and as methylpentynol is an important sedative (Sears, 1956), factors contributing to susceptibility are now being examined.

Summary

Eight case histories of methylpentynol intoxication are described, presenting with pupillary abnormalities, nystagmus, diplopia, ptosis, loss of facial muscle tone, dysarthria, tremor of the protruded tongue, and cerebellar ataxy in the limbs or admixtures of this with posterior column ataxia. Muscular tone, although occasionally augmented, was usually diminished. Plantar reflexes were flexor and sensation remained unaffected.

Mood change, particularly depression, dominated the accompanying mental state. Orientation was preserved even in a setting of impaired attention and concentration. Nominal dysphasia, paraphasia, distortion of subjective time experience and body image were noted. Illusions or possible hallucinations were common, as was impairment of memory for the toxic episode. Withdrawal features were seen in one instance.

Side-effects in a further 30 individuals were confined to minor alterations in the mental state.

The resemblance to barbiturate or alcoholic intoxications is emphasized, as is the small dosage and brief duration of therapy which precipitated toxic reactions. This was particularly valid for the patients with psychiatric disorders.

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TROPICAL PULMONARY EOSINOPHILIA

BY

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Although tropical pulmonary eosinophilia is common in certain parts of the world few cases have been reported in this country. Since, however, it appears to be a disease in which relapse is not infrequent, and as a steadily increasing number of Indians are coming here to seek employment, it is likely that cases will be encountered more frequently.

Case Report

A Hindu aged 31 came to England for the first time in February, 1955. He had spent his childhood in the Punjab and then lived in Calcutta. Shortly after his arrival here he caught a cold and developed a troublesome cough; the coryza disappeared after a week or two, but the cough persisted and became particularly disturbing at night; it was usually non-productive, but occasionally he had a little viscid sputum. Apart from his cough he felt well and his general health remained good. He first sought medical advice in October, 1955. No abnormality was found on clinical examination at that time, but an x-ray film of the chest showed a diffuse mottling throughout both lung fields. The opacities were rather coarser than those of miliary tuberculosis; both lungs were equally affected, and the middle and lower zones were involved more than the apices. Repeated sputum examinations were negative for tubercle bacilli, he was afebrile, and his sedimentation rate was normal. The total white cells numbered 21,100 per c.mm. (polymorphs 23%, lymphocytes 13%, monocytes 2%, eosinophils 62%).

On admission to hospital he first denied any previous illnesses, but subsequently said that he had suffered from "eosinophilic lung" in the past and gave the following history. In November, 1951, he developed what he thought to be an ordinary upper respiratory infection; however, it persisted, and he soon developed a cough which was dry initially but later productive of a little viscid sputum. After a few weeks he noticed he was having attacks of dyspnoea and wheeziness at night. When he had had symptoms for about three months he asked his doctor if he could have a blood count, since his symptoms were so similar to those of a friend who had recently been diagnosed as having tropical eosinophilia. His blood count showed an eosinophilia and he was given five injections of arsenic. He rapidly improved after the first injection and was symptom-free by the end of the course. Thereafter he was well until September, 1953, when he developed a pyrexial illness which lasted a few days and left him with a cough and nocturnal wheeziness. At this time a chest radiograph showed "numerous small opaque shadows along the increased bronchial markings, suggesting an eosinophilic lung condition." He was again given five arsenic injections, and subsequently remained well until shortly after his arrival in this country some 16 months later.

After his admission to hospital in October, 1955, repeated blood counts showed a persistent leucocytosis with a high eosinophilia. He had scanty sputum, which contained eosinophil cells on several occasions, and fat globules were present in every specimen examined. Several 24-hour specimens of sputum were examined for mites, but none were found. In view of the paucity of his sputum, bronchoscopy was performed and a trap specimen of bronchial secretions was obtained and examined for mites, but with negative results. Gastric aspiration was attempted on several occasions, since it was thought that mites might be swallowed and therefore be obtainable in the fasting gastric juice, but the patient steadfastly refused to swallow a Ryle tube and

the attempts had to be abandoned. Repeated stool examinations were negative for parasitic ova and cysts, and the blood Wassermann and Kahn reactions were negative.

