granulocytes and producing rapid reduction of splenomegaly and a marked clinical improvement in six of eight such treated cases.

The disadvantage of many other agents such as myleran in producing thrombocytopenia and aplastic anaemia was not seen in cases of chronic myeloid leukaemia treated with colcemid.

The effects of colcemid on myelofibrosis are considered.

Colcemid would seem to be contraindicated in the treatment of chronic lymphatic leukaemia, and evidence suggests that it may even produce an acute change.

Colcemid has little or no beneficial effects on acute myeloblastic leukaemia.

This work has been done during the tenure by one of us (B. J. L.) of the Sybil Mary Pilkington Research Fellowship, and we would thank Messrs. Ciba Ltd. for the supply of colcemid.

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TEN-YEAR RECOVERY FROM CHRONIC LYMPHOCYTIC LEUKAEMIA

BY

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Reports of recovery from leukaemia are extremely rare. I wish to present the case of a patient who undoubtedly suffered from chronic lymphocytic leukaemia eleven years ago, but has since recovered both clinically and haematologically and has so far survived for ten years. I wish to stress that the point here is not the time of survival. Many patients have survived for ten and more years, but they have always shown signs of the disease, at least as far as an abnormal blood picture.

Case Report

The patient, a female textile worker, was born in 1882. In April, 1940, she had a severe attack of faucial diphtheria with pharyngeal palsy, diaphragmatic palsy, head-drop, and brachial palsy. There was nothing else relevant in her past history.

When seen on July 7, 1943, she complained of lassitude, dyspnoea, sweating, cramps in the legs, and indigestion for about one year. For the same period she had had two lumps in the left armpit.

Examination showed enlarged cervical, supraclavicular, axillary, and inguinal lymph nodes. They were firm, discrete, and quite painless. The spleen extended as far as the left iliac fossa, the notched medial border reaching the umbilicus. It was not tender. The sternum and tibiae were tender on tapping. There were some bluish nodules under the nail-bed of some toes. The urine showed a trace of albumin. There was no excess of urobilinogen or urobilin, and nothing abnormal in the deposit. Blood: R.B.C., 3,480,000; Hb, 70%; C.I., 1; W.B.C., 224,000 (polymorphs 3,360, lymphocytes 219,520, monocytes 1,120). The lymphocytes were fairly mature cells bigger than normal. The stain was taken well by the red cells. There were no nucleated red cells.

The patient was admitted for x-ray therapy, eight doses of 50 r each being given to the spleen. Thereafter the margin of the spleen was just palpable below the ribs, and the W.B.C. numbered 17,100, with 13,766 lymphocytes.

She began to lose her tiredness, dyspnoea, and abdominal pain, and started to feel well. The lymph nodes became gradually smaller, without, however, returning to normal size. The spleen was firm and painless and remained palpable three fingerbreadths below the left costal arch. Serial blood counts (see Table I) showed normal haemoglobin and red cells, with slightly raised total leucocytes, of which 75–80% were lymphocytes.

It was decided to give a further series of x rays to the cervical and axillary glands, and 50 r to four fields twice weekly to a total of 400 r was applied in May, 1944. Thereafter the glands were smaller, soft, discrete, freely mobile, painless, and about the size of a pea. The inguinal glands were no longer palpable. The size of the spleen was unchanged. The patient felt well in herself and did her housework and shopping.

In February, 1945, she developed a lower respiratory infection, the first of many more to follow. She made a slow recovery on symptomatic treatment, the blood picture being unchanged. After this the margin of the spleen could only just be felt below the ribs. The glands were unchanged in size. Further serial blood counts throughout 1945 and 1946 were normal (see Table I). In January, 1947, she again developed bronchopneumonia. In April the blood picture returned to normal. Cervical and axillary glands were palpable, and the spleen could not be felt. At the end of June, 1947, she again developed bronchitis, and a further bronchopneumonic attack occurred in December, 1947, and again in June, 1948. No glands could be felt anywhere, nor was the spleen palpable in December, 1948. In March, 1949, she started once more to cough and was feverish. She again had pneumonia in April, 1950, in January, 1951, and in April, 1952. She had a *Haemophilus influenzae* infection in January, 1953. In January, 1954, she developed erysipelas of the right cheek and forehead.

A blood count in July, 1954, revealed a hypochromic anaemia (Hb 65%). Seven weeks later, after iron medication, the haemoglobin was 83%.

