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A CASE OF ENDEMIC HÆMATURIA

FROM THE CAPE OF GOOD HOPE

BY

ARTHUR DAVIES, M.B.

I am indebted to Dr. Andrew for kindly allowing me to publish the notes of this case.

H. G., a native of Kent, lived from 1875 to 1879 in Cape Colony, at a place called Hanover. In 1879 he went to the Transvaal, where he lived for three years in a low-lying, marshy district. In August 1882, just before arriving at the newly-discovered goldfields on the borders of the Transvaal and Swaziland, and 500 miles distant from where he was formerly living, he first noticed that he passed two or three drops of bright red blood after each act of micturition. For three months the quantity passed remained the same: he was in perfect health, and suffered no pain whatever. In November 1882 he returned to Cape Colony, and in December of the same year he caught a severe cold; his hæmaturia now increased, so that he passed about twenty drops of blood after each act of micturition. He still felt quite well, and suffered no pain; he noticed also that brackish water seemed to increase his hæmaturia. In July 1883 he began to experience for the first time some pain in the hypogastric region, and he suffered pain whilst passing his water. In August 1883 he was appointed a Government time-keeper, which post involved continuous riding on horseback for several hours, so that he passed his water at long intervals; his urine now assumed a brownish colour resembling porter, and he had some difficulty in passing it; the dysuria was caused by the formation of what he calls "clots," which obstructed the passage of the urethra. In the intervals of passing his water he suffered from a gnawing, uneasy sensation at the root of the penis, and he felt weak. In February 1884 he had an attack of inflammation of the bladder, which lasted three weeks; continued

work up to March 1884, when his urine assumed a bright red colour, and he noticed that he passed, after each act of micturition, spawn-like substances and long spiral casts grooved on one side. His dysuria now increased, and owing to the sudden stoppage caused by the obstruction due to the clot-like substances he was compelled to strain whilst passing his urine; the pain at this period also increased, and he experienced a scalding sensation along the urethra immediately after the clots were passed. Was under treatment at Port Elizabeth Hospital for six weeks, where he got stronger. He left the Cape, under advice, in April, and reached England in May of the present year.

Patient attributes his symptoms to having drunk, whilst in the Transvaal, water which had passed through marshy soil; he has also frequently drunk water from wayside pools and ponds which had been contaminated by cattle suffering from a similar disease, called by the natives "red water." Horses and oxen are especially prone to it; and it is very fatal in the former, since they die within twenty-four hours from the time of contracting the disease: occasionally, however, they recover, and in such cases a horse is termed "salted," and is almost three or four times as valuable as one which has not had the disease.

Previous illnesses: Brain fever five years ago; typhoid fever three years ago.

