

## ILIO-FEMORAL VENOUS THROMBOSIS IN HEALTHY ADULTS

By T. Ramanathan, N. K. Yong, F. Wang and T. G. Loh

## SYNOPSIS

3 cases of ilio-femoral venous thrombosis are reported. The possible aetiology and the indications for thrombectomy, vena caval interruption and anticoagulant treatment are discussed. Ideal treatment is venous thrombectomy for which an early diagnosis is mandatory.

Deep vein thrombosis following surgery is very common in Western countries (Flanc *et al*, 1968; Negus *et al*, 1968; Kemble 1971; Browse *et al*, 1970) but it is uncommon in Asiatic and African patients (Franz *et al*, 1961; Tinckler 1964; Srivatava 1964). The occurrence of deep vein thrombosis in normal healthy adult Asians must be exceedingly rare. The purpose of this paper is to report three patients who developed ilio-femoral venous thrombosis 'out of the blue' and to discuss the indications for the various methods of treatment.

## Case 1

A 25 year old Chinese male school teacher was admitted to this hospital on the 5th of February 1974 with a one day history of swelling of the whole of the left leg and discomfort in the left upper thigh and hip. There was no associated calf pain, cough or haemoptysis.

In October 1973 he developed pain in left calf and in January 1974 noticed swelling of left calf which subsided spontaneously. No past history of illness which required bed rest. On examination all systems were normal. Examination of the left leg revealed it to be swollen from the toes to the thigh, dusky in colour and non tender either in the calf or thigh. Homan's sign was equivocal. Pitting oedema of the left ankle was present.

Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur.

T. RAMANATHAN, F.R.C.S., Lecturer.

N. K. YONG, M.D., F.R.C.S., F.R.C.S.E., F.A.C.S., F.R.A.C.S.,  
Head and Professor of Surgery.

Department of Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur.

F. WANG, M.B., B.S., F.R.C.P.E., Assoc. Professor of Medicine.

T. G. LOH, M.B., B.S., M.R.C.P., M.R.C.P.E., Assoc. Professor of Medicine.

## Investigation

Hb—15.1 Gm. %, PCV 46%; MCHC 32.8%; WCC 7100; ESR 42 mm. in the first hour; Blood urea, Electrolytes and FEME—Normal.

Chest X-Ray was normal.

Full blood coagulation studies revealed normal results. There was no inhibition of fibrinolysis and fibrin degradation products were not present.

Venogram (Fig. 1) showed multiple filling defects and irregularities in the left common femoral, ilio-femoral and proximal iliac veins. These findings were consistent with ilio-femoral venous thrombosis with good collateral venous return.

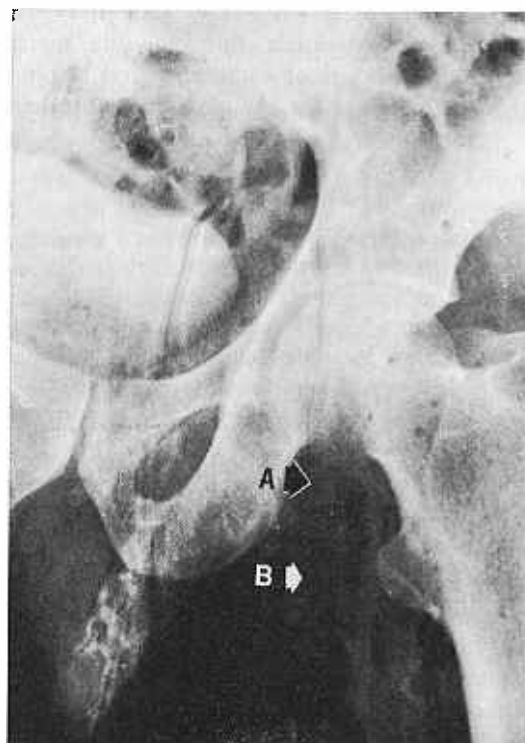


Fig. 1. Venogram of Case 1, showing filling defects in common femoral and ilio-femoral veins (A and B). The distal iliac vein is completely occluded.

