

Pieces of machinery, scrap iron, etc., in railway yards were stacked so that no lodgements in which rain water might collect were left and in this connection the following instructions were issued:—

- (1) Corrugated iron sheets should be stored in a vertical plane or leaning upright.
- (2) Rails should be vertical in their long axis or placed horizontal in their natural position. The grooves should never be uppermost.
- (3) Pipe bends should have the two ends downwards.
- (4) Iron sleepers should have their concave surface downwards. Pot sleepers should be stored with the pot standing upside down.
- (5) Hollow engine parts, such as steam boxes, should not be placed so as to collect water.
- (6) Empty barrels, drums and buckets must always be stored inverted. Battery jars and cells should be stored mouths downwards.
- (7) Water-closet seats and commodes should be stored upside down.
- (8) Girders should not be on their sides.
- (9) In all such cases where an article is of such a nature as to make it impossible to prevent the accumulation of water, it should be stored in a covered shed.
- (10) Where scrap has been gathered to be sold by auction the material should be disposed of before the onset of the monsoon.

(B) *Measures taken after the rains had set in—*

(1) Pyrethrum extract (sold under the proprietary name of Pyroicide 20) mixed with kerosene and pine oil (which had been found to be an effective insecticide spray for adult mosquitoes in Zulu huts in South Africa) was adopted in Delhi with encouraging results. The Director, Malaria Survey, instituted experiments with insecticides for destroying adult mosquitoes in the quarters of four different communities in the Delhi area. (One of the communities selected was that occupying the railway quarters at Subzi Mandhi.) One gallon of pyroicide was mixed with 19 gallons of kerosene oil and one gallon of pine oil. This mixture was used for spraying inside the railway quarters. A small 'Flit' pump was used for the purpose. The quarters were properly closed

and no chinks or other possible outlets for mosquitoes were left whilst the spraying was going on. The results were very satisfactory.

(2) A 'dry day' was observed and the following notices were issued to occupants of all railway bungalows, quarters, etc. :—

*'Anti-Malarial Measures, Delhi Area*

In the interests of the health of railway employees, their families and the general public, it is expedient to stop mosquito breeding within railway area by observance of Sunday as "dry day" on which day all bungalow residents, heads of offices and other subordinates will inspect their houses, outhouses, stables and compounds, etc., for breeding places and will look carefully for tins, bottles containing water, choked drains, *gharras*, sumps outside bath houses and in the garden—these will be emptied and thoroughly dried by 9 a.m. on Sunday and allowed to remain so until inspected by the anti-malaria staff the same afternoon.'

Mention of interesting experiments with a man trap may be made here. The experiments are interesting in so far as they afford information as regards the time of evening or night when really the dangerous type of mosquitoes bite human beings and thus one can find out the time when one should take necessary precautions. The procedure was that an observer lay on a bed placed in the open in a bungalow compound. The bed was fitted with two mosquito nets, the inner one being tucked in closely around the bed, and the outer one being capable of being lowered by the observer when he saw any mosquitoes alighting on the external surface of the inner net. An assistant then came and collected the mosquitoes. The outer net was 10' × 7' × 7' and was wide enough to allow the assistant easily to go round the bed in order to catch the mosquitoes which had been trapped by lowering it. Collections were made at least every two hours, the first being at 8 p.m. and the last at 6 a.m. The experiments were repeated on a number of nights but could not be carried out except when the weather was clear and there was no wind.

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## A Mirror of Hospital Practice

### ANGINAL PAIN IN A CASE OF MALARIA

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MALARIA has been mentioned as one of the causes of angina pectoris.

P. Retzek in a series of lectures on angina pectoris described some characteristic cases of

malarial angina and quoted the opinion of Gaskell that 4 per cent of malarial cases result in cardiac death due to coronary thrombosis. This thrombosis may be precipitated by an acute attack, previous chronic malaria having produced endarteritis.

