pain. The injury is caused by severe strain to the instep involving violent stretching of ligaments which spring from this point. Games, e.g., lawn-tennis and football, are responsible for the lesion, as is also strenuous dancing. This explains why girls exhibit this particular injury more often than the two preceding ones. The condition may be compared with certain troubles caused by the presence of what has received the name of "os tibiale externum," a small adventitious bone occasionally met with at the tip of the os naviculare pedis. It may be questioned whether these ossa tibialia externa do not derive their origin from fractures of the scaphoid tubercle in early life. Figs. 8 and 9 demonstrate

FIG. 8.

FIG. 9.

clearly the nature of this group of injuries. One ought never to make light of these injuries. For it is only by insuring rest and avoidance of all and every strain to the injured part that one can save the patient from being more or less an invalid for months, even years.

Stockholm, Sweden.

A DEMONSTRATION IN INSTANTANEOUS RADIOGRAPHY.—On June 24th at the Royal Infirmary, Liverpool, by the invitation of Mr. C. Thurstan Holland, Messrs. Schall of London gave a very successful demonstration of the instantaneous radiography of the chest. Most of the medical and surgical staff, together with the chairman and several of the committee, were present. A film was exposed on a patient in the infirmary suffering from aneurysm and a most beautiful result was obtained with an exposure of a fraction of a second. All the apparatus was specially sent to Liverpool by Messrs. Schall and was explained to the audience by Mr. Holland whilst the film was developed.

"ENDEMIC FUNICULITIS."

By ALDO CASTELLANI, M.D. FLORENCE,

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SINCE many years medical men practising in Ceylon have noticed the occurrence of a peculiar form of acute suppurative inflammation of the spermatic cord, which occasionally takes a true epidemic character, numerous cases occurring within a short period of time. References to this affection may be found in almost all the medical reports for the colony during the last 20 years; the disease being variously indicated by the name of phlebitis of the cord or corditis. At the request of Dr. S. C. Paul, surgeon to the General Hospital, I have undertaken the investigation of the malady. I wish to express my great indebtedness to him for having placed at my disposal several cases and for having given me most valuable information; my thanks are also due to Dr. Roux, the house surgeon, and to Dr. L. C. Wijisinghe, my house physician. I propose in this paper to give briefly the results of my preliminary investigation.

Clinical symptoms.—The disease begins suddenly.

The usual history is this. The patient after an extra hard day's work comes home in the evening very tired, but not feeling unwell, and takes a cold bath as usual; after the bath he is suddenly seized with a shivering fit, the temperature rising very high. The patient feels very sick and there is often actual vomiting; at the same time he complains of pain along the cord and the epididymis. The condition becomes rapidly worse and the patient is generally taken to hospital on the second or third day of the illness. On admission it is usually found that the general condition of the patient is grave; there may be continuous vomiting and occasionally hiccough; the temperature is generally above 102° F. and the pulse small and frequent. At the physical examination it will be seen that the inguinal region is occupied by a large cylindrical swelling in the direction of the cord. The swelling is very tender on pressure and hard; the skin is not affected. Generally the epididymis is somewhat enlarged and tender, though in some very recent cases it may not seem to be affected; in all cases the testicle proper appears to be normal; there is no effusion in the tunica vaginalis. The affection is generally localised to one side only but occasionally attacks both sides. The condition on superficial examination might easily be mistaken for strangulated hernia. At the examination of the penis and scrotum no ulcers will be found, no signs of gonorrhœa, and no signs of any traumatic lesions. As a rule the disease has no tendency to spontaneous recovery; if an operation is not performed in time

signs of general septicæmia usually set in; in such cases the skin of the patient often becomes jaundiced, cutaneous hæmorrhages may appear, the fever is of an intermittent or remittent type, the pulse becomes extremely small, there is often hiccough, and the patient dies in a few days. The only effective treatment is a surgical one: orchiotomy—sectioning the inflamed cord as high up as possible.

