and labour, might ensue, and clinicians using hypnosis should be aware of this unexplained effect.

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(Accepted 2 December 1985)

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Preparing diabetic patients for x ray examinations: potential hazards

Diabetes affects some 1-2% of the population and the *x* ray department is often called on to aid in the management of diabetic patients. Certain radiological investigations require preparation of the patient—for example, starvation, purgation, or fluid restriction. These preparations may be hazardous in diabetics, particularly those treated with insulin or oral hypoglycaemic agents, unless instructions are given to adjust diabetic treatment. Recently two insulin treated diabetic patients attending for barium meals as outpatients suffered hypoglycaemic coma in our *x* ray department while waiting for their examination. These patients had been given their morning insulin injections and attended the department starving.

In this prospective study of outpatients we assessed whether diabetics had been instructed to adjust their diabetic treatment before attending for radiological investigations and what diabetic information had been given on the *x* ray request form.

Patients, methods, and results

The study was performed prospectively in a large district general hospital. During two months patients attending for outpatient investigations (requested by hospital doctors and general practitioners) were asked if they were diabetic, what diabetic treatment they were taking, and what instructions they had received from the referring doctor. Of 6944 patients referred, 114 (1·6%) were diabetic. Thirty two of these required some form of preparation before their investigation (see table). In 16 patients diabetes was mentioned on the request form. Only three of these, however, recalled the referring doctor warning that alteration in their diabetic treatment may be required to comply with the *x* ray preparation. In the other 16 patients diabetes was disclosed only after direct questioning by the booking clerk. Eleven of these were being treated with insulin or oral hypoglycaemic agents and were requested to starve from midnight or restrict oral fluids. None was warned of the possible hazards by the referring doctor.

Radiology department outpatients: 32 diabetic patients requiring preparation during two months

Diabetes mentioned on request form	Diabetic treatment	Starve from midnight*	Fluid restriction†	Low residue diet and purgation‡
Yes	Insulin	4	1	1
	Oral agent	4	2	3
	Diet			1
No	Insulin	2	1	
	Oral agent	3	5	
	Diet	3	1	1

* Starve from midnight—for barium swallow, small bowel meal, oral cholecystogram, selected ultrasound scan.
† Fluid restriction—six hours for intravenous urography.
‡ Low residue diet and purgation—for barium enemas.

Comment

This study shows that diabetes is frequently forgotten or ignored by doctors requesting outpatient radiological investigations. Most doctors assume that patients will be instructed by the *x* ray department on how to modify their insulin or oral drug treatment. Unless the appointment clerk specifically asks all patients booking these procedures about diabetes and its treatment many diabetics (half in this study) will be instructed to starve or restrict fluids and receive no advice on how to modify treatment. Intelligent patients will either alter their treatment appropriately or seek further advice. Many, however, do not, become confused, and may or may not omit their insulin or oral drug on the day of investigation. Starving may induce hypoglycaemia, and some insulin dependent patients may rapidly develop ketosis if insulin is omitted for more than a few hours. Both general practitioners and hospital staff (consultant and junior doctors) were equally poor at mentioning diabetes on the request form. Where diabetes was indicated it was often unclear, and abbreviations were common—"DM," "IDDM," "DM on tab," "DM on ins," etc.

A particular problem was highlighted in our study. Patients referred for intravenous urography are normally instructed to restrict fluids beforehand. Dehydration in diabetes, however, may precipitate renal damage.[1] Ten patients were referred for intravenous urography but in only three was diabetes mentioned on the request form. We make the following recommendations for managing diabetics treated with insulin or oral hypoglycaemic agents[2]:

Starve from midnight—Patients asked to starve from midnight should not take their morning insulin or oral hypoglycaemic drug. They should be seen first on a morning list. Facilities should be provided for the patient to be given insulin or oral drug and breakfast.

Fluid restriction—Patients attending for urography are usually instructed to restrict their fluid intake and to starve for six hours before the investigation. The diabetic patient should not have his fluid restricted. Again he should be first on the morning list and facilities should be provided for giving insulin and breakfast. A low osmolar contrast agent, which is less nephrotoxic, should be used.[1]

Low residue diet and purgatives—This preparation is complicated. Many insulin treated patients need to be admitted for 24 hours beforehand to stabilise their diabetes and ensure adequate colonic preparation. If it is not possible to perform the enema first on a morning list an insulin and dextrose infusion should be given.