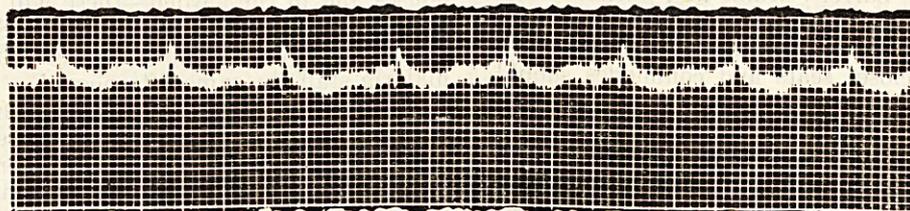
The incidence observed is very high and is probably based on cases infected with Italian or African strains of *Plasmodium falciparum*. James and others (1932), on observations of

several strains used for therapeutic malaria, had also come to the conclusion that Indian strains of *P. falciparum* were much less likely to produce severe complications than the other strains. Bass had described malarial pseudo-angina. On the other hand, although angina may not be prominent, severe cardiac involvement may be the actual cause of death in many comatose cases of malaria, which are generally put down as cerebral malaria. Cases have been observed in which a deep coma was accompanied by marked cyanosis, enlarged soft liver and rapid feeble heart. The cerebro-spinal fluid was not under tension and showed no increase in cells or proteins. In spite of quinine

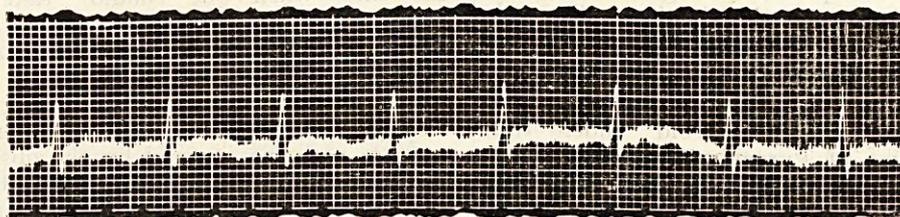
Another affection which is capable of producing anginal symptoms and is found in cases of chronic malaria is dilatation of the first part of the aorta. Benhamou (1926) and Giauni (1929) who have noted such dilatations are emphatic that it is not due to aortitis. Yet it is likely that acute thrombosis of the *vasa vasorum* of the aorta may produce anginal symptoms. Very few electrocardiographic studies in malaria have been published. Although some abnormalities have been noticed characteristic curves of coronary thrombosis have not been obtained.

The patient, G. S., a railway coolie, aged 35, was referred on the 18th May, 1936, to the hospital by the

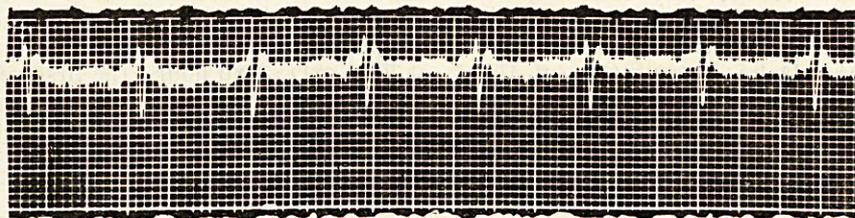
Lead I.



Lead II.



Lead III.



injections these cases have rapidly sunk and died, strongly suggesting a cardiac failure rather than a medullary one.

Von Engel (1925) has described a similar case of a male, aged 24, who died in coma with a pulse rate of 130 per minute and very feeble heart sounds. Sections of the heart showed severe malarial thrombosis and cloudy degeneration of the muscle.

Brosius (1925) has also described a case of cardiac malaria in which marked cloudy swelling of cardiac muscle resembling that of acute diphtheria was found at autopsy.

Micheletti (1929) has described vascular thrombosis with fragmentation and necrosis of the cardiac muscle.

railway doctor for severe pain in the precordial region, palpitation and breathlessness of sudden onset. He had fever with rigors for two weeks, fifteen days before but was afebrile and able to attend to his work till the onset of pain.

*Examination.*—Marked restlessness, eyes deeply congested, no rigidity of neck. Kernig's sign negative. Abdomen slightly full and tympanitic, spleen not palpable.