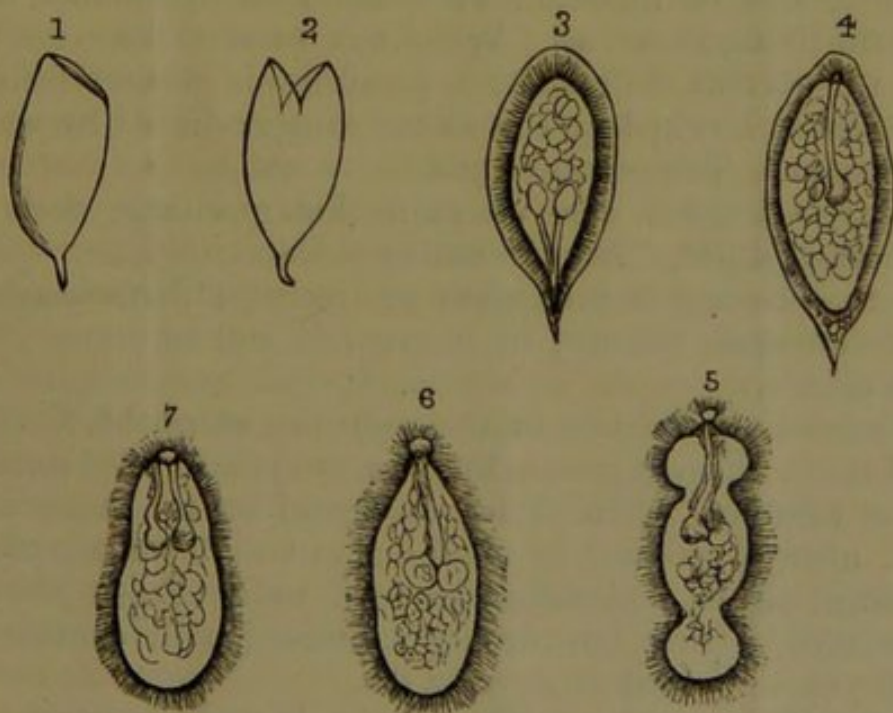
Present condition: Patient is a tall, medium-conditioned subject; complexion sunburnt; looks perfectly well. Bowels open four times. Pulse 80, regular; volume fair. He complains of constant pain at the root of the penis, radiating towards the pit of the stomach and to the end of the urethra; has a difficulty in passing his water, so that at times he is compelled to strain; he passes what appear to be long "clots," which, however, dissolve up in three or four hours; immediately the passage of the urethra becomes patent, he experiences a scalding sensation along it.

Blood: normal; no difference either by night or day. Lungs: normal. Heart: second sound at left base accentuated. Abdomen: liver not felt; spleen easily palpable. Some tenderness in hypogastric region, and occasional pain in the region of the descending colon and sigmoid flexure on passing a motion. There is also some thickening and tenderness in sub-pubic region.

Urine: appearance bright red, of an arterial hue; reaction acid; sp. gr. = 1025; a copious deposit of a pink, flaky mucoid substance, resembling in parts small clots of blood; a large amount of albumen; well-marked reaction with guaiacum; oxy-hæmoglobin bands with spectroscope; microscopic examination shows

a large number of leucocytes and red-blood corpuscles. Here and there are seen flocculent mucoid masses, in which are embedded the blood corpuscles, and numerous ova of the *bilharzia hæmatobia*. The ova possess brown transparent shells, with a spine placed at the narrow pole of shell. In the ova are seen in some cases living embryos. A distinct head can be made out, in the centre of which is a small aperture surrounded by a circlet of cilia, and leading in some cases into two distinct tubes, in other cases into one tube, terminating in double pyriform mass. The tube is distinctly retractile. Beyond the pyriform mass are seen indistinct granular bodies, whilst between the body wall and shell at its narrow end are sometimes seen granular masses. The embryos are ciliated all over. They are extremely protean in form. In some parts of the field there are seen embryos half in and half out of their shell. In other parts they are lying by the side of the now empty shells. In many cases the embryos are seen to be actively swimming about. They escape either by a lateral aperture or by longitudinal dehiscence of the shell.

The blood and "clots" passed per rectum show exactly similar appearances. The accompanying figures represent (1 and 2) two empty shells, one showing lateral aperture, the other longitudinal dehiscence; 3 and 4 represent embryos within their shells; in one the oral aperture is opposite the spine; in the other it is placed at the broader end of shell; 5 and 6 represent two free embryos, show-



ing a variety in shape; 6 is the commonest form met with. The oral aperture is seen to open into a long tube, the œsophagus, which terminates in a double pyriform mass. The rest of the body is

granular in appearance. Fig. 7 represents an embryo, and shows more clearly a distinct tube leading from the oral aperture to each of the pyriform bodies, placed almost centrally in the embryo.

In the field several small crystals of oxalate of lime are met with (octahedra).

May 21.—Passed some blood with motions; very scanty. Weight = 11 st. 4 lbs.

May 24.—Again passed blood with motions. Passing bright red urine; pain after micturition.

May 25.—Passed a small quantity of pure blood per rectum, containing ova, with *terminal* spines, and living embryos.