It is the responsibility of the requesting doctor to ensure (*a*) that the *x* ray department is aware that the patient is diabetic and (*b*) that treatment with oral drug or insulin is adjusted to comply with the *x* ray preparation. If a patient does arrive fasted and has taken insulin or oral drug that morning a few sugar lumps in a small amount of water should prevent hypoglycaemia.

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(Accepted 13 December 1985)

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Deep vein thrombosis in patients with superficial thrombophlebitis of the leg

Superficial thrombophlebitis is considered to be a benign disease, often a complication of varicose veins. Morphologically there is no difference between thrombosis in the superficial and deep venous systems. Superficial thrombophlebitis may be complicated by pulmonary embolism and may be fatal.[1,2] We established by means of phlebography the prevalence of deep vein thrombosis in patients presenting with superficial thrombophlebitis.

Patients, methods, and results

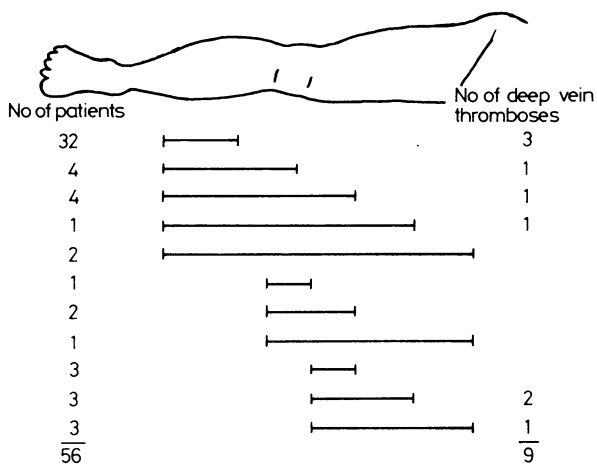
We studied 56 consecutive patients (21 men, 35 women) with symptoms and signs of superficial thrombophlebitis in the lower legs; the median age was 58 (range 26-84) years. Patients with infusion thrombophlebitis were excluded. After a clinical diagnosis of superficial thrombophlebitis (palpable elongated subcutaneous lumps along the axis of superficial veins, tenderness, swelling, and redness) the patients underwent ascending phlebography to detect deep vein

thrombosis. All phlebograms were interpreted by the same radiologist, and recent thrombosis was diagnosed when there were direct signs of thrombus tap. Such signs were present in all patients but one, in whom the diagnosis was based on indirect signs.

All patients were from Malmö, and at follow up after three to five years the local tumour register was checked to establish whether any patients had developed malignant diseases.

Results

At diagnosis the median duration of symptoms was three days (range one day to six months; one patient had had symptoms for six months, all the others for under one week). The figure shows the site of the lesions, most being below the knee. Four were of the migrating type, and all were in the great saphenous vein. Left sided thrombophlebitis was present in 40 patients and right sided in 16 ($p<0.05$). Thirty eight patients had varicose veins of different extension and severity. The patients with varicose veins had a median age of 58 (range 29-78) years and the patients without 65·5 (26-83) years. A history of thromboembolism was established in 19 (50%) with varicose veins and six (33%) without.



Anatomical site of superficial thrombophlebitis and distribution of deep vein thrombosis.

Phlebographic acute deep vein thrombosis was seen in nine patients, of whom eight did not have varicose veins. Thus the prevalence of deep vein thrombosis in patients without varicose veins was 44%, compared with 2·6% in those with ($p<0.01$). The site of the thrombophlebitis did not influence the presence or absence of deep vein thrombosis (figure). There were no pulmonary emboli. None of the patients with varicose veins had developed malignant disease at follow up, whereas two (11%) of the patients without varicose veins had (one mammary cancer and one polycythaemia vera) ($p<0.05$). Both the patients with malignancy had had deep vein thrombosis of the whole leg on phlebography initially.