It was concluded that he was suffering from a relapse of his tropical pulmonary eosinophilia, and treatment with oral arsenic was begun on November 25. He received 0.26 g. of acetarsol twice daily for four days, followed by two days' rest and then a further 0.26 g. of acetarsol twice daily for six days. For a few days after the course of arsenic his cough was rather worse than formerly, but it then started to improve and had completely disappeared about three weeks later. He was discharged from hospital in December and has remained well since. Serial chest radiographs showed progressive clearing of the lesions, and in February, 1956, his chest x-ray film appeared normal. His blood count slowly returned to normal (see Table).

Date	Total W.B.C. per c.mm.	Eosinophils	
		%	No. per c.mm.
31/10/55	21,100	62	13,000
21/11/55	17,900	61	10,919
25/11/55	17,000	72	12,240
25/11/55	Acetarsol commenced		
28/11/55	19,000	68	12,920
5/12/55	22,500	60	13,500
6/12/55	Acetarsol discontinued		
8/12/55	18,400	74	13,616
15/12/55	12,600	48	6,048
10/1/56	5,600	7	392
8/2/56	9,100	3	273

Discussion

Historical.—Tropical pulmonary eosinophilia is a well-recognized disease. Although commonly known as Weingarten's syndrome the first description of the disease was given by Frimodt-Møller and Barton (1940).

Aetiology.—Carter, Wedd, and D'Abrera (1944) suggested that tropical pulmonary eosinophilia is due to pulmonary infestation with various species of mites. This theory has received considerable support (Soysa and Jayawardena, 1945; Carter and D'Abrera, 1946a, 1946b), but it has not been universally accepted (Ball, 1950). An allergic basis has been suggested (Chakravarty and Roy, 1943; Lal, 1945), but the eosinophilia is much higher than is commonly met with in allergic diseases and there is usually no personal or family history of other allergic manifestations.

Geographical, Racial, and Seasonal Incidence.—The disease occurs mainly in India and Ceylon, but cases have been reported from other Asian countries, Africa, South America, and the West Indies (Parsons-Smith, 1944; Wilson, 1945; Stephan, 1946; Soysa, 1949). A pulmonary condition associated with eosinophilia is common in Samoa (Thompson, 1950). Cases occurring in this country have been reported by Apley and Grant (1944), Hunter (1946), and Hall (1946); most of their patients had been overseas, but in one of Hall's cases the disease appears to have originated in this country. All races are susceptible to the disease, the different racial incidence being accounted for on a geographical basis. The symptoms may start during a period of wet weather, or if symptoms are already present they may be aggravated if the humidity of the atmosphere increases (Ball, 1950).

Age, Sex, Family, and Occupational Incidence.—The disease occurs in all ages and in both sexes. It is much commoner in men than in women, probably owing to occupational factors. There is no familial predisposition to the disease (Weingarten, 1943). Although in many cases the patient's occupation has no bearing on the development of the disease, it has been noted that many of these worked in dusty atmospheres and among food, and the mites usually recovered from the sputum are of species which are commonly present in stored products (Carter *et al.*, 1944; Soysa and Jayawardena, 1945).

Symptomatology.—Characteristically the illness starts with lassitude, slight fever, and coryza. After a week or two a

cough develops (typically worse at night), and there is usually a little viscid sputum. The patient gradually becomes wheezy, and attacks of nocturnal asthma develop after the illness has lasted for several months; physical examination may be negative, but there are usually signs of bronchitis.

Blood Changes.—A massive eosinophilia in the peripheral blood is a constant finding. The degree of eosinophilia varies from case to case, and from time to time in any one case; it is not proportional to the severity of the symptoms, and may be found before the clinical features and x-ray changes have fully developed; it may persist while the symptoms are in natural remission (Soysa, 1952) and is commonly the last feature of the disease to disappear (Menon, 1945). The erythrocyte sedimentation rate is sometimes raised. A positive Wassermann reaction is a frequent finding (Menon, 1945; D'Abrera and Stork, 1946), but this is usually associated with a negative Kahn test. A high titre of cold agglutinins is found in some cases (Ball, 1950).