### Management and Progress

The patient was put on anticoagulants and in spite of this developed repeated attacks of chest pain which were due to pulmonary embolisation. This was confirmed by lung scan which showed apical, anterobasal and lateral basal segments of left lower lobe, and the lingula and anterior segment of the left upper lobe to be involved.

Following this I.V.C. plication was performed on the 1st of March 1974. Post operative course was uneventful.

Postoperative venogram redemonstrated filling defects in the common femoral vein and left internal iliac vein with some recanalisation. Most of the contrast was seen to flow into the pelvic collaterals.

### Case 2

A 40 year old Indian male lorry driver, was admitted to the University Hospital on the 18th of April, 1974 with three months history of progressive swelling and dusky discolouration of the left lower limb. The swelling was gradual in onset, involving initially the foot and leg only and three days before admission the whole left lower limb was swollen from the toes to the groin. He also suffered from throbbing pain in the left calf and foot on walking and standing.

No past history of any illnesses needing hospitalisation or confinement to bed prior to the onset of the present complaint. He smokes 10 cigarettes daily and imbibes alcohol occasionally.

On examination all systems were normal. The left lower limb was cool to touch, swollen, dusky in colour and had prominent veins. There was no calf tenderness and Homan's sign was negative. All peripheral pulses were normal.

### Investigations

Hb—15.8 Gm. %, PCV 50 %, MCHC 31.6 %; Platelets 99,000; WCC 6400; Prothrombin Time 55 %; Thrombotest 91 %; Bleeding time 1 min. 11 sec; Clotting time 3 min. 32 secs. Blood urea, Serum Electrolytes and liver function tests were normal.

Coagulation studies performed after starting the patient on warfarin sodium showed therapeutic suppression of prothrombin activity with slight effect on thromboplastin generation test. Other aspects appear satisfactory, though euglobulinolysis shows marginal depression. Venogram

(Fig. 2) showed patent popliteal-femoral venous channel with complete occlusion of the ilio-femoral segment. Collateral venous channels were prominent.

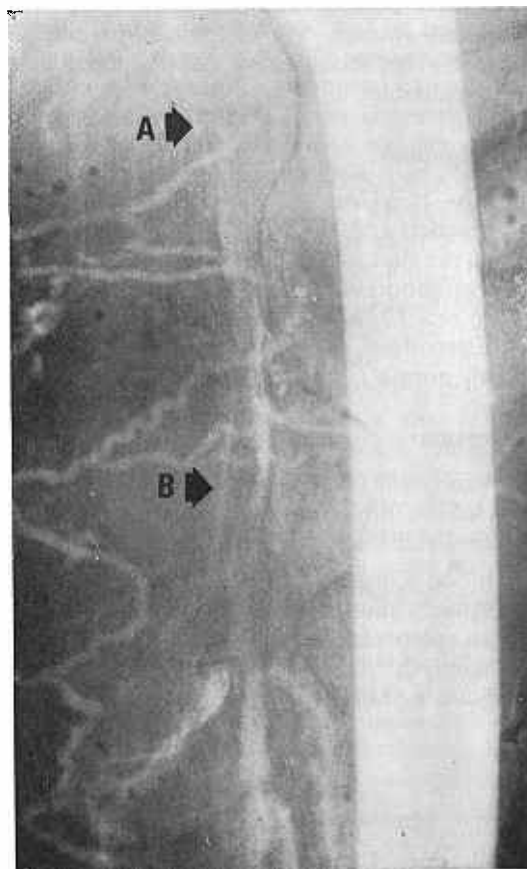


Fig. 2. Venogram of Case 2 shows patent popliteal-femoral segment. The superficial femoral vein (B) shows clot with contrast streaming around it. The ilio-femoral segment is completely occluded (A). Collateral venous channels are prominent.

### Management

Since this man had ilio-femoral venous thrombosis of long duration, it was decided to treat him conservatively with anticoagulants for about 3 months and crepe bandage support for his left lower limb.

### Case 3

A 51 year old Indian male clerk was admitted to this hospital on the 17th of May 1974 with a three day history of pain in left buttock and one day history of massive swelling of the whole left leg. The pain was precipitated by walking and relieved by rest. Two months previously patient suffered from an attack of "flu" for which he was confined to bed for 3 days.