Comment

This study was undertaken to establish the prevalence of deep vein thrombosis in patients presenting with symptoms and signs of superficial thrombophlebitis. In patients with varicose veins this combination is rare, but in patients without varicosities deep vein thrombosis is so common that phlebography should be strongly recommended. Thus about a quarter of patients with thrombophlebitis should undergo phlebography. Our patient with varicose veins and deep vein thrombosis had had deep vein thrombosis previously. The site of thrombophlebitis does not indicate whether deep vein thrombosis should be suspected. Thrombophlebitis of the migrating type was present in 7% of patients, none of whom had deep vein thrombosis.

The common occurrence of varicose veins in patients with superficial thrombophlebitis has been pointed out previously.[3,4] Edwards discussed the association between migrating thrombophlebitis and carcinoma on the basis of 23 published cases and six of his own.[5] As superficial thrombophlebitis is now considered to be part of a paraneoplastic syndrome our patients were followed up for three to five years: two of the 18 patients without varicosities, both of whom had deep vein thrombosis, developed malignancies. The possibility of malignancy must therefore be kept in mind, at least when superficial thrombophlebitis is combined with deep vein thrombosis.

The study was supported by a grant from the Swedish Medical Research Council (No 00759).

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(Accepted 17 December 1985)

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Restless leg syndrome and rheumatoid arthritis

The restless leg syndrome is an unpleasant, often distressing, dysaesthesia of the legs brought on by inactivity and temporarily relieved by movement.[1] Symptoms may be effectively treated with clonazepam.[2] We assessed the prevalence of the restless leg syndrome in patients with rheumatoid arthritis, patients with osteoarthritis, and healthy controls.

Subjects, methods, and results

We studied three groups of subjects: 70 consecutive patients admitted to hospital with classical or definite rheumatoid arthritis (mean age 59 years, range 21-81; 10 men, 60 women); 30 patients in hospital with osteoarthritis, matched as far as possible for immobility and predominantly suffering from osteoarthritis of the knees or hips, or both (mean age 68 years, range 30-83; four men, 26 women); and 70 normal controls from the general population matched for age and sex with the group with rheumatoid arthritis.

A standard questionnaire was used to assess dysaesthetic symptoms, and all subjects with such symptoms were examined to exclude clinically apparent polyneuropathy. Assessments were made independently by two observers. As the restless leg syndrome is a periodic condition, the presence of any symptoms in the preceding year was ascertained. In the group with rheumatoid disease activity was investigated by assessing morning stiffness, the number of inflamed joints, and the acute phase response to inflammation (erythrocyte sedimentation rate and C reactive protein concentration). Results were analysed by Student's t test or χ^2 test with Yates's correction. The prevalence of the restless leg syndrome was significantly higher in the group with rheumatoid arthritis compared with the group with osteoarthritis and the control group (table). No significant difference was observed between the group with osteoarthritis and the controls. Two patients with rheumatoid arthritis were excluded as the assessors disagreed over whether their symptoms were characteristic of the syndrome.

All subjects with symptoms of the restless leg syndrome were women. The age distribution of these patients in the group with rheumatoid arthritis closely followed that of the group as a whole. In eight patients symptoms were sufficiently severe for them to lose more than an hour's sleep regularly. Fourteen patients had sought a medical opinion about their dysaesthesia, but in no case was an explanation or treatment given. Within the group with rheumatoid arthritis there was no association between the presence of symptoms at the time of questioning, or within the preceding year, and any clinical or laboratory index of disease activity. In addition, all the patients with rheumatoid arthritis with the restless leg syndrome could dissociate their dysaesthesia from joint stiffness and pain and had not observed a worsening of their dysaesthesia in relation to temporary flares of synovitis.

Comment

The prevalence of the restless leg syndrome among patients with rheumatoid arthritis in hospital is high (30%) and significantly different

Prevalence of dysaesthetic symptoms characteristic of the restless leg syndrome

	Dysaesthesia		
	Present*	Absent	Prevalence (%)
Rheumatoid arthritis (n=70)	21	49	30
Osteoarthritis (n=30)	1	29	3
Controls (n=70)	4	66	6

*Defined as present if patient had had characteristic symptoms in previous year.
Significance: rheumatoid arthritic *v* controls, $p<0.01$; rheumatoid arthritic *v* osteoarthritis, $p<0.01$; oesteoarthritis *v* controls, NS.