Radiological Changes.—Typically, a diffuse miliary mottling is seen in both lungs; the miliary nodules are never confluent and are often most numerous in the perihilar regions; the lower zones are usually more affected than the apices. These appearances are present in only about 50% of cases (Soysa, 1949; Ball, 1950). In other cases there may be no radiological changes, or only some increase in the bronchial markings.

Differential Diagnosis.—In allergic asthma there may be a slight eosinophilia, but it is never as high as that which occurs in tropical pulmonary eosinophilia. It must be remembered that nocturnal asthma may be a symptom of tropical pulmonary eosinophilia. Loeffler's syndrome is probably an allergic phenomenon in which transient pulmonary infiltrations and a slight or moderate eosinophilia are associated with little in the way of constitutional disturbance. Infestations with helminths may be associated with asthmatic attacks and a slight eosinophilia. In these cases ova are recovered from the stools and the condition responds to the appropriate anthelmintic treatment. The radiographic appearances may be confused with those of miliary tuberculosis, pneumoconiosis, sarcoidosis, and chronic pulmonary changes due to long-standing heart disease. Sarcoidosis is the only one of these diseases in which an eosinophilia may occur, and, if present, it is usually only of slight degree. There is an uncommon condition of pulmonary eosinophilia with asthma which occurs mainly in women and is often associated with polyarthritides (Crofton *et al.*, 1952). Its cause is unknown. Abnormalities are sometimes seen in the chest x-ray film in polyarteritis nodosa, and a blood eosinophilia may occur in this condition. Eosinophilic leukaemia is the only disease where the eosinophilia in the peripheral blood may exceed that which may occur in tropical pulmonary eosinophilia (Weingarten, 1943). As the other features of the two diseases are distinctive, difficulty in diagnosis should not arise.

Prognosis and Treatment.—Tropical pulmonary eosinophilia is a benign condition, but if untreated it may run a prolonged course (Lal, 1945). It invariably responds promptly to treatment with arsenic, either by mouth or by injection. A temporary exacerbation of the symptoms and of the eosinophilia may occur shortly after treatment is started, but there is a rapid improvement with the continuation of treatment. Treu (1950) estimates the relapse rate at 20%, but a case that has relapsed responds to arsenic as well as one that has not previously been treated.

Summary

A case of tropical pulmonary eosinophilia is described. The patient, a Hindu, first had symptoms in 1951 and subsequently had two relapses—in 1953, and again shortly after coming to England in 1955. The clinical course of his illness in 1955 is described, together with the radiological and haematological changes at that

time. Repeated examinations of his sputum failed to reveal any mites. He responded well to arsenic.

The literature on the disease is briefly reviewed and the various aetiological theories are discussed. Tropical pulmonary eosinophilia is widely considered to be due to pulmonary infestation with various species of mites, but this cause has not been universally accepted. Although the disease occurs mainly in India and Ceylon, cases have been reported from many other countries. Relapse is common, and may occur after the patient has moved from a tropical to a temperate climate.

My thanks are due to Dr. A. P. Prior for carrying out the pathological investigations.

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Medical Memorandum

Bilateral Thrombosis of the Renal Artery

Spontaneous thrombosis of both renal arteries is extremely rare, and I can trace only two recorded cases. Below is a report of a third case.

CASE REPORT

A man aged 63 was admitted to hospital with a diagnosis of anuria of unknown aetiology. His only complaints were that he had not passed urine for 33 hours, and that he had had slight pain in his loins for 36 hours. He had had angina pectoris for five years, and both the right and the left leg had been amputated for senile gangrene 16 and 6 months previously respectively. He had made uneventful recoveries from these operations, had two artificial legs, and enjoyed fair health up to the time of the present illness. He developed pain in the left loin 36 hours before admission, and developed pain in his right loin shortly after. The pain was never severe, and, although still present on admission, it had eased to but a slight ache. He had never felt ill, vomited, or been nauseated. There was never any abdominal pain. He had passed urine normally 33 hours before admission, but since then had been able to pass only a "teaspoonful of cloudy, muddy" urine.

