Possibly these may have been of splenic origin, containing the abnormal karyotype, and were eliminated by the brief but effective course of hydroxyurea before splenectomy. If so, one would assume that the marrow had not then been colonized by the abnormal clone. It appears highly unlikely that so short a course of hydroxyurea would have had a permanent effect on an established population of cells in marrow while leaving the splenic clone easily demonstrable. Large numbers of neoplastic cells may enter the marrow from other sites without establishing a proliferating population there. We have seen four patients with disseminated lymphoproliferative disease[9] and one with "blastic" myeloid metaplasia of the spleen (unpublished data) in whom marrow remission followed local radiation therapy or splenectomy.

Aggressive treatment of myeloblastic transformation may temporarily eliminate clones of leukaemic cells with karyotypic abnormalities,[10] but such remissions are usually short-lived and the abnormal karyotype often recurs within weeks.[11] In our patient, in contrast, the abnormal clone of cells shown in the spleen disappeared permanently after splenectomy. Karyotypic abnormalities were again found during the last six months of life, but these were different from those seen originally. Nevertheless, cytogenetic examination on 29 June 1973, when the patient appeared to be in complete remission of leukaemia, predicted the rapid haematological and clinical deterioration that was observed a few weeks later.

Attempts to reverse the terminal episode of myeloblastic transformation were unsuccessful. This is consistent with our experience that Ph[1]-positive patients who develop additional karyotypic abnormalities are much more refractory to treatment of the blastic state than patients who retain the original chromosomal pattern.

We have carried out simultaneous karyotypic analysis of spleen and marrow aspirates from five other patients undergoing splenectomy during the accelerated or blastic phase of the disease but have not identified other instances of such cytogenetic discordance. From our experience, which includes 30 patients subjected to splenectomy during the "terminal phase" of C.M.L., such gratifying responses are unusual. The present case, however, is probably not unique. Our series includes two other patients whose disease reverted to an easily controlled chronic state and who survived more than three years after splenectomy. Unfortunately, both were treated before we initiated chromosomal studies of splenic cells.

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SHORT REPORTS

Q Fever Presenting with Paroxysmal Ventricular Tachycardia

A description of myocarditis complicating Q fever[1] prompts us to report a patient who presented with recurrent ventricular tachycardia and was found to have Q fever.

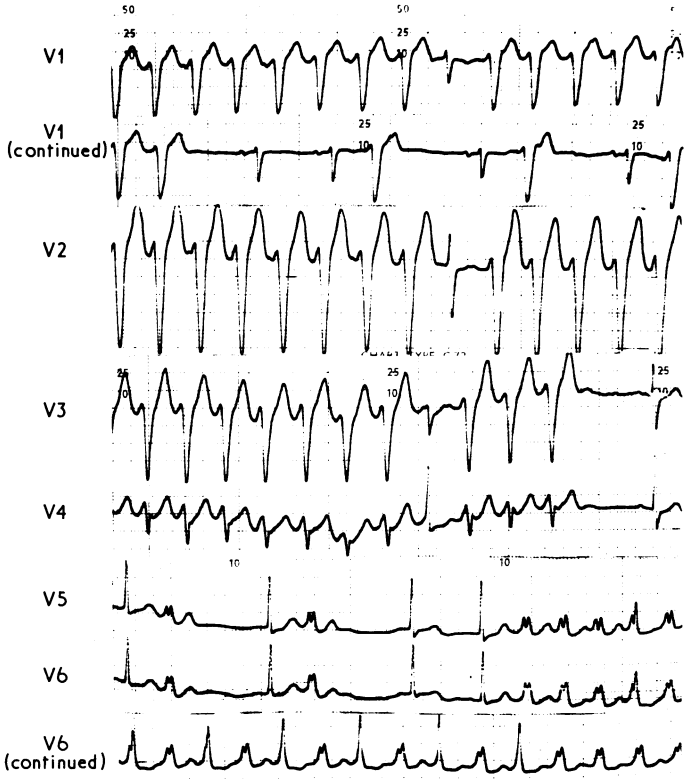
Case History

A 51-year-old insurance company manager, who occasionally visited farms, became febrile and had several rigors 10 days before admission. Two days after these, after some dizziness, he briefly lost consciousness. Over the next few days he began to feel better but the day before admission had two similar syncopal attacks. He looked pale and unwell and his pulse was 52 and irregular. The only other abnormality was a localized area of coarse crepitations at the left lung base. Blood pressure was 140/70. There was no evidence of congestive cardiac failure or endocarditis. E.C.G.s (see figure) showed frequent premature ventricular ectopic beats, paroxysmal ventricular tachycardia, and ST-T wave changes; haemoglobin was 13·1 g/dl; W.B.C. $7{\cdot}6\times10^9$/l, with normal differential count; E.S.R. 70 mm/hr; S.G.O.T. 34 units; blood cultures sterile. Chest *x*-ray film showed a small area of consolidation in the left lower zone, which cleared later. Phase II *Coxiella burnetti* titres were: <8, 1024, 2048 on days 1, 21, and 33, respectively.

A provisional diagnosis of viral myocarditis was made. The arrhythmia was difficult to control; it was treated initially with lignocaine and later with several combinations of other anti-arrhythmic drugs, including phenytoin, procainamide, and practolol, but was not fully controlled until 10 days later. He also had tetracycline for two weeks. The syncopal attacks were attributed to ventricular tachycardia and did not recur after admission. For several months he complained of palpitations after exertion but on follow-up at six months was completely well.

Discussion

Though ventricular ectopic beats may occur with any febrile illness, the nature, duration, and severity of this arrhythmia and the associated



E.C.G. showing premature ventricular ectopic beats, paroxysmal ventricular tachycardia, and ST-T wave changes.

