[6] reported the use of femoral arteriography to study the effect of lipid-lowering treatment in patients with hyperlipoproteinaemia referred to the University of Southern California Medical Center's Cardiac Lipid clinic because of inadequate lowering of blood fat concentrations. Compared with the coronary arteries—which are small, continually bending and straightening, and have to be viewed against a radiodense background—the femoral arteries are straight, unbranched, motion-free, and surrounded by structures which are both less opaque to *x*-rays and more homogeneous than is the myocardium. Higher definition means that smaller lesions can be resolved in femoral artery angiograms than in the coronary vessels; and femoral angiography is quicker, safer, and more readily repeatable than coronary angiography. Moreover, the femoral arteries are the site of early atherosclerotic plaques in young people with hyperlipidaemia who have no symptoms of peripheral vascular disease.

The team studied 25 patients aged between 22 and 65 years.[6] Sixteen had no symptoms and nine had a history of myocardial infarction or angina. Only one had claudication. Twelve patients had hypertriglyceridaemia (Fredrickson type 4) and 13 had hypercholesterolaemia (Fredrickson type 2). The patients were treated primarily by diet, with drugs (including hypotensive agents) when necessary. The average interval between femoral angiograms was 13 months, and Barndt *et al* used two new procedures for evaluating the films to improve the accuracy and sensitivity of assessment. Thirteen patients showed progression, three patients showed no change, and nine patients showed regression of their lesions. The patients in the group showing regression showed a significant fall in serum cholesterol concentration, whereas the patients who showed progression did not. Serum triglyceride concentrations and systolic and diastolic blood pressures also fell in patients showing regression but did not do so in the group showing progression of their disease. At the beginning of the study there had been no important differences in the risk factors in the patients showing regression and those showing progression.

This is the first report of regression of human atherosclerosis linked to correction of hyperlipidaemia by medical treatment; it is especially important because the patients treated were mainly young; had few or no symptoms of peripheral arterial insufficiency; and showed much smaller, earlier atherosclerotic

lesions than the patients in earlier reports of either coronary or femoral atheroma. Thus Knight *et al*[7] found regression of coronary lesions in only three out of 22 patients with hypercholesterolaemia after surgical partial ileal bypass had produced an average 40% lowering of serum cholesterol concentrations.

The message seems abundantly clear.

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[3] Gensini, G G, Esente, P, and Kelly, A, *Circulation*, 1974, **50, suppl 11**, 98.
[4] Landmann, J, Kolsters, W, and Bruschke, A V G, *European Journal of Cardiology*, 1976, **4**, 475.
[5] Himbert, J, *et al*, *Bulletins et Mémoires de la Société médicale des Hôpitaux de Paris*, 1963, **114**, 367.
[6] Barndt, R, *et al*, *Annals of Internal Medicine*, 1977, **86**, 139.
[7] Knight, L, *et al*, *Surgical Forum*, 1972, **23**, 141.

Benign multiple sclerosis

In the older neurological articles, and even in some textbooks, it was often said that multiple sclerosis (MS) was generally fatal within 5 to 25 years of its onset. Evidence has emerged in the last 20 years that this assessment is incorrect, though many patients presenting in early adult life with progressive ataxic paraparesis or with signs of multiple lesions and more especially those with severe cerebellar ataxia have a worse prognosis than average.[1] However, McAlpine[2] drew attention to the existence of a benign form of the disease, and this possibility was later emphasised by Mackay and Hirano.[3] When retrobulbar neuritis is the first symptom the next may not follow for many years, and Brain[4] mentioned patients with remissions of 13, 15, 17, and 19 years respectively after an attack of retrobulbar neuritis, and of 20 and 25 years after another symptom, before the disease recurred. McAlpine *et al*[5] have suggested that a remission may last for a lifetime; in other words, an occasional patient may recover permanently from his first attack.

In the illustrative case reports selected by Mackay and Hirano[3] patients could be divided into three categories: MS attenuated in midcourse; MS with early arrest of the disease; and clinically silent MS. They described patients "in which subjective symptoms were ignored or forgotten and any few and scattered neurological signs served only to puzzle the casual clinician by their inadequacy for a diagnosis." They discussed some of their own cases and some reported by others in which typical plaques had been found in the central nervous system in patients dying from other causes and in whom MS had not been suspected in life. In fact such a course of events is not infrequent, as has been shown by Vuia[6] in a recent report of three cases. In the first of these a patient suffered transient difficulty in walking with dizziness and diplopia in 1942 and a brief minor recurrence of similar symptoms in July 1975. He died of carcinoma in December 1975, and old plaques characteristic of MS were found in his brain and spinal cord at necropsy. Of the other two patients, where again the pathological changes observed post mortem were characteristic, one had had only minor recurrent symptoms on two occasions over some 20 years and was not neurologically disabled at the time of death, while the other had suffered similar minimal neurological symptoms resulting from his MS but had eventually died as a consequence of cerebral and visceral arteriopathy.

Clearly, then, MS is a disease which frequently runs an exceptionally benign course.[7 8] Kurtzke *et al*[9] found that 69% of men patients lived more than 25 and 50% more than 35 years after the onset, while death from the disease seemed to occur somewhat earlier in women than in men patients[10]; for men the peak age of death was between 65 and 84 years. It remains to be asked if there is any way to predict in an individual patient that the disease is likely to run a benign course. In many of the cases that prove benign the first lesion is retrobulbar neuritis, followed by a prolonged period of remission before other neurological symptoms develop; alternatively, an onset with sensory as distinct from motor symptoms seems to carry a good prognosis.[5] Even in patients who suffer more frequent relapses and remissions, if their activity is relatively unrestricted within 5 to 10 years after the first limb symptoms the prognosis seems reasonably good. No rule is absolute, for one of the characteristics of this disease is its unpredictability, but clearly patients and their relatives should recognise how exceptionally benign the course of the illness may often be.

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[5] McAlpine, D, Lumsden, C E, and Acheson, E D, *Multiple Sclerosis: A Reappraisal*, 2nd edn. Edinburgh and London, Churchill Livingstone, 1972.
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[7] Percy, A K, *et al*, *Archives of Neurology (Chicago)*, 1971, **25**, 105.
[8] *British Medical Journal*, 1972, **1**, 392.
[9] Kurtzke, J F, *et al*, *Archives of Neurology (Chicago)*, 1970, **22**, 215.
[10] Kurtzke, J F, *Acta Neurologica Scandinavica*, 1972, **48**, 148.

Stress incontinence

Stress incontinence is at the borderland of gynaecology and urology. For many years it was the province of the gynaecologist because of its association—now questioned—with vaginal prolapse. More recently, however, new techniques of urodynamics have made the urologist's opinion vital. Furthermore, we now know that the clinician may wrongly interpret urge incontinence as stress incontinence, with very poor results from surgery.

A carefully taken history and full examination are the first essentials of management. Patients with urge incontinence due to instability of the detrusor muscle need to be recognised; for women with this syndrome and a vaginal prolapse requiring surgery in its own right must be warned that their distressing incontinence may be unaffected by the operation. Other patients may be found to have chronic retention, and urine culture may disclose urinary infection.

What, however, of the women whose symptoms are due to stress incontinence, and in particular, what is the mechanical problem? We know that there is no intrinsic permanent damage to the sphincteric mechanism,[1] though there is loss of support for the vesicourethral junction. Moreover, while the total length of the urethra probably does not influence matters,[2] the length of its intra-abdominal portion above the pelvic floor may be critical.[3]

The concept of "loss of the urethrovesical angle" was described by Jeffcoate and Francis[4] from their studies of single static voiding radiographs. Since then the introduction