On examination he was a fairly healthy-looking, well-nourished man, with an appearance no older than his age. Both legs had been amputated above the knee and the stumps were healthy. His temperature was 101.2° F. (38.4° C.) and pulse 110. The tongue was slightly coated, but moist, and the breath clean. Examination of the abdomen revealed no abnormality. There was a little tenderness in the right renal angle, but none in the left. Rectal examination revealed a slightly enlarged smooth prostate but no tenderness. His pulse was regular, with a palpable radial artery. The B.P. was 170/105. The apex beat was displaced to the left, but no abnormality was noted on auscultation of the heart. The lungs appeared to be clear. A straight x-ray film of the renal tract showed no radio-opaque calculi. On catheterization no urine could be obtained.

A provisional diagnosis of anuria due to an acute pyelonephritis was made, and intramuscular streptomycin therapy was begun along with an intravenous drip of sodium sulphate solution. There was no change in the patient's condition whatsoever until he suddenly collapsed six hours after admission and died within a few minutes.

At necropsy, examination of the abdominal aorta revealed that just above the origin of the renal arteries the lumen was occluded by an ante-mortem thrombus which was attached to the wall and extended down to the iliac bifurcation. It also extended about 0.5 cm. into each of the renal arteries and into the root of the inferior mesenteric artery. The thoracic aorta showed many atheromatous plaques. The coronary arteries were greatly narrowed by atheroma and only just patent. Both kidneys showed some scars from previous small infarcts, and the whole substance of both of them was rather plum-coloured, with loss of normal definition, and appeared to be in the early stages of necrosis. The other viscera showed no significant pathology save that the lungs were the site of an early bronchopneumonia.

COMMENT

An appreciable number of cases have been recorded (McKenna, 1928) of bilateral thrombosis of the renal artery occurring secondary to multiple embolism, but a spontaneous thrombosis of both renal arteries due to atherosclerosis is extremely rare. The first of the two recorded cases was reported by Halperin (1908). A man of 44 presented with a similar history to the case reported above, but the pain was severe and was associated with vomiting and headache. The pain did, however, in this case also gradually subside. The patient survived six days with an almost complete anuria. Necropsy revealed thrombosis identical to that of my case. It is noteworthy that this case also had had a leg amputated 18 months previous to his renal thrombosis. The other case was reported by Oudenal and Hulst (1925). A woman of 67 was seen complaining of anuria of two days' duration. She never at any time complained of pain. She was reported as being alert and showing no signs of uraemia, comparing with the identical circumstance of my case. Further, her temperature was similarly somewhat elevated, and a diagnosis of urinary sepsis was made. She eventually passed into uraemia and died six days later, after an operation to decapsulate the left kidney. Necropsy findings were as in the other two cases.

None of these three cases was diagnosed clinically, but this is probably because renal artery thrombosis is a diagnosis the clinician seldom considers. Wolffe (1943) maintains that thrombosis of a single renal artery is quite a common condition, and urges that it is one that should be far more often diagnosed and treated. The three cases described, however, suggest that the clinical picture can be very variable, systemic upset and the onset of uraemic symptoms being inconstant. Goodyear and Beard (1947) admit the very variable and inconstant findings in unilateral renal artery thrombosis, but assert that severe pain is one consistent feature. This is quite contrary to the findings in two of the three bilateral cases described.

The diagnosis in bilateral thrombosis might be regarded as of only academic interest anyway. But with the great advances being made in the techniques of arterial grafting, especially in the use of synthetic cloth prostheses, operative treatment of such cases, if diagnosed early, might now be within the bounds of possibility.

I am grateful to Mr. J. I. C. Mason for permission to publish this case report.

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