Cases from the Literature

It is difficult to find sufficiently well-documented cases in the literature for comparison. Forkner (1938) quotes quite a number of cases, but most of these do not bear close scrutiny. Naegeli (1931), referring to chronic lymphocytic leukaemia, states that "published cures relate probably always to lymphatic reactions." Heilmeyer and Bege-mann (1951) in the latest German textbook do not even mention cure. Kolmer (1949) states that true leukaemia is invariably fatal, alleged recovery being due to errors in diagnosis. Wintrobe (1951) merely states that there are a number of reports of cure, but does not give his own opinion. So much for the rarity, even denial, of the possibility of recovery.

One case of recovery was described by Schiassi (1933).

A man aged 20 developed right pleurisy in 1911. In 1923 he developed left pleurisy with fluid. An enlarged spleen was found. A blood count in 1924 showed 200,000 leucocytes, of which 40% were immature granulocytes. Chronic myelocytic leukaemia was then diagnosed and a series of x-ray treatments were given. On his discharge in December, 1924, the leucocytes numbered 25,200, with 10% immature granulocytes. The spleen and liver were reduced to nearly normal limits. He returned to work. In July, 1928, he suffered from lassitude, loss of appetite, and pains in the right leg. He had 120,000 leucocytes (12% immature). Further x-ray therapy was given and the leucocytes fell to 12,400 on discharge. In December, 1931, he again felt weak and had pain in the left hypochondrium. The spleen and liver were not palpable. He had 18,740 leucocytes, with some myelocytes. In February, 1933, he had a haemoptysis. There were no palpable lymph nodes anywhere. The liver and spleen could not be felt. There was diminished air entry over the left lower chest and an x-ray film showed pleural thickening at the left base. The lung

TABLE I

Date	Hb %	R.B.C. (mil./c.mm.)	C.I.	Leucocytes	Polymorphs	Lymphocytes	Monocytes	Eosinophils	Basophils
				per c.mm.					
7/7/43	70	3.48	1.00	224,000	3,360	219,520	1,120	0	0
6/8/43*	75			41,400	4,554	36,432	414	0	0
13/8/43	62			17,150	2,658	13,806	600	86	0
17/8/43	62			17,100	2,650	13,766	684	0	0
29/9/43	89	5.35	0.83	9,900	1,881	7,920	0	99	0
7/12/43	97	4.44	1.09	9,100	1,729	7,189	91	21	0
8/2/44	86	4.81	0.89	10,900	2,289	8,284	327	0	0
18/4/44	95	4.54	1.05	11,200	2,016	8,848	112	112	112
31/5/44*	80	4.03	1.00	12,800	3,072	9,088	512	128	0
25/7/44	83	4.45	0.93	8,600	1,806	6,622	172	0	0
18/10/44	91	5.16	0.88	6,200	2,232	3,782	124	62	0
24/1/45	85	4.87	0.85	8,000	2,480	5,120	80	160	160
15/2/45†				3,800	1,786	1,938	76	0	0
24/4/45	93	4.94	0.94	7,200	2,160	4,896	0	0	144
7/8/45	105	5.34	0.98	5,000	2,200	2,700	0	50	50
6/11/45	89	5.15	0.86	4,900	1,568	3,185	147	0	0
7/5/46	87	4.91	0.89	3,300	2,079	1,089	132	0	0
6/8/46‡	77	4.39	0.88	2,800	1,484	1,036	168	84	28
4/1/47§	83	3.90	1.05	16,100	11,753	2,737	966	483	161
19/1/47§	73	3.83	0.95	11,100	8,325	1,443	666	666	0
28/4/47	85	4.49	0.95	7,900	4,503	2,528	632	237	0
18/8/47	80	4.64	0.86	1,525	320	1,159	31	15	0
19/9/47	84	4.59	0.92	5,000	3,100	1,550	100	200	50
8/3/48	93	4.54	1.02	2,600	1,820	624	78	52	26
6/8/48	90	4.81	0.94	7,000	4,690	2,030	140	140	0
29/12/48	89	4.36	1.02	5,700	3,591	1,710	228	114	57
5/8/49	84	5.02	0.84	5,300	3,816	1,219	212	53	0
9/1/50	87	5.02	0.87	4,500	3,060	1,215	225	0	0
7/8/50	97	4.26	1.14	4,000	3,000	960	40	0	0
27/6/51	82	4.68	0.88	7,300	4,307	2,774	146	73	0
25/7/52	85	4.73	0.9	5,000	2,800	1,750	250	150	50
14/7/53	92	4.61	1.0	3,200	2,080	864	64	160	32
21/6/54	65	5.53	0.59	6,800	4,352	2,108	272	0	68
11/8/54	83	4.90	0.85	3,900	2,652	1,092	117	39	0

* After x-ray therapy. † "Cold." ‡ Temperature 101° F. (38.3° C.), pulse 80. § "Cold." § Pneumonia.