He is an occasional smoker and non drinker. No past history of cough or haemoptysis.

On examination he was found to be slightly hypertensive, B.P. 190/100 mHg. All other systems were normal. The left lower limb looked pale and swollen. The calf was not tender and Homan's sign was negative. All peripheral pulses were palpable.

#### Investigations

Hb—14.3 Gm. %; PCV 44%; MCHC 32.5 %; Platelets 152,000; WCC 7600; ESR 29 mm, in the first hour; Prothrombin Time 100%; Thrombotest 72%; Bleeding Time 1 min. 26 sec; Clotting time 4 min. 53 sec; Serum Electrolytes, blood urea, blood sugar were all normal.

#### Venogram

Venogram (Fig. 3) showed complete occlusion of the ilio-femoral segment. The common femoral and long saphenous veins were patent.

Blood Coagulation Studies performed post-operatively showed rather high values for fibrinogen, platelets, platelet adhesiveness and euglobulinlysis time. All this pointed to a hypercoagulable state.

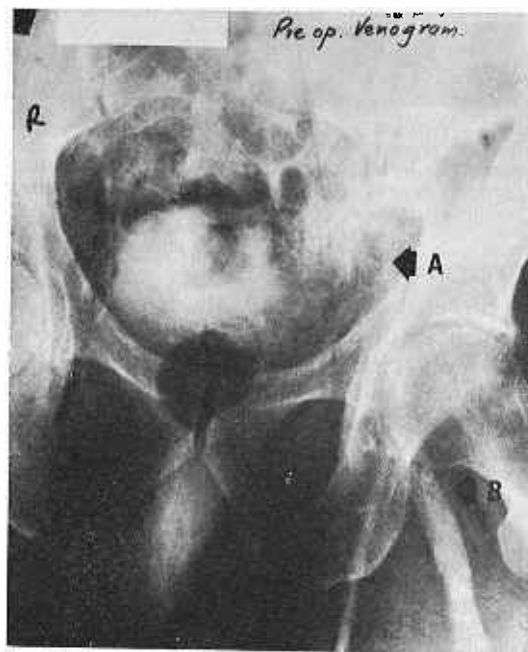


Fig. 3. Preoperative venogram of Case 3 shows patent common femoral vein (B) with complete occlusion of ilio-femoral segment (A).

#### Management

This man presented with a very short history of thrombosis of the ilio-femoral veins. Venous thrombectomy was carried out with very satisfactory results. Post operatively heparin was infused locally into the femoral vein via an indwelling catheter placed in the long saphenous vein. This was continued for two weeks at the end of which another venogram was performed via the catheter (Fig. 4). When this was satisfactory the catheter was removed and patient maintained on warfarin.

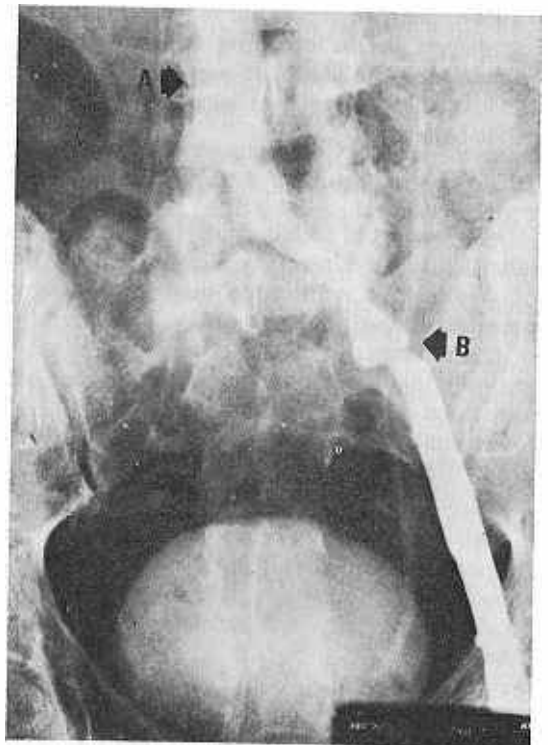


Fig. 4. Venogram of Case 3, performed two weeks postoperatively shows a completely patent ilio-femoral segment with a competent venous valve (B). Inferior vena cava (A) is patent.