Pathology.—The whole of the spermatic cord is highly inflamed and infiltrated. The circumference of the cord may be as much as 3 inches and 3½ inches. The tunica vaginalis is hyperæmic, but there is no collection of fluid. On making a transverse section of the cord yellow creamy pus will exude from the opened veins of the pampiniform plexus as well as from the vas deferens. The inflammation is not localised to the cord only: it ordinarily extends to the epididymis; in two very recent cases, however, the epididymis was normal. The testicle proper remains always unaffected; there is no effusion in the tunica vaginalis. The histological lesions are briefly the following: the veins of the pampiniform plexus present a cellular infiltration of all

the coats, the lumen of some veins being occupied by pus cells; the vas deferens also presents a well-marked cellular infiltration of its mucous membrane and various muscular coats.

Etiology.—Among the old Ceylon practitioners the disease was considered by some to be of filarial origin; others considered it to be a malarial affection. I have examined bacteriologically five cases: in all a diplo-streptococcus was present in the pus. In two cases in which I have examined bacteriologically the blood taken from a vein, the same strain of streptococcus was found in the blood. I give here a brief description of the organism.

Microscopical characters.—The coccus is arranged in pairs, or short or long chains; when arranged in pairs its shape is somewhat gonococcus-like. It is gram-positive.

Cultural characters.—Broth: In some cases general turbidity, in others a flocculent sediment is present, while the upper part of the bouillon remains clear. The same strain may at times produce general turbidity, at other times may give rise to a flocculent sediment. Peptone-water: Same growth as in broth, only less abundant. Agar: The growth may be very delicate, fairly abundant, or even luxuriant; when very abundant the colonies coalesce into a whitish creamy mass. Gelatin: Same characters as in agar, only more delicate. Milk: The milk is rendered acid and clotted. Sugar media: Glucose broth, acid; lactose broth, acid; maltose broth, no acid; saccharose, no acidity; saccharine, no acidity; mannite, no acidity; salicin, no acidity; dextrine, no acidity; Mackonkey agar, no growth. Serum media: nothing characteristic. Agglutination: using the cultures which show a diffuse turbidity it was easy to show in my cases that this streptococcus was agglutinated up to a dilution of 1 in 50, and occasionally 1 in 100, by the blood not only of the patient from whom the strain was isolated but also from the blood of other patients affected by the disease, provided the blood was not collected before the third or fourth day of the illness. This strain of streptococcus is not agglutinated by the serum of patients suffering from other streptococcal diseases, such as erysipelas.

Conclusions.—1. There is endemic in Ceylon, and probably in other parts of the tropics, a peculiar affection of the cord which it seems to me has sufficiently characteristic symptoms to be ranked as a separate disease. This affection might be named "endemic funiculitis." 2. A diplo-streptococcus is constantly found in the pus. Further investigation is needed to decide whether this diplo-streptococcus is the primary cause of the disease or, as I am inclined to believe, is merely a secondary agent playing a rôle only in the suppurative stage of the malady.

Colombo, Ceylon.

PHENOMENAL ABUNDANCE OF PARASITES IN A FATAL CASE OF PERNICIOUS MALARIA.

By J. CROPPER, M.A., M.D. CANTAB.

(With Coloured Plate.)

NOTES of the case from which the figures in the coloured plate are taken were read before the Society of Tropical Medicine and Hygiene, in London on Feb. 21st last. The facts are briefly as follows:—

A Samaritan, aged about 55 years, was admitted to the C.M.S. Hospital at Nablus, Palestine, on Sept. 15th, 1907, for malarial fever contracted in the Jordan Valley, whence he had just come. On admission parasites were not more numerous than I had seen them previously in other cases—viz., two or three in a field and of the subtertian type; crescents were very few. The fever followed a tertian course and when high (103° F.), on the evening of admission sporulating forms were easily found. At 9 A.M. on the next day the temperature was down and most of the parasites were of the unpigmented ring form. Early on the second day after admission the patient was seized with algide symptoms, the temperature in the mouth being below 95°, which was raised to 97° with difficulty by hot bottles, &c. In spite of treatment, however, he never rallied but succumbed at midnight,

having previously had diarrhœa; there were no cerebral symptoms and he was able to answer his name to within two hours of his death. No post-mortem examination was allowed. Most of the slides were taken from the ear two hours before he died and were principally stained by Giemsa's method.

