BANCROFTIAN FILARIASIS:

Chyluria/Hematuria

(Report of 42 cases)

Santosh M. Shrestha* M.B;B.S; D. T. M. & H;
M. R. C. P. E.

Sobhana Shrestha† M.B; B.S; D. Path. R. C. P. (Lond).

Introduction :

Bancroftian filariasis is endemic in Nepal. The end result of the obstructive lesions due to filariasis like elephantiasis is a common sight in some parts of Kathmandu valley like Kirtipur and Bhaktapur. The interesting feature of the filarial infection in Nepal is the common occurrence of Chyluria, and the common association of hematuria with chyluria. Sometime frank hematuria may be the presenting feature of the filarial infection. Chyluria Hematuria/Haemochyluria is most often intermittent in nature. One of the common cause of albuminuria, hematuria with or without excretion of white blood cells (pus cells) in urine in Kathmandu is the filarial infection. Live microfilaria may be detected in the fresh specimen of urine. Forty two cases of Chyluria/Hematuria seen mainly at Bir Hospital is reported.

Materials and Findings :-

In one year (July 1969 July 1970) we was 30 cases of Chyluria/Hematuria due to filariasis, most of them in the Bir Hospital medical outpatient. Some of them were admitted to the hospital for study and treatment. Going through the hospital inpatient record for the

* Physician, Bir Hospital, Kathmandu.

† Pathologist, Bir Hospital, Kathmandu.

last four years I could collect another 12 cases. The low incidence of chyluria in last four years as seen from the inpatient record is most probably due to the fact that most of the were treated as outpatients. The incidence of this disease in the valley must be higher. (D. Badri Bahadur Baidya sees 2 to 3 cases of chyluria per month in the adjoining Military Hospital—personal communication).

All of these patients came from Kathmandu valley except seven (3 from East no.1, and 4 from Hetouda area).

Age and sex distribution:

Out of 42 patients, 24 were female and 18 male. Nineteen belonged to the age group of 17 to 28 years, 12 belonged to the age group 29 to 40 yrs and 10 to age group of above 40 yrs. Only one case was seen below the age of 17.

Presenting Feature :

(1) Milky urine : The chief complain in 24 patients was passing milky white urine with or without clots, often mentioned as 'Choulani or rice washing' like urine. Nine in this group gave the history of passing blood previously with white urine. Microscopic hematuria was detected in twenty patients in this group.

(2) Haemochyluria: Eight patients complained of white urine mixed with blood and clots.

(3) Hematuria : Ten patients presented with frank painless hematuria. Five of these gave previous history of chyluria/haemochyluria. All these patients are below the age of 22 years and in some of them it is the first manifestation of this disease. The diagnosis of filarial infection in them was confirmed by the finding of live microfilarial in the urine or occurrence of chyluria later. Microfilaria was looked for and found in the blood in two.

The important point however is the intermittent nature and relapse of the Chyluria/Hematuria. The intermittent chyluria usually lasts for one to two weeks sometime for one to two months followed often by spontaneous relief. It may reoccur six months or a year later. We know of a patient who had chyluria for two months, fifteen years back, and had no relapse since then. The intermittent nature (of the chyluria) in terms of days and weeks is well understood but what is often not appreciated is that the patient may pass urine of different nature on the same day, or may be chyluric or haemochyluric urine of today and may have normal urine in next day. Many of the patients in this series have reported of passing normal urine early in the morning, chyluric urine after food in the afternoon and red urine in the evening. This has been confirmed in some of the patients admitted to hospital by collecting urine in separate bottles. Failure to appreciate this point and failure to explain the patient to take the proper specimen to lab has laid to normal urine report in some chyluric patients.

Other symptoms noted in this series are pain in the lower abdomen in eight, backache in five, difficulty in micturition mainly due to blockage of urine flow due to clots or burning micturition in seven. Only one had fever with chills a month ago and another gave the

h/o fever with chills an epididymoarchitis a year before the onset of chyluria. None of these patients had other evidence of filarial infection like elephantiasis.

Findings in Urine

Albuminuria was noted in 39 patients (+ in 6, ++ in 8, +++ in 14, and ++++ in 11). RBC was detected in 40 (it was plenty in 28). These patients also had WBC (from a few to plenty). Chyle was detected initially only in 29 cases. Live microfilaria was detected in six.