ST-T wave changes would be difficult to explain without specific myocardial involvement; probably, therefore, these were manifestations of Q-fever myocarditis.

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Ultrasound in Management of Clinically Diagnosed Threatened Abortion

Altogether 237 patients with a clinical diagnosis of threatened abortion were examined ultrasonically to determine whether ultrasound was an accurate aid to clinical diagnosis which could shorten the stay in hospital and reduce the number of uterine evacuations.

Patients, Methods, and Results

Before their 15th week of pregnancy 237 patients with a clinical diagnosis of threatened abortion were scanned ultrasonically with a Nuclear Enterprises Diasonograph NE4102. Donald's "full bladder technique" was used.[1] Threatened abortion was diagnosed if fetal heart movement was identified.[2] When this was not shown or if the features detailed by Donald *et al.*[3] were present missed abortion was diagnosed. If echoes were seen in the line of the endometrial cavity incomplete abortion was diagnosed. When such echoes were absent or when the cavity showed as a straight line complete abortion was diagnosed.[4] Subsequent management was based entirely on the patient's clinical progress, and, apart from one hydatidiform mole, the ultrasonic findings were ignored.

Ultrasound confirmed the clinical diagnosis of threatened abortion in 82 patients (34·6%), five of whom subsequently aborted. The remainder continued with normal pregnancies. Missed abortion was diagnosed in 69 patients (29·1%) and later became clinically obvious in 67, three of whom aborted completely and did not undergo surgery. The uterus was evacuated under general anaesthesia in 64 patients, in nine as an emergency procedure. The ultrasonic diagnosis was incorrect in two patients who later delivered healthy infants. Forty patients (16·9%) were diagnosed as having incomplete abortion, and evacuation was performed when the pregnancy test result became negative. The ultrasonic findings were confirmed in 37 patients. No curettings were obtained in two cases, and in the third proliferative endometrium was obtained 16 days after the ultrasonic report. Complete abortion was diagnosed in 45 patients (19%); 16 were discharged from hospital without operation and none had abnormal bleeding subsequently. The remaining 29 were curetted but tissue was obtained from only one. Hydatidiform mole was diagnosed in one patient.

Discussion

These results illustrate ultrasound's accuracy in diagnosing bleeding in early pregnancy. Misleading results were obtained in only six (2·5%) out of 237 patients. Had these findings been acted on the length of hospital stay for many patients could have been reduced (see table). The 28 patients reported as having complete abortions who were subsequently curetted would have avoided an unnecessary operation. The 67 who were correctly diagnosed as having missed abortion would have had evacuation performed as a planned procedure; while waiting for the clinical diagnosis to become obvious nine of them (13·4%) bled excessively and required emergency surgery. Of the six misdiagnoses three involved describing small quantities of retained products which were not present at curettage, though one of these could be explained by the 16-day interval between the scan and uterine evacuation. In another patient the scan missed a small quantity of decidua. The most serious errors were the diagnoses of missed abortion in two patients who proceeded with normal pregnancies. One was made in the sixth early pregnancy to be scanned and was almost certainly due to the inexperience of the observer. In the other the scan was unsatisfactory because of an insufficiently distended bladder.

Thus, though ultrasound may be a valuable aid in the diagnosis of bleeding in early pregnancy and may save the patient a long stay in hospital and unnecessary surgery fetal death should never be diagnosed without the confirmation of a second scan and without having made certain that the bladder is adequately filled.

Average Length of Stay in Hospital in 152 Patients with Doomed Pregnancies and Average Time from Ultrasonic Diagnosis to Evacuation

Type of abortion:	Missed	Incomplete	Complete
Average stay in hospital (days) ..	8·3	7·4	4·6
Average time from ultrasonic diagnosis to evacuation (days)	7·2	3·2	2·2

The initial finance for the Diasonograph donated by the Press Stage Children's Charity is gratefully acknowledged.

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Running and Primary Osteoarthritis of the Hip

We studied the hip joints of 74 former runners to find the significance of physical strain in the development of osteoarthritis.

Methods and Results

Each subject had won several Finnish championships; almost all had made a Finnish record time, and many had achieved a world record. The radiographic examinations were performed between 1963 and 1974. In 1973 a questionnaire was sent to all subjects still alive and 60 answered. At examination the average age was 55 (range 31-81). The athletes had started training at 15 (range 12-25), and had participated in running competitions for 21 years (range 8-50). Hip roentgenograms of 115 male patients from the roentgen files of Oulu University Central Hospital were used as controls. None of the controls had come to hospital because of a hip complaint; the radiograms had been taken for another purpose. The age distribution in this group was similar to that of the runners (mean 56, range 40-75).

Results of Roentgenographic Examination of the Hip Joints in Top Runners and Control Group

Degree of Change	Runners No.	Control Group No.
No change	64	88
Some osteophytes	7	17
Osteoarthritic change		
Slight and moderate	2	8
Severe	1	2
Total	74	115

Three athletes had true osteoarthritis. The most difficult to evaluate was a gold medallist who had started his sporting career as late as 23 and finished after eight years; his hip pains had not started until he was 50. The 81-year-old runner who suffered from moderate osteoarthritis had not given up athletics because of his hip. The third athlete (a marathon runner) suffering from osteoarthritis was 75 and had a slight unilateral change in the hip. Signs indicating epiphyseolysis could not be found in the roentgenograms of any of the athletes. Osteochondritis dissecans was not found either, and other findings (such as loose bodies and calcium deposits) were unusual.

None of the subjects with a normal finding or a finding with some osteophytes in the radiological examination had hip pains at follow-up. The runner with slight unilateral osteoarthritis of the hip had no symptoms, but the two subjects with clearly arthritic hips had definite pain.