The chief points worthy of note in the coloured plate are the following:—

FIG. 1.—*Clumping of red cells* containing pre-segmenting and more rarely sporulating parasites in masses of from three to 21, which so far as I know has not been previously observed in the peripheral blood, though it is commonly seen in the brain and other organs affected in pernicious attacks, after death. I can find no reference to this occurrence in Marchiafava and Bignami's account of pernicious malaria. I would conjecture that such masses must occur in the internal organs in intense infections, but that as a rule they are not seen, being eliminated or filtered out from the blood in the spleen or the liver, thus giving rise not only to enlarged spleen but also to bilious remittent attacks and malarial hepatitis. Where, however, other organs such as the brain, the kidney, the pancreas, or the intestinal walls are affected, cerebral symptoms, acute hæmorrhagic and pancreatitis, &c., develop, not to mention a gastric form which is often overlooked.

As quoted by Dr. G. C. Low at the meeting referred to above, it occasionally, but extremely rarely, happens that the quartan parasite undergoes enormous increase in numbers and thus may prove fatal.

In Fig. 1 can also be seen a large mononuclear leucocyte containing in its protoplasm a red cell infected by a parasite which has not yet reached the sporulating stage: as noted by Marchiafava and Bignami,¹ this only occurs with the subtertian and never in the case of the tertian or quartan parasite.

FIG. 2.—*Unpigmented rings in extraordinary numbers*, infecting from 40 to 50 per cent. of the red cells; of 500 counted at random 248 were infected and in some cases a simple red cell contained even six or seven rings.

FIG. 3.—*A polymorphonuclear cell containing spores and melanin*. This only occurs in intense infections; usually the large mononuclears are alone affected thus.

FIG. 4.—*A large mononuclear leucocyte containing three sporulating parasites*. This is very rarely seen even in pernicious attacks.

FIG. 5.—*A pigmented leucocyte containing 25 blocks of pigment or melanin*. Since each of these was the centre of a sporulating parasite, at a reasonable estimate at least 200 to 250 spores had been ingested by this one cell which has enormously hypertrophied as a result of such overfeeding. The greatest number of spores in any one sporulating body was 18 in this case, or on an average 8 to 12.

FIG. 6.—*A red cell containing three sporulating forms*. This has only once been seen in this series, though I have several times seen two. I may add that one could find no trace of the endocorpuscular conjugation described by some authors, and it would seem likely that where a red cell is infected by several rings, each parasite follows out its life-history independently of the others, even when one is a schizont or segmenting form and the other a gametocyte.

FIG. 7.—I have also drawn a series of immature crescents, differentiating the male and female forms as far as possible. The number of these increased enormously on the last day, and it would appear that on the onset of algide symptoms with the temperature under 95° in the mouth and the extremities icy cold to the touch, some sort of migration of the gametes took place from the bone marrow. In any case the occurrence of these immature forms is very rarely seen except in the bone marrow or in the blood of internal organs. The young male crescents are in some cases almost or quite circular and often surrounded by a zone of hæmoglobin; the chromatin may occupy any position in the cell and may even exist as a band across the "equator," as in No. 1 in the second row. The pigment is in all cases discrete and never gathered into a block, as occurs early in the segmenting forms. This is also true of the female forms which are more pointed: practically none of them have taken on the crescentic shape which is such a characteristic feature later. Figures of twin crescents and a crescent and sporulating

¹ New Sydenham Society, p. 181.