ACUTE SYPHILITIC NEPHRITIS

REPORT OF A CASE *

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Acute syphilitic nephritis is a condition reported infrequently and is especially rarely described in the American literature. Stengel and Austin¹ were the first ones in this country to give a comprehensive review of the subject; their work dealt largely with the chronic rather than with the acute cases. In 1916, Stokes² reported a case with a detailed review of the literature. He also reported another case recently, the etiology of which he questions. Cole³ reported a clear-cut clinical case in January, 1920, which fulfilled the usual diagnostic requirements. In a general discussion of syphilitic nephritis, Thompson⁴ called attention to a case that came under his observation, but he did not give details.

On the continent much more has been written on the subject of syphilitic nephritis. In 1900, Karvonen⁵ reviewed the literature and out of ninety-two case reports, he could accept only twenty cases as authentic. Fournier⁶ reported twenty-six cases from his own experience; Munk⁷ collected data of fourteen cases; Hoffman⁸ had seen six cases and Audrey⁹ reported two. Day¹⁰ added another case this year. In other words, acute syphilitic nephritis as distinguished from a slight transient albuminuria is a relatively uncommon complication

* From the Crowell Clinic of Urology and Dermatology.

1. Stengel, A., and Austin, J. H.: Syphilitic Nephritis, *Am. J. M. Sc.* **149**: 12, 1915.

2. Stokes, J. H.: Acute Syphilitic Nephritis, from the Standpoint of Diagnosis and Salvarsan Treatment, *J. A. M. A.* **66**:1191, 1916; A Note on Syphilitic (?) Parenchymatous Nephritis, *Am. J. Syph.* **4**:547 (July) 1920.

3. Cole, H. N.: Acute Syphilis of the Kidney, Report of a Case, *Am. J. Syphilis* **4**:46 (Jan.) 1920.

4. Thompson, Loyd: Syphilis of the Kidney, *J. A. M. A.* **75**:17 (July 3) 1920.

5. Karvonen, J. J.: Quoted by Stokes, *Dermat. Ztschr.* **7**:37, 183, 460, 770, 903, 1900.

6. Fournier, A.: *Traite de la Syphilis*, Paris **1**:735-741, 1901.

7. Munk, F.: Quoted by Stokes and Stengel and Austin, *Ztschr. f. klin. Med.* **78**: Nos. 1 and 2, 1913.

8. Hoffman, E.: Ueber akute syphilitische Nierenentzündung in der Frühperiode, *Deutsch. med. Wchnschr.* **39**:353, 1913.

9. Audrey, C.: *Ann. de dermat. et syph.* **3**:277, 1912.

10. Day, H. B.: A Case of Syphilitic Nephritis, *Lancet* **198**:1009 (May 8) 1920.

of syphilis. We wish to present the following case as illustrative of this unusual complication.

CASE REPORT

History.—Mr. S., an American, white, aged 30, married, an automobile dealer, was first seen Jan. 16, 1920. He complained of an eruption on the body and face with weakness and loss in weight. The family and personal history were negative. The present trouble began Dec. 5, 1919, as a slight urethral discharge. The last extramarital exposure occurred about three months before. He noticed a rash on his body ten days' previous to entering the hospital. His throat had been sore for three or four days. He complained of nocturnal pains in the shoulders, thighs and left side which had persisted for the past two weeks. During this time he had suffered with headache both day and night. He had lost about 20 pounds in weight during the five weeks preceding his entry, at which time his weight was 126 pounds. He had received no treatment.

Examination.—This revealed a rather poorly nourished man somewhat anemic in appearance. The scalp presented many pustular lesions covered by crusts. There were numerous papulopustular lesions on the forehead. The pupils were equal and reacted to light and in accommodation. On both tonsils were superficial ulcerative lesions which were covered with grayish pellicles. Over the entire body there was a profuse maculopapular rash, most prominent in the flanks, with scattered pustular lesions. There were confluent hypertrophic papulosquamous lesions on the shaft of the penis and around the anus. In the urinary meatus there was a lesion involving the entire opening. This lesion was distinctly indurated and had a serous discharge. There was a general adenitis. The tendon reflexes and the long bones were normal. There was no evidence of edema. The heart and lungs were negative. The spleen was not palpable. On entering the hospital the Wassermann reaction on the blood was strongly positive. The urine showed a large quantity of albumin, 7.5 per cent. by bulk (Purdy's centrifuge method), numerous large hyaline and lipid-appearing casts and a few small granular casts. The phthalein excretion was 56 per cent. in two hours. The blood urea was 58 mg. per 100 c.c.

Treatment and Course.—Stokes found in his experience that small doses of arsphenamin were most effective in these cases and attended with the least risk. Therefore, six injections, with a total dosage of 2.05 gm., were given at weekly intervals, the initial dose being 0.25 gm. Phthalein excretion and quantitative albumin determinations were made before each injection and again twenty-four hours later. The detailed findings are illustrated in the chart.

Albumin, Blood Urea and Phthalein Excretion Findings.—At the first examination the blood urea determination was 58 mg. per 100 c.c., which was twice the normal amount of blood urea. Probably this indicates some degree of nitrogenous retention. Previous to the fourth injection of arsphenamin it was less than 35 mg., but the last examination showed a rise to 48.5 mg.

