

A CASE OF FILARIASIS COMBINED WITH RELAPSING FEVER.

By

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Relapsing is a well known disease prevailing in Western countries few cases of which are reported in Asia and especially rare in Korea. Filariasis is a tropical and subtropical disease and consequently a filariasis case in Korea is exceptional.

From May 1934 up to July 1935 relapsing fever prevailed in Seoul district where, for instance, in our Severance Hospital more than 50 cases of relapsing fever were recorded. Among other cases, in one relapsing fever case, the blood picture in the day time showed both relapsing fever Spirocheta and Microfilaria. To confirm the evidence, repeated examinations were performed at night and an abundant number of microfilaria were clearly observed in the field.

A keen interest was focussed in the combination of these two conditions, which are exceptionally rare in Korea and this report is being made.

REPORT OF CASE.

Y. M. Kim (金○文), 28 years, male, living in Seoul.

Chief Complaint:

1. Headache, pain in the joints of the limbs.
2. High fever and frequent chilliness.
3. Weakness and indigestion.

Present History:

About 7 days ago a sudden onset of high fever occurred with chills in the afternoon without any prodromal symptoms or apparent cause, accompanied by severe headache and pains in the joints. The symptoms were a little better in the mornings but became worse in the afternoons, while the fever remained continuously high (39°-40°C).

Past History:

Birth history was normal. Fed by breast milk during infancy. He had no past history of illness and denied venereal diseases.

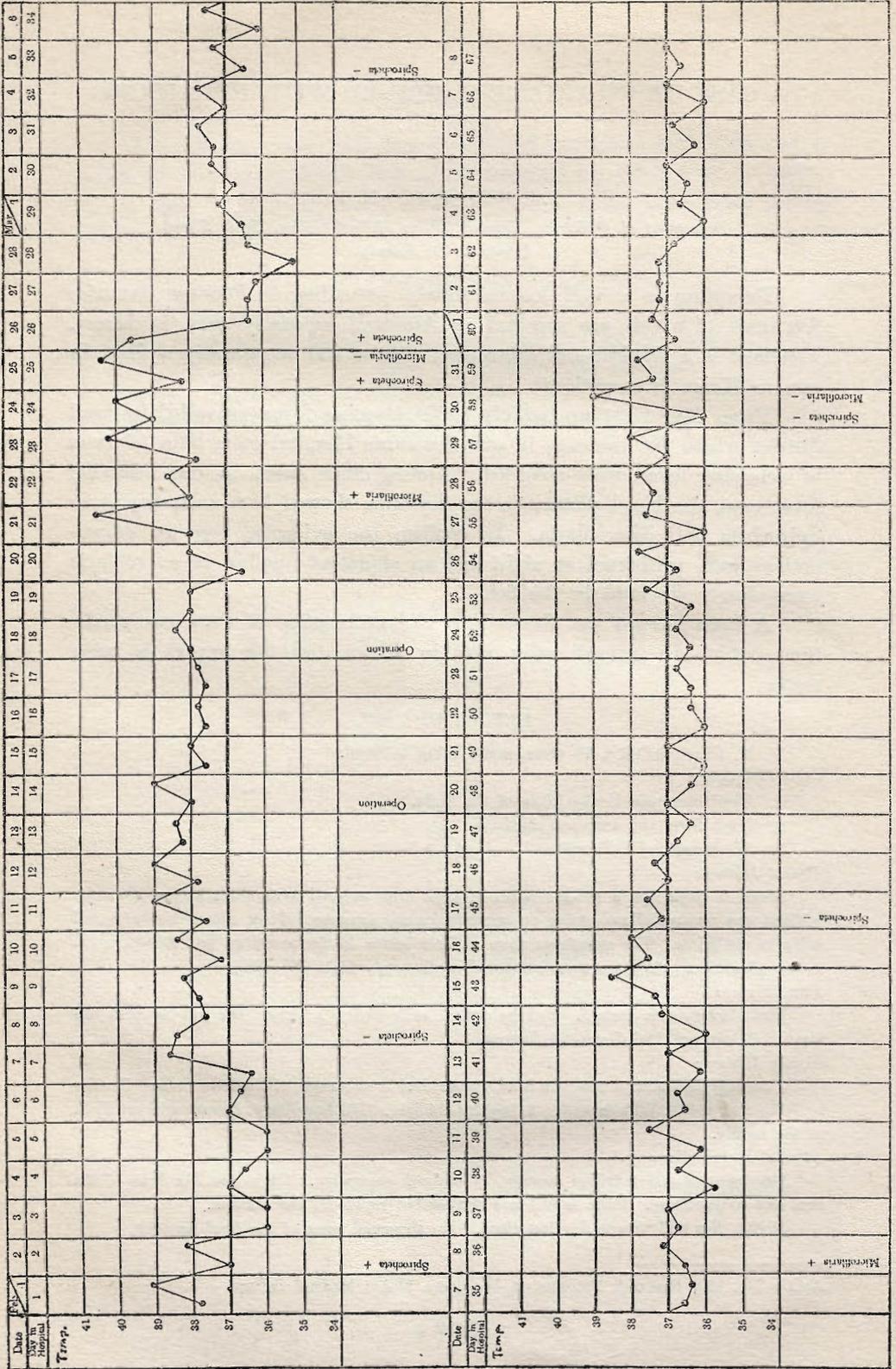
Family History:

3 healthy brothers. 2 brothers dead, father died 3 years ago of unknown cause. Mother is living and well. Wife is well. 2 healthy children. No hereditary diseases and no T. B. in the family.

Physical Examination:

Development and nutrition average. Distressed expression. Slight jaundice both of the skin and conjunctivae. Pulse is full and regular but rapid-120 per minutes.

Mouth, lips and tongue dry but clean. No abnormal signs of the head or neck.



Chest: Lungs, normal. Heart, pulmonary second sound somewhat accentuated. No other pathology.

Abdomen: Slight distension and slight tenderness and rigidity of the abdominal wall. Spleen palpable 3 C.M. and Liver 2 C.M. below costal margins. No changes in the limbs. Reflexes normal. Spirochetes were found in the blood by direct smear.

Progress and Laboratory data:

- Feb. 1. Admitted 3:10 P.M. Maximal Temp. 39.1°C.
- Feb. 3. Temp. 38.2°-37°C.
 Blood examination. Hgb. (Sahli) 61%. R.B.C. 3,820,000. W.B.C. 12,400.
 Differential count. P.M.N. 71%, L.M.N. 5%, S.L. 24%, Eosin 0%.
 Clotting time. 4M, 45S.
 Direct smear. 39 *spirochetes per field*.
 Van den Bergh's test. Direct. Strong +. Indirect. +. Unit. 208. W. T. & Kahn. Negative.
 Urine. Sp. Gr. 1016. Orange color. Acid. Sed. +. Alb. ++. Bile +. Sugar -.
 Many hyaline and granular casts.
 Stool. Ascaris +. Trichuris +.
- Feb. 3-6. Fever normal all day. Much improved and the patient was able to walk.
 Spleen still palpable 1.5 C.M. and liver 3 C.M. below costal margins.
 Urine. (Feb. 6.) Sp. Gr. 1016. Yellow. Neut. Sed. +. Alb. +. Bile +.
 Urobilin +. Aceton -. Epith. and pus cells few. A few granular casts.
 Nacl. 1.5 Gm.
- Feb. 7. Fever rose sharply to 38.6°C.
- Feb. 8. Fever. 38.4°-37.6°C.
 Blood. Van den Bergh's test. Direct. +. Indirect. -. Unit. -.
 W.B.C. 11,200.
 Blood platelets per M.M.³ 190,000.
 Clotting time. 4M, 45S.
 Direct smear. Spirocheta -.
- Urine. Urobilin +. Color amber. No other abnormalities.
- Feb. 9. Swelling and tenderness of the left subauricular lymph glands.
 Fever. 38.2°-37.8°C.
- Feb. 12. Fever went up gradually and reached to-day, 39°C and continued. Patient could not sleep at night for pain.
 Blood. W.B.C. 14,000.
 Urine. Sp. Gr. 1010. Yellow. Acid. Sed. +. Alb. +. Sugar -. Blood -.
 A few hyaline casts.
- Feb. 14. Left parotid gland incised by surgeon and small amount of pus evacuated.
- Feb. 15. Pain of gland relieved very much and patient slept well all night.
 Fever. 37.6°-38.4°C.
 Blood. W.B.C. 13,000.
 Differential count. P.M.N. 71.5%, L.M.N. 5%, S.L. 21.0%, Eosin 2.5%.
 Direct smear. Spirocheta -. *Filaria?*
 Urine. Amber. Acid. Alb. +. Sugar -. Sed. -. Bile -. Urobilin +.
 Waxy casts +.
- Feb. 18. Left parotid gland again swollen. Incision was made and abundant pus evacuated.
- Feb. 21. In spite of the cure of the parotitis after re-incision, the fever continued and rose from 38° up to 40.5° at 6 P.M. to-day. Patient very restless.
 Blood examination for microfilaria began this evening.
- Feb. 22. The results of blood examination which was done to find microfilaria were as follows:

- Feb. 21. P.M. 12:30 (-) 12:45 (+)
 Feb. 22. A.M. 1:00 (-) 1:15 (-) 1:30 (+)
 1:45 (+) 2:00 (+) 2:30 (+)
 2:45 (-)
- Blood. W.B.C. 10,800.
 Fever. 38°-38.6°C. Patient restless all day.
- Feb. 23. Fever dropped to 37.8° in the morning but went up again to 40.2° in the afternoon. Patient complained of headache and pain in the limbs etc. Could not sleep at night.
- Feb. 24. Fever. 39°-40°C. Abdominal pain at night.
- Feb. 25. Fever. 38.2°-40.4°C.
 Blood. Van den Bergh's test. Direct +. Indirect +. Unit. 8.
 Blood culture for pathogenic organisms. Negative. W.B.C. 13,400.
 Direct smear. Spirocheta +. Filaria -.
 Urine. Sp. Gr. 1010. Amber. Acid. Alb. ++. Sugar -. No other abnormal findings.
- Feb. 26. Fever. 36.4°-39.4°C.
 Blood. W.B.C. 12,200. Spirocheta +. Malaria -.
- Feb. 27-28. Fever continued normal, but the amount of urine was decreased.
 Urine. Sp. Gr. 1012. Yellow. Acid. Sed. +. Alb. ++. Sugar -. Urobilin +.
 Epith. +. Blood cells -. Hyaline and granular casts +. 24 hrs. urine 450 CC.
- Mar. 1. Fever. 37.2°-36.6°C.
 Urine. Sp. Gr. 1016. Yellow. Acid. Sed. +. Alb. +. Epith. +. Hyaline and granular casts +. Blood cells -.
- Mar. 2. Fever. 36.8°-37.4°C.
 Urine. Sp. Gr. 1014. Yellow. Acid. Sed. +. Alb. +. Otherwise negative.
 24 hrs. urine. 980 CC.
 Blood. Hgb. (Sahli) 46%. R.B.C. 2,320,000. Spleen not palpable but liver is still palpable.
- Mar. 5. Fever. 36.4°-37.4°C.
 24 hrs. urine. 1,400 CC.
 Blood. W.B.C. 9,400. Spirocheta -.
- Mar. 8. No fever since March 5th and patient has no complaints.
 Blood examination for Filaria embryo.
 A.M. 1:10 (-) 1:25 (-) 1:50 (+) 2:10 (+)
 2:25 (+) 2:40 (+) 3:10 (-) 4:00 (-)
 4:30 (-) 5:00 (-) 5:30 (-) 6:00 (+)
 7:30 (-)
 Urine. Sp. Gr. 1018. Cloudy. Acid. Sed. +. Alb. +. Pus. +.
- Mar. 9. No fever.
 24 hrs. urine. 420 CC. Alb. 1%. Nacl. 4.0 Gm.
 Patient complains of pain in the legs.
- Mar. 10. Fever normal.
 Urine. 24 hrs. 1,000. Alb. 1%. Nacl. 1.1 Gm.
- Mar. 11. Fever. 36.2°-37.6°C.
 Urine. 24 hrs. 1080. Alb. 1%. Nacl. 6.4 Gm.
 Oedema of the whole body, especially of the feet and back. Ascites +.
 Heart. Hemic murmur at the apex. Pulmonary 2nd sound accentuated.
 Lungs. Reduced resonance and diminished breath sound at the base of both lungs.

