mentation of MDT also raises great problems, since dosages have to be strictly adhered to in order to prevent a potentially catastrophic emergence of multiple drug resistance in *M. leprae.*

RESUMEN

No obstante que desde hace mucho tiempo se sabe de la posibilidad de la emergencia de resistencia a las drogas en el *Mycobacterium leprae,* esto ahora se está presentando como una tragedia, la cual, ciertamente, obstaculiza los programas de control contra la lepra donde se hace uso de la monoterapia. La resistencia, reportada principalmente en los Estados Unidos, no se ha observado en otros paises.

En nuestra opinión, las desfavorables observaciones hechas hasta la fecha, resultan de una incorrecta implementación de la terapia con dapsona (DDS) la cual da como resultado que se alcancen bajos niveles de la droga en sangre: uso de sulfonas disubstituidas, dosis diarias pero insuficientes de DDS, tratamiento irregular, interrupción prematura del tratamiento, etc.

Para evitar la emergencia de resistencia primaria o secundaria a la dapsona se requiere, primero, regresar a las dosis previas de 200 mg diarios de DDS por paciente adulto en lugar de los 100 mg que se administran actualmente; esto produce las maximas dosis efectivas toleradas. En segundo lugar, es necesario implementar la terapia con múltiples drogas, usando DDS en asociación con rifampina y clofazimina. Este es un procedimiento lógico y racional, al menos desde el punto de vista teórico. Sin embargo, la administración de la terapia múltiple es más costosa y por ésto no aplicable en la mayoría de los paises con alta prevalencia y pocos recursos económicos. También con la poliquimioterapia la dosificación debe ser muy estricta a fin de evitar catástrofes potenciales tales como la resistencia múltiple en el *M. leprae* a las drogas antileprosas.

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Erythema Nodosum Leprosum Associated with Azotemic Acute Glomerulonephritis and Recurrent Hematuria

TO THE EDITOR:

We wish to report a case of acute glomerulonephritis and renal failure in a lepromatous leprosy patient with severe recurrent erythema nodosum leprosum (ENL). Although the renal failure resolved rapidly, asymptomatic hematuria persisted for a few years thereafter, the severity of which paralleled the ENL, and eventually resolved.

The patient, a 34-year-old Fiji Island native of Indian descent, was diagnosed as having far-advanced, multinodular lepromatous leprosy in February 1979. Therapy was initiated with dapsone 100 mg daily and a single initial dose of 1500 mg of rifampin and, in March 1979, clofazimine 100 mg three times weekly was added. Later that

month, the patient experienced fever, myalgias, and left ulnar neuritis. Thalidomide 300 mg nightly and prednisone 60 mg daily for the initial three days were begun, and all symptoms resolved. In July 1979, after he had discontinued thalidomide on his own, and again in August