#### DISCUSSION

Deep vein thrombosis is uncommon in Malaysia as in other parts of Asia and Africa. In a study carried out in the University Hospital using  $^{125}\text{I}$ -labelled fibrinogen in post operative surgical patients, the incidence of deep vein thrombosis was 10% (Cunningham 1973). The incidence of ilio-femoral venous thrombosis in healthy adults here is unknown but it is extremely rare. Indirect evidence that deep vein thrombosis is uncommon in Malaysia comes from the rarity of massive pulmonary embolism as a cause of death (W. S. Hwang 1968).

The aetiology of deep vein thrombosis remains uncertain. However, Virchow's triad of vessel wall disease, change in the composition of the blood and slowing of the blood stream covers most of the aetiological possibilities. The cause of ilio-femoral venous thrombosis in healthy ambulant adults is even more puzzling. The thrombosis may originate in the iliac veins or it may reach the iliac veins by progressing upwards from the femoral and popliteal veins. The latter method accounts for only 10% of all ilio-femoral venous thrombosis (Mavor *et al.*, 1968). Ilio-femoral venous thrombosis may be initiated either by some local pathological process in the pelvis pressing on or obliterating the great veins such as secondary malignant glands, aneurysms, ovarian cysts etc., or as the result of compression by the aortic bifurcation. In the latter case, the left common iliac vein is severely compressed and partially obliterated by the right common iliac artery stretched over it. This form of occlusion of the great veins occurs particularly in young patients aged 17 to 30 years (Cockett and Lea Thomas 1965). In the first and second cases we have to assume that this is the cause as other causes of venous occlusion have been clinically excluded. In the third case, a hypercoagulable state was probably the cause of thrombosis. Diagnosis of ilio-femoral venous thrombosis can be made easily clinically. However, it has to be confirmed by venography. Venography must be performed on both sides so as not to miss a silent ilio-femoral venous thrombosis on the opposite side.

For many years the treatment of deep vein thrombosis has been based on the traditional belief that the disease starts in the calf veins and spreads up the leg from there, and that this proximal propagation of clot is effectively halted by the use of various anticoagulants. Both these ideas cannot be substantiated on present day evidence. (Mavor 1971). Ilio-femoral venous thrombosis can be either occlusive or non-occlusive. In the latter instance the patient is under severe risk from pulmonary embolism.

Ilio-femoral venous thromboses, diagnosed early, are eminently suitable for thrombectomy. This is the most rational therapy for this condition. Thrombectomy can be performed in patients with a history of occlusion of less than 10 days duration. By performing venograms on the table one can perform thrombectomy until the veins are completely free of thrombi and venous return totally unimpaired. Reliance

on back bleeding can result in incomplete thrombectomy. (Mavor and Galloway 1969). When thrombectomy is completely successful, the swelling of the leg rapidly subsides and long term morbidity, in the form of swelling and chronic venous insufficiency, will be negligible. In Case 3 the swelling rapidly subsided and did not recur even when he was up and about. Retrombosis after thrombectomy is prevented by local infusion of heparin, via a catheter placed in the sapheno-femoral junction, for 2 weeks.

For patients with ilio-femoral venous thrombosis of long duration, i.e. more than 2 weeks, thrombectomy is out of the question. Infusion of streptokinase can be tried but rethrombosis rate is high (Mavor 1969). Further one needs a highly skilled haematologist to monitor the fibrinolysis and the fibrin degradation products in the serum. For patients with a long history of ilio-femoral venous thrombosis, the most one can do is to put them on anticoagulants for three to six months. These patients are doomed to a life of chronic venous insufficiency. Elastic bandage can give some support to the affected leg and delay the onset of venous ulcers.

Patients who developed ilio-femoral venous thrombosis run the risk of massive pulmonary embolism. The risk is high with loose clots and during early days of thrombus formation. Here again thrombectomy is the ideal treatment. If this is not possible, e.g., delayed diagnosis, and patient is embolising to the lungs, some form of venous interruption needs to be performed. For ilio-femoral venous thrombosis, inferior vena caval plication will effectively prevent further embolisation but this is attended by moderate amount of morbidity (Little 1970).

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