The first phthalein excretion determination was 56 per cent. for two hours (39 per cent. during the first hour and 17 per cent. during the second hour). Although the patient had a marked nephritis, the phthalein excretion was practically normal. This observation has frequently been made in patients with acute nephritis. Apparently this holds true concerning those of syphilitic etiology as well. The phthalein gradually declined to an excretion of 46 per cent. following the second treatment. The excretion then increased until it reached 60 per cent., its highest point, which preceded the fourth arsphenamin

injection. Immediately following this there was a marked decrease in the phthalein output to 38 per cent. At the same time there was an increase in the amount of albumin in the urine. When the next entry was made the amount of phthalein was 50 per cent., but following the fifth treatment it declined again. The last two determinations before and after the sixth treatment were 32 and 34 per cent., respectively.

The quantity of albumin in the urine when the patient entered the hospital was 7.5 by bulk (Purdy's centrifuge method). Following the first injection of arsphenamin (0.25 gm.), there was an increase of the albumin to 10 per cent. The quantity was such that on heating, the urine coagulated so completely as to remain in the tube when it was inverted. This increase of 2.5 per cent. may be described as a manifestation of a Herxheimer reaction. Following this there was a rapid decline in the albumin content of the urine until just preceding the fourth treatment it reached 1 per cent. Following this treatment, it increased to 3 per cent. coincidentally with a marked drop in the phthalein excretion. These facts suggest that the arsphenamin itself produced some damage to the kidneys and therefore the subsequent two doses were reduced in size. The next examination, a week later, showed only a trace of albumin and at the last three examinations the urine was entirely negative.

In regard to the presence of casts in the centrifuged sediment in this case, it should be noted that only on the entry examination and following the first treatment were they described as numerous, although even then they were disproportionately less in number than would be expected from the albumin content. Before the second injection they were less numerous and were even fewer in number after this treatment. From this point none were found at eight examinations.

GENERAL DISCUSSION

The onset in our case was gradual. The patient complained of a loss in weight of 20 pounds within five weeks and a progressive weakness. This is in accord with the majority of Munk's cases. The loss in weight was a prominent feature in our case, and one which was emphasized by Isaac as the most striking objective sign in his experience. Our patient did not show any evidence of edema which was so noticeable in Fournier's,⁶ Hoffman's⁸ and McDonald's¹¹ cases. Fournier also calls attention to the early tendency to uremia. Our patient did not show, on physical examination, any evidence of an impending uremia, but the urea content of the blood was decidedly increased (58 mg. per 100 c.c.). The impairment in health was by no means in proportion to the renal involvement, as evidenced by the albumin content. The number of casts was small in comparison to the amount of albumin. Some of them appeared to be lipoid in nature; however, they were not examined with Nicol prisms to determine whether they were doubly refractile. These doubly refractile lipoids were first noted by Munk. This observer thought that the presence of these lipoids in the urine of nephritic patients was a diagnostic point of

11. McDonald: *Lancet* 2:207, 1915.

considerable importance in establishing syphilis as the etologic factor. Stengel and Austin, in this country, made a study of a series of nephritic patients with syphilis and another series without syphilis. They found these lipoids in six cases with a positive Wassermann reaction, while they found them in five out of fourteen patients who

Albumin, blood urea and phthalein excretion in authors' case.

did not have syphilis. They are led to believe from their studies that these lipoids are constant in cases of syphilitic nephritis, and while they frequently occur in other types of nephritis, they are not abundant.

DIAGNOSIS AND TREATMENT

The best recognized points in diagnosis, as described by Stokes are: (1) establishment of the existence of an early syphilis; (2) high albumin content of the urine; (3) double refractive lipoids in the

urine; (4) therapeutic tests. He believes that points 3 and 4 are the most reliable, while points 1, 2 and 4 are the most available. The existence of an early syphilis is usually established on physical examination; however, a Wassermann reaction is of value when the clinical evidence has disappeared. This is usually not the case unless the patient has received some treatment. The second requirement is met by a quantitative albumin determination. The third requirement, that of finding doubly refractile lipoids in the urine, is not diagnostic owing to the fact that these bodies are found frequently in nephritis of other origin. Furthermore, it may not be practicable because the average physician does not have available for use a polarizing microscope, as was true in our case. In our opinion the therapeutic tests are by far the most essential.

Both Stokes and Cole gave their patients initial mercurial treatments, and in each instance the drug produced toxic symptoms before the albuminuria disappeared. They later administered arsphenamin with the desired therapeutic effect. The specific treatment in our case consisted of arsphenamin injections followed by mercurial inunctions after the albumin had entirely disappeared. The initial dose of arsphenamin was 0.25 gm. followed by weekly injections of from 0.3 gm. to 0.4 gm. The first treatment was followed by a Herxheimer reaction with an increase of albumin from 7.5 per cent. to 10 per cent. The amount of albumin thereafter rapidly decreased, and no deleterious effects were noted until the fourth injection at which time the amount of albumin rose from 1 per cent. to 3 per cent. The dosage of arsphenamin was then reduced from 0.4 gm. to 0.3 gm., and the albumin entirely disappeared.

As the desired therapeutic effect may be obtained with 0.3 gm. of arsphenamin, it seems wise not to exceed this dosage until the albumin has disappeared from the urine.

CONCLUSIONS

1. Acute syphilitic nephritis is an infrequent complication of syphilis.
2. The diagnosis depends on: (a) the existence of any early syphilis; (b) the high albumin content of the urine with a relatively small number of casts; (c) therapeutic tests.
3. Our case fulfilled these requirements.
4. Arsphenamin is the drug of choice in treating this condition. An initial dose of from 0.15 gm. to 0.25 gm. may be given. The subsequent doses may be gradually increased. The maximum dose given our patient was 0.4 gm.
5. We believe that mercury should not be used until after the disappearance of the albumin from the urine, as advocated by Stokes.