May 27.—Complained last night of gnawing, aching pain in bladder and sub-pubic region. Pain and difficulty on passing his urine.

June 2.—Pain in hypogastric region.

June 3.—Pain the same. No blood passed per rectum; urine has assumed a brownish colour.

June 4.—Yesterday evening complained of severe pain in hypogastric region and along urethra. Passed perfectly clear urine from 8 P.M. to 10 P.M.

10 P.M.—Urine this morning has a bright red colour, with copious deposit of mucoid-looking substance; bladder washed out with Condyl's solution.

June 11.—Less pain; passing smaller clots; greatly relieved by washing out of bladder; urine contains abundance of ova and several living embryos. Weight = 11 st. 6 lbs.

June 13.—Great difficulty in passing his water; feels that the urethra is blocked by the clots; much relieved by washing out of bladder. Temperature 98.6°.

June 17.—A good deal of pain this morning; feels well. Bladder washed out. No live embryos seen.

June 21.—Does not micturate so freely; still passes blood; urine of the same colour; in it are ova and embryos. Temperature 98.2°.

June 24.—Pain begins in the morning at about 8 o'clock; lasts till noon, when it gradually goes away, and he is quite free until the evening, when it begins again at the neck of the bladder; always relieved by washing out of bladder; no clots come away; sleeps and takes his food well. Pulse 78; temperature 98°. Urine less deeply coloured; still contains ova and embryos. Weight = 11 st. 3 lbs.

July 1.—Passes water freely; less coloured; no pain; clots very small. Urine acid, 1030, bright red; large amount of albumen, leucocytes, and red-blood corpuscles, with the ova of the bilharzia hæmatobia; no live embryos seen.

July 9.—Is about the same. Urine: live embryos not seen.

July 15.—Passes less blood; has less pain on the whole; has not to strain so much; bladder not washed out now. Weight = 11 st. 4 lbs. No live embryos seen.

July 22.—About the same. Urine: no live embryos seen; still a large number of ova, with leucocytes and red-blood corpuscles. Went out on August 5. Weight = 11 st. 1 lb.

He was at first treated with quinine; afterwards, for several weeks, drachm doses of tinct. kamala, which he took every four hours. He continued taking this until he left the hospital, and the final examination of his urine showed *absence of living embryos*, so that, apparently, the embryos were affected by the kamala. Continued coming to the hospital once a fortnight, still taking kamala. On September 19 he stated that he is not in pain excepting from 10 A.M. to 1 P.M., when he wishes to pass his water, and has a difficulty in doing so. Says he passes clear urine at times, but always a quantity of blood afterwards; feels weak at times. Kamala was changed on this day for salicylate of soda, gr. v. ter die. Urine examined on September 19; showed same appearances, but with *living embryos*.

Readmitted on October 3. Gained $2\frac{1}{2}$ lbs. during last fortnight. Since he left the hospital in August has been on the whole better; found that constant change benefited him; thinks that the salicylate of soda enabled him to pass his urine more easily; still complains of pain of an aching character at the root of the penis in the morning from 10 A.M. to 1 P.M.; has the same scalding sensation, and says that the "clots" whilst passing seem to cut him. He states that he passes his urine in two ways now. In one, the urine is clear with "large clots;" in the other, it is of a bright red colour with "small clots." Still passes occasionally whilst straining small jelly-like substances with blood per rectum; has entirely lost pain in hypogastric region; is not weaker in any way. Urine: bright red in appearance; flaky mucoid deposit containing ova and living embryos of the *bilharzia hæmatobia*, abundance of leucocytes, and red-blood corpuscles. Spleen still felt.

October 5.—Passed clear urine followed by clots; a good deal of pain.

October 7.—Pain less; clots less formed; passed some blood per rectum; ordered oil of turpentine ℥ 10 out of mucilage and peppermint water.