Blood

Night blood was looked for microfilaria in 11 and was found only in six. Four of the patients in whom microfilaria was not found had received Diethyl carbamazine before. All the microfilaria detected were that of *Wuchereria bancrofti*. As most of these patients in this series were seen only in the out patient there was difficulty in getting the night specimen for examination. WBC count, ESR and differential count was not contributory in the diagnosis. Eosinophilia was not the feature of chyluria as in inflammatory filariasis like funiculitis or epididymoarchitis, and ESR was invariably within normal limit. Blood uria was examined in 10 and were found normal.

Intravenous Pyelography

Intravenous Pyelography was done in seven, mainly with the history of hematuria and no abnormality was detected in them.

Cystoscopy

Cystoscopy was done in five. One patient who had severe hematuria (MP, 20) had intensely hyperaemic bladder wall. Whole of the bladder mucosa was also congested in another one. In other two the trigone of the bladder was congested, in one whom ulcer with surrounding hyperaemia was noted in three places. Cystoscopy revealed no abnormality in the fifth. Adult filarial worm was looked for and was not seen in any of them.

Two cases are presented to illustrate the type of patients we see here:-

Case 1. ABS, a young man of 18 years resident of Kathmandu who has been working in Hetauda for last two years came with the c/o passing white milky urine with blood clots since one week. He gave h/o frank hematuria which lasted for about 20 days, one year back, and passing of white urine mixed with blood, six months back. He has received diethyl carbamazine previously. Urine examination showed gross albuminuria (++++), plenty of RBC and WBC and chyle. Microfilaria was not detected in urine and night blood. Blood urea was 19 mg %, IVP was normal and the Cystoscopy showed intensely congested bladder mucosa. Examination of the serial specimens of urine showed that urine was normal in colour sometimes chyluric and at other time haemochyluric. Early morning specimen was usually clear and the specimen at night or late evening was haemo-chyluric.

Case 2: MP (F) 20 years., resident of Kathmandu (she has never been out of Kathmandu valley) presented with h/o frank hematuria and difficulty to pass urine because of blood clots in it since 15 days. She did not have fever and did not have abdominal colic, but she has lower abdominal discomfort and slight backache. She was anaemic, P. R: 80 per minute, regular; B P: 95/50 and there was tenderness in the hypogastric region. Twenty-four hour urine collection on the day of admission appeared normal and on examination showed no abnormality. However she developed frank and severe hematuria on the subsequent days. The first specimen of urine in the morning was usually still appeared normal. Urine showed: albumin + + + +, plenty of RBC with occasional WBC (reported as pus cells). Chyle was absent and the fresh specimen showed many live microfilaria. Culture of urine did not grow any organisms. Blood: WBC 7,700, P; 80, L; 17 and E; 3, Hb.; 9G% ESR: 23 mm. 1st hour. Blood urea: 33 mg.%. Repeated examination of the thick blood film taken at day time showed no microfilaria, but the night blood specimen showed many microfilaria of *Wuchereria bancrofti* (2—3 in every low power field). Cystoscopic examination showed intensely hyperaemic bladder mucosa. Adult worm was not seen. Chyle was detected in the urine only on the fourth day. She was treated with low fat diet, oral iron supplement and diethyl carbamazine 100 mg thrice times a day.

Discussion:

Human filariasis due to *Wuchereria bancrofti* is a disease endemic widely in tropical and subtropical regions of the world. But the occurrence of chyluria due to it is not so common in other countries except in Japan (Sasa, 1969; Marshall et al, 1966). It is rare in Thailand (Harinasuta et al 1970), in Ceylon (Adbulcader, M.H.M. & Sasa, M., 1966) and in S. India (Nair, C. P; & Bhatnagar, V.N. 1968). Workers in Bombay in over 10 yrs could collect only 100 cases of Chyluria (Karanjavala, 1969). Whereas Marshall and Yasukawa (1966) during a survey of the bancroftian filariasis in the Ryukyu island, Japan found that chyluria accounted for 22% of the clinical cases. And workers in Japan has published an analysis of 2,222-cases of chyluria from 1957 to 1961 (Karanjavala, 1969).