*Chest.*—Pain in the lower sternal and epigastric region. No radiation. Lungs—prolonged expiration with rhonchi. Pulse—120 per minute. Respiration—40 per minute. Temperature—101°F. Blood pressure 90/40. Leucocytes—3,000 per c.mm. Differential count—polymorphonuclears 62, eosinophiles 4, hyalin 8 and lymphocytes 26 per cent. Blood film showed very large number of *P. falciparum* gametocytes. Ring forms were comparatively few. Widal reaction—negative, blood culture for bacteria—negative. Wassermann reaction—strongly

positive. The temperature rose to 104°F. No coma; breathlessness increased giving rise to cyanosis. Quinine was given intravenously.

Next day the temperature was normal. The pain completely disappeared. Heart sounds feeble. Lungs clear. The temperature showed two lesser elevations on two more periodic intervals. The pulse rate was still about 120 per minute though the temperature was normal.

On the 25th May, 1936, the patient had another attack of pain and breathlessness. Examination revealed impaired percussion note, feeble breath sounds and fine râles at the left base in the axillary region. There was no significant rise of temperature. The area spread, and on the 28th a distinct rub was felt over the affected area. All clinical signs as well as breathlessness completely disappeared next day. Further progress was uneventful. The blood pressure on the 4th June was 100/60 and the pulse 90 per minute. The pressure after five days was 110/60. Wassermann reaction repeated on the 9th was faintly positive.

There was no history of syphilitic infection nor any clinical manifestations of it. The first positive Wassermann reaction may be that rare condition, a false positive Wassermann reaction, due to malaria.

An electrocardiogram was taken three weeks after the onset, when the systolic blood pressure was 110, and the pulse rate 80 per minute.

Lead I showed a distinct low voltage with a well-marked plateau after the S.

Lead II showed a sharp Q, a biphasic RS and a distinct slurring of S in places, almost a bifurcation and a prominent angular T.

Lead III was similar to lead II, but less prominent.

It distinctly pointed to cardiac infarction of few days' standing. If it had been possible to take the earlier records, the changes would have been still more striking.

#### Discussion

The pneumonic signs are suggestive of several conditions. Like the heart condition they might be of malarial origin. Karve (1926) from Kenya has described primary and secondary pneumonias of malarial origin. These, as in the present case, are characterized by uncontrollable pleural pain, transitional râles and short duration. But the onset of the symptoms after the disappearance of the parasites from the blood makes the malarial origin unlikely.

A ward infection can be ruled out by the extremely short duration of the signs and symptoms and absence of leucocytosis.

Reflex atelectasis with formation of mucus plugs similar to post-operative pneumonia has been described following an infarction of the heart. Donzelot (1934) has described fleeting pneumonic signs as a late complication of infarction of the heart due to embolic showers. The lung condition was probably one of the last two.

#### Summary

A case is described in which severe anginal pain, cyanosis, rapid pulse and low blood pressure marked the onset of a malarial attack.

The infection was not heavy and there was no evidence of thrombosis in other organs such as the brain.

The pulse rate remained rapid and the blood pressure was low for two weeks after the attack.

Acute pneumonic symptoms of very short duration occurred soon after, but these are not considered to be of malarial origin.

The Wassermann reaction was positive during the acute attack.

#### Acknowledgments

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## PRONTOSIL IN PYELO-CYSTITIS AND ERYSIPELAS

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In view of the encouraging reports that are being published in the medical journals about the action of prontosil in streptococcal infections, it may be of interest to record its beneficial action in the following two cases, one of pyelo-cystitis and the other of erysipelas, that were treated in the Government Royapuram Hospital, Madras, four months ago.

1. *A case of pyelo-cystitis.*—A patient, a male, aged about 28 years, was admitted into the above Hospital on the 16th February, 1937, with a history of fever and pain over the hypogastric region for eight days.

There was nothing worthy of note in the family history. His habits were regular; he neither drinks nor smokes. No history of exposure to any venereal infection.

As regards his previous history, he had occasional attacks of burning sensation during and after passing urine in the year 1928.

*Present history.*—On the night of 8th February, 1937, while he was travelling in a train, he had high fever which rose to 104°F. by the next evening. Thinking it to be malaria, he took 20 grs. of quinine sulphate that day. The temperature came down to normal on the morning of the 10th; from the evening, however, he began to pass urine in small quantities frequently accompanied by burning sensation and griping pain. He had also pain in the loins.