- Liver palpable 2 C.M. below costal margin.
- Mar. 12. Fever normal.
Urine. 24 hrs. 800. Alb. 1%. Nacl. 7.5 Gm.
- Mar. 14. Fever. 36.0°-39.2°C.
Urine. 24 hrs. 1.500. Alb. 0.5%. Nacl. 7.0 Gm.
Sp. Gr. 1016. Alb. +. Pus +. Blood cells +. Hyaline casts +.
- Mar. 17. Fever. 37.2°-37.6°C.
Urine. 24 hrs. 800.
Sp. Gr. 1016. Amber. Acid. Sed. -. Alb. +. Bile -. Urobilin -.
Sugar -. Blood cells +. Pus +. Epith. +.
Blood. Hgb. (Sahli) 43%. R.B.C. 2,990,000. W.B.C. 11,400.
Direct smear. Spirocheta -.
- Mar. 20. No fever.
Urine. 24 hrs. 550 CC. Alb. +. Others -.
- Mar. 21. Urine. 24 hrs. 980 CC. Alb. ###. Hyaline casts +.
- Mar. 22. Urine. 24 hrs. 1.500.
Sp. Gr. 1024. Yellow. Alkli. Sed. +. Alb. +. Sugar -. Epith. +.
Pus ###. Blood cells +. Casts -.
- Mar. 23. Urine. 24 hrs. 1.980.
Sp. Gr. 1020. Cloudy. Acid. Sed. +. Alb. +. Hyaline casts +. Others -.
- Mar. 25. Urine. 24 hrs. 7.200.
Sp. Gr. 1007. Cloudy. Neutral. Sed. +. Alb. +. Triple phosph. +.
Other findings negative.
- Mar. 26. Urine. 24 hrs. 7.600.
Sp. Gr. 1006. Cloudy. Neut. Sed. -. Alb. -. Other findings negative.
- Mar. 30. Fever. 36.0°-39.0°C.
Urine. Negative.
Blood. Hgb. 65%. W.B.C. 8,600.
Direct smear. Spirocheta and filaria both negative.
- Apr. 4. Fever came down to normal gradually since March 30th and urine quantity was over 2,000 CC. in 24 hours.
- Apr. 8. Discharged 2:00 P.M.

COMMENT.

This case is that of a man, living in Seoul, aged 28, whom I observed carefully for about two months. I will summarize the symptoms and consider the occurrence of these two diseases in Korea.

This case showed the usual symptoms of relapsing fever which prevailed in Seoul district from 1934 to 1935, such as chills, followed suddenly by high fever which persisted for about one week. After the fever subsided it recurred a few weeks later. He had also jaundice with enlarged liver and spleen and leucocytosis. The final diagnosis was confirmed by the finding of abundant relapsing fever spirochetes in the blood. He also had purulent parotitis and glomerulo-nephritis which are often found as complications in relapsing fever.

Soon after he was put under our observation, his temperature became irregular and furthermore an occasional chyluria was found. This case

did not show any evidence of lymph adenoma, hydrocele or elephantiasis but the first blood examination for microfilaria established the diagnosis of this exceptional combination of two rare diseases in this country.