The clinical features of Chyluria is caused by the adult filarial worm in the retroperitoneal lymphatics. With the repeated infection the adult worm living or dead produce granulomatous lymphangitis. The affected vessels show signs of obstruction the portion of the vessels below obstruction becomes dilated, and tense with lymph and cause retrograde flow of the lymph to the lymphatics of the kidney and the bladder in which the vessels may rupture. Lymphogerrhic changes in the filariasis has been studied in the experimental infection in cats (Gooneratne, B.W.H. et al 1971) and in the chyluric patients in Japan and in India (Karanjavala, 1969). The common findings were the lymphatic obstruction throughout the retroperitoneal nodes and tissues. The blockage of the passage of chyle through the node leading to lymphatic hypertension and consequent development of abnormal and dilated collateral channels. The chyle then flew in retrograde manner causing chyluria. If the iliac nodes are predominantly involved and there are large channels around the bladder there may be direct leak into the bladder.

Chyluria is the lymph in the urine. Biochemically it is a fluid containing a colloidal suspension of fat in molecular form (chylomicron) and albumin. Over 90% of the fat in the chyluric urine is triglyceride.

One of the common feature of the chyluric patients in Nepal is the common occurrence of hematuria, which is often severe. Cystoscopy was done in five of these patients and the bladder congestion was noted in four. In one patient (MP, 20) who presented with frank and severe hematuria the whole of the bladder wall was intensely congested. Microfilaria was seen in her night blood and in urine. In others, congestion was noted mainly in the region of the trigone—No blood was seen coming from the uretric opening and none of these patients had complained of uretric colic (due to clots) whereas four of them had difficulty and blockage in the flow of urine, and passing clots—and 8 had lower abdomen pain. So it is probable that in our patients bladder is the common site of bleeding and it is due to vascular congestion associated with lymphangitis and lymph varices in the bladder.

Finding of an adult worm in the bladder has been reported (Jones, H. L, et al 1971). It was looked for carefully during cystoscopy and was not detected in any of these five patients. Live microfilaria was however found in the fresh specimens of urine in six.

Only twenty four of the patients in this series presented with milky or white urine whereas ten patients complained of hematuria and out of four were admitted to the surgical side. Chyluria and Haemo-chyluria is often intermittent in nature. The examination of the casual specimen of urine may be normal or may only show slight to gross albuminuria and presence of few to plenty of RBC and WBC in urine is (often reported as pus cell); and repeated urine culture in some of them grew no organisms.

However true pus cells may be found, as urinary tract infection may occur in the chyluric patients. In case of albuminuria and hematuria (gross or microscopic) in Nepal one should consider filariasis in the differential diagnosis. Careful history taking specially of chyluria and repeated examination of urine both for chyluric and microfilaria is helpful in the diagnosis.

Some authorities regard chyluria as not harmful to the health of the patients (Sasa, M. 1959). But the occurrence of severe hematuria with chyluria in many of the patients in this series has lead to weight loss, general debility and anaemia. Persistent haemochyluria in one elderly malnourished-subject has proved fatal.

Management: These patients were managed with fat-free diet, & course of diethyl carbamazine 2mg/kg body weight three times a day for three weeks. Some of the patients were put on long term drug therapy: on 2 days a week basis for six months after the initial course to diethyl carbamazine. We usually start with the full dose diethyl carbamazine and antihistamin was not used with it. We had so far no incidence of anaphylactic or Herxheimer type of reaction. Possible anaphylactic death from rapid destruction of many microfilaria by diethyl carbamazine has been reported (Jones et al 1971); and Brumpt et al (1969) has drawn

attention to the danger of severe Herxheimer reaction with encephalitis when treating loiasis with diethyl carbamazine. They regard microfilarial count of more than 1000 per 20 cu. mm as dangerous. Nearly half of the microfilaria carriers in Japan treated with 6.0 mg of Diethyl carbamazine citrate per kg. body weight complained of side effects like headache and febrile episodes, the frequency of which was proportional to the microfilarial density (Marshall & Yasukawa, 1966). Similar side effects were not noted in this small series.

Response to treatment was unsatisfactory in some cases. Chyluria/Haemo-chyluria continued in spite of bed rest, fat free diet and diethyl carbamazine only to have spontaneous relief later on. In severe form of Haemochyluria it will be worthwhile considering lymphangiographic study followed by surgical treatment like 'Lymphatic discontinuation' or even 'Jugulo - thoracic duct-anastomosis' (Karanjavala, 1969).

Most of the cases in this series are from Kathmandu valley. There are few cases from adjoining regions like Hetouda and Chitowan (4) and East No. 1 (3). There is no doubt that Kathmandu valley and perhaps the Tarai belt of Nepal is endemic zone for Bancroftian filariasis, and we hope it will be possible to undertake filarial survey and control it in near future.

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