October 10.—Says he can pass his urine more easily and with less pain; in the urine are still to be found living embryos of the *bilharzia*; thinks that he passes more blood in the day than at night.

October 14.—Some difficulty in passing a clot this morning; still passing more blood in the day than at night; feels sometimes as if something had burst inside him, and he then passes nothing but pure blood; irritation in urethra less since taking turpentine; passing less blood per rectum.

Remarks.—It appears to be clearly established by Dr. John Harley,¹ that this particular form of helminthiasis is found on the whole of the eastern littoral of the African continent, from the Nile Delta to the Cape of Good Hope, and that it is especially prevalent at Cairo and Uitenhage, which are equidistant from the Equator, and on opposite sides of it. The disease is absent from the West Coast, and from the interior plateau of South Africa. It is also found in the Mauritius, and in the Isle of France, in which latter place three-quarters of the children are attacked with it.

As regards the mode of entrance of the parasite into the human body, Cobbold² maintains that the medium of introduction is water taken into the system through the mouth, or else by means of water plants, such as watercress; and there is strong evidence in favour of this view, inasmuch as this disease is prevalent in districts where the rivers are sluggish, and their course obstructed by vegetation; whereas inhabitants living on the banks of rivers which have rocky bottoms are free from the disease. Further, whilst the inhabitants of towns such as Durban, who drink rain-water, are unaffected, coolies from Madras and Bombay and European immigrants are especially prone to contract this disease, since they live on estates where sluggish streams flow through swampy valleys. In such a district lived the subject of this memoir, and the fact that it was after a residence of three years that he contracted the disease (six months being the stated period) is probably due to the fact that he lived, not actually in the valley, but rather on the side of a range of mountains forming the watershed of the valley. It is a curious fact that whilst the immigrants from India suffer from this form of helminthiasis, the Kaffirs, who are also attacked by this disease, are yet more liable to another form of helminthiasis, namely, the common *tænia* of South Africa. Another mode of entrance of the parasite into the human system is advanced by Drs. Rubidge and Lyle, both resident at the Cape. They state that bathing is a cause of this form of parasitism, and that the animal gains entrance into the system either by the skin or by the urethra. They consider that the so-called Natal sores are produced in this way; but this is scarcely probable.

¹ Medico-Chirurgical Trans., vol. lvi. 1883.

² British Medical Journal, 1872.

Cobbold, Leuckart, Wagner, Siebold, and Filippi maintain that the embryo after escaping from its shell does not develop further unless it passes into another host, and from analogy of the case of the distoma lanceolatum he supposes that the intermediary host is some form of gasteropod mollusc. If, then, the parasite, which has reached at that period its cercarian stage, is swallowed by man, it will develop into the mature worm. With this object in view, he has tried experiments on several kinds of animals, such as gammari, dipterous larvæ, lymnaciæ, paludinæ, species of planorbis, roach, and gudgeon, but without success.

Lastly, as regards the symptoms of the above case, they accord closely with Dr. Harley's cases, and with that one recorded by Dr. Simpson¹ in "The British Medical Journal," 1872. There are, however, three points of difference, namely, that neither of the above authors mentions the passing of pure blood with mucoid clots per rectum which contained *living embryos* and numerous ova. The latter are stated by Leuckart to possess lateral spines instead of terminal ones, but in this case, in spite of repeated careful examination, none have been detected. Dr. Harley is inclined to deny their existence, whilst even Cobbold thinks that the figures of Bilharz and Griesinger representing ova with lateral spines are exaggerated. Yet he considers that there is a tendency towards such a disposition of the spine. Again, in Dr. Harley's cases, there is no statement of any enlargement of the spleen, which is distinctly palpable in this case. It also differs from Dr. Simpson's patient in the fact that so far from there being any anæmia or debility, this patient appears to be in almost perfect health.

Addendum.—It may be useful to state that the cuticle or shell is stained by picro-carminæ, whilst the embryo itself is coloured by hæmatoxylin.

¹ British Medical Journal, 1872.