Geographical Distribution of these two Diseases:—

1). Relapsing Fever: There have been extensive epidemics in Ireland, and there were severe epidemics in Russia in 1865 and again in 1881. There have been lesser epidemics in England, Scotland, Germany, Denmark, Norway and the Balkan States. The disease has not been so common in Europe in recent years, but it was fairly prevalent on the Eastern Front during the World War. The disease is endemic in India, French Indo-China and China. The cases reported from the Philippines seem to have been in persons who came from an endemic area, and the infection may have originated outside of the Philippines. It is endemic in Syria and Arabia and in Portuguese South Africa and German East Africa. There was an extensive epidemic along the caravan route from Dar-Es-Salaam to Muanza in 1903-1904. It is endemic in the Sudan. Other endemic centers in Africa are Uganda, the Congo Free State, Nyassaland and Rhodesia. In former years there was confusion regarding bilious typhoid fever in Egypt, but it is certain that relapsing fever is prevalent in Egypt, Tunis and Algiers.

The disease has not prevailed in epidemic form in the United States, Mexico, Panama, Colombo, Venezuela, Cuba, Peru, Bolivia, or Chili.

In Japan it prevailed in 1895-1896 having come from China and on another occasion it was found in epidemic form in 1913 having been transferred from East Russia (靈領沿海州). In Manchuria in the vicinity of Dairen (大連) relapsing fever was reported in epidemic form for awhile in 1928.

In Korea, in 1915-1919 some cases were found endemically, but none until 1934 after that. During 1934-1935 many relapsing fever cases were found. Possibly this was the first to ever occur in Korea.

2). Filariasis: Filariasis is extensively distributed in most parts of the tropical and subtropical regions. It is common in Turkey, Arabia, India, Indo-China and China, Oceania, and in Africa as far as 25°. It is also present in the western hemisphere from Buenos Aires on the south to the southern part of the United States on the north. In Japan, filariasis is often seen in the southern districts such as Ryukyu (琉球), Kyushu (九州), Shikoku (四國), Formosa etc. It is rarely found in the Hokkaido (北海道) district.

In Korea, despite the fact that Korea is geographically located between China and Japan where many filariasis cases have been reported, not a single case was reported until 1926-1927. Hashikura (橋倉) reported one

filariasis case in Fusan (釜山) in 1926 and Prof. I. S. Yun of Severance Union Medical College reported one case of the same disease in 1927. In the latter instance, Prof. Yun found at autopsy an adult male filaria *Bankrofti* worm in the left inguinal lymph glands. He concluded therefore a further careful investigation would clarify the exact distribution of filariasis in Korea.

Prof. H. Y. Oh of Severance Union Medical College, undertook a careful investigation regarding the distribution of filariasis in Korea in 1929. Among 24 cases of filariasis who showed typical clinical manifestations, 23 cases revealed mikrofilaria in the blood while in one case adult worms were found in a subcutaneous cyst of the left arm and its axilla. He proved the existence of filariasis in Ahnak (安岳) in north Korea, Seoul and Ryung Wol (寧越) in central Korea, and Bu Yu (扶餘), Bo Ryung (保寧), Tai Chyun (大田), Ri Ri (裡里), Chyun Chu (全州), Kim Chyei (金堤), Chung Woop (井邑), Ko Chang (高敞), Soon Chang (淳昌), Nam Won (南原), Kwangju (光州), Fusan (釜山) etc. in South Korea.

In conclusion, I strongly suggest that a careful observation of both the clinical signs together with repeated laboratory examinations may give us a more reliable answer to the question of the endemicity of these two diseases in Korea.

SUMMARY.

1. I report a case of relapsing fever complicated with filariasis both of which are very rare in Korea.
2. This case also had complications of suppurative parotitis and glomerulo-nephritis.
3. Regarding the prevalence of relapsing fever in Korea, although it has been believed an extremely rare disease in this country, every doctor should keep it in mind and be on the lookout for it by more thorough examination of his patients.
4. Filariasis has also been believed to be an exceptionally rare disease but a careful statistical investigation has never been done. This is a very important problem confronting the medical profession in Korea.

I am indebted to Prof. D. B. Avison for many helpful suggestions and much valuable criticism.

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