TABLE II (Modified from Schiassi, 1933)

Date	Hb %	R.B.C. (mil./ c.mm.)	Colour- index	Leuco- cytes	Myeloblasts and Promye- locytes	Myelo- cytes	Metamye- locytes	per c.mm.					Mono- cytes
								Poly- morphs	Eosino- phils	Baso- phils	Lympho- cytes		
9/8/24	85	4.160	1.0	200,000	26,800	34,000	13,800	115,600	1,600	0	5,000	3,200	
28/8/24	45	4.500	0.5	275,000									
5/9/24	First x-ray treatment												
9/10/24	54	3.800	0.71	152,800	13,752	10,696	22,920	79,456	7,640	1,528	10,696	6,112	
31/10/24	Second x-ray treatment												
	60	3.800	0.79	82,000									
1/12/24		4.750		25,200	504	630	1,764	17,388	756	252	2,142	1,764	
18/7/28	54	4.900	0.55	120,000	6,000	8,400	0	102,000	1,800	0	600	1,200	
24/7/28	Third x-ray treatment												
25/7/28	Fourth	"	"										
25/7/28	Fifth	"	"										
27/8/28	47	3.800	0.61	12,400	Some myelocytes and promyelocytes			14,992	187	187	2,624	562	
8/1/32		4.108		18,740									
19/5/32	90	4.900	0.91	7,000									
8/3/33	60	3.725	0.81	7,400									
7/5/33	80	4.600	0.87	5,100									

fields were otherwise clear. No tubercle bacilli were found in the sputum. The blood (see Table II) showed a slight hypochromic anaemia. The number of leucocytes was normal. The differential count was normal except for an increased percentage of neutrophils and a decrease of lymphocytes.

Another case was reported by Gloor (1930) from Naegeli's clinic, but was followed up for only two years.

Discussion

The case of chronic myelocytic leukaemia reported by Schiassi seems the only one comparable to the case reported here. I have quoted it more extensively because I think it is not as well known as it deserves to be, possibly owing to the fact that it was published in a little-known journal. Schiassi himself concludes that one can no longer talk of leukaemia or a leukaemic myelosis, but that it is now a case of a chronic respiratory affection with slight hypochromic anaemia. The fact remains that his case shows five years' remission with clinical and haematological recovery.

With regard to the case now reported, I do not think that the diagnosis of chronic lymphocytic leukaemia is in doubt at all. The clinical findings, enlarged lymph nodes, and enlarged spleen, together with the blood picture of moderate orthochromic anaemia and 219,520 lymphocytes, represent a classical case.

The patient has twice been subjected to x-ray therapy. There was a steady decline in the number of lymphocytes after the first course, and after the second course the blood picture became normal and has remained so. It would be impossible now to make a diagnosis of chronic lymphocytic leukaemia from the blood picture. The spleen and lymph nodes were a little slower in regressing, but the spleen has been palpable since April, 1947, and the lymph nodes since August, 1948. A remarkable feature of this patient is her proneness to infections, almost wholly respiratory. It is not clear whether this is due to leukaemia or whether she has a diminished resistance, or whatever one likes to call it. It must be pointed out, however, that she did not suffer from these infections before she had leukaemia.

There is a voluminous literature covering the influence of infections on leukaemia. As regards the effect of infections, Jaffé (1932) found the normal defence reaction lacking in the absence of myeloid tissue. Wintrobe (1951) states that this is consistent with his findings of a higher incidence of infections in cases of lymphocytic as compared with myelocytic leukaemia, and an unusual vulnerability to infections in the former. My patient with chronic lymphocytic leukaemia seemed certainly more vulnerable to infections. However, as her blood picture has been normal for the past ten years it must be assumed that she possessed a normal amount

of myeloid tissue, sufficient for a normal defence reaction. Her proneness to infections cannot therefore be explained by a lack of myeloid tissue. If one assumes that it has some connexion with the leukaemia one has to look for another explanation. It may be that the formation of antibodies was altered in some way, if it is assumed that these are formed by lymphocytes. However, this is unproved. Hickling and Sutcliffe (1928) report a case of pneumonia in chronic lymphocytic leukaemia in which they found a moderate amount of protective antibodies in the serum after recovery.

The question of a remission of leukaemic signs through intercurrent infections has been summed up by Wintrobe and Hasenbush (1939). They come to the conclusion that there is little evidence for this even in the literature. In the case here presented it does not seem that the frequent infections have contributed to the remission. The recovery has taken place throughout unaffected by the infections.

Summary

A case is presented of ten years' clinical and haematological recovery from chronic lymphocytic leukaemia.

The clinical history of the patient, with blood pictures extending over eleven years, is given.

The literature is reviewed and one similar and one doubtful case are quoted and discussed.

The present case is discussed as regards diagnosis, frequency of intercurrent infections, and the influence of infection on leukaemia.

It is a great pleasure to thank Dr. C. J. Young, head of the Pathological Department, Bradford Royal Infirmary, for his constant encouragement, without which this paper would not have been written, and for kindly going through the manuscript. He has also given me considerable help with the laboratory investigations and advice in the management of the patient. I also wish to thank Dr. F. E. Chester-Williams for treating the patient and for permission to quote details of the x-ray treatment.

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The number of fatal accidents in the home is rising every year, according to the figures quoted by C. A. Boucher in the March issue of the *Monthly Bulletin of the Ministry of Health*. Whereas there were 4,904 fatal accidents in 1949, in 1953 there were 5,895. During the last ten years 57,413 people have died as a result of home accidents, and of these approximately 10,000 were children aged under 5; children under 5 and old people of over 65 accounted for four-fifths of the total figure, the peak risk period for a child being in the third year of life. Although 1953 saw a drop in the figures of children killed accidentally, the number of old people affected increased, about 60% of the accidents in this group being due to falls. It was hoped that the regulations introduced under the Heating Appliances (Fireguards) Act of 1952 would reduce the fatalities due to burns, but the provisional figures for 1954 indicate that the situation has worsened. The regulations apply only to heating appliances on sale and not to those already in the home. To counteract the large number of these fatal accidents the Home Safety Department of the Royal Society for the Prevention of Accidents has set up 70 local committees and hopes to set up more. A Home Safety Group has also been inaugurated, which will supply posters and propaganda.

USES OF CHLORPROMAZINE IN MENTAL HOSPITAL PATIENTS

BY

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Since its original use by Laborit and Huguenard (1951) in anaesthetic practice chlorpromazine hydrochloride ("largactil") has found a steadily increasing application first in the anaesthetic sphere and later in psychiatry.

Courvoisier *et al.* (1953) have investigated the pharmacology of the drug in animals, and from the psychiatric standpoint its most important properties appear to be its depressant effect on central nervous and autonomic activity and its potentiation of narcotic and analgesic drugs.

Early investigation into the psychiatric uses of the drug by Delay and his collaborators, reported in a series of papers (see References), has subsequently been confirmed and enlarged upon by a number of workers on the Continent, particularly by Sigwald and Bouttier (1953a, 1953b), Staehelin and Kielholz (1953), Flügel (1953a), and more recently in this country by Anton-Stephens (1954). All authors are agreed that its most striking effect is its sedative action in all states of tension, agitation, or excitement of whatever origin, but that this sedative effect is entirely different from that produced by the barbiturates or other hypnotics in that the patient is able to take a normal interest in his environment and perform his ordinary duties without, except in the early stages, any undue sleepiness.

Even when a soporific state arises, the patient is as easily roused as from normal sleep and tends to fall asleep only if he has no external interests at the time. Furthermore, Flügel (1953b) has shown that there is no falling off in mental capacity as measured by psychological tests—in some cases there is even an increase—and that the E.E.G. is not altered in the same way as with ordinary hypnotics. This unique sedative action of the drug has been variously described as a "chemical leucotomy" (Delay and Deniker), "a harmonizing of the personality" (Flügel), and "a state of psychic indifference" (Anton-Stephens).

The drug has been used in a wide variety of psychiatric conditions, and some success has been reported in almost all these conditions, but the most generally accepted indications are excitements of all kinds (manic, schizophrenic, or organic), agitated depression, neurotic tension states, and drug intoxications. Opinion about its effect on chronic psychotic states is more divided, but these conditions have been less extensively investigated.

Chlorpromazine has been in use at Springfield Hospital since November, 1953, and between then and the end of July, 1954, just under 500 patients have received the drug for periods varying from a few days to six months.

This paper reports the findings on the 205 patients (55 male and 150 female) who received treatment between November, 1953, and the end of March, 1954.

Selection of Material and Assessment of Results

The earliest cases treated were seriously disturbed chronic psychotics, but as the efficacy of the drug became more apparent the field of application steadily widened to include every type of case catered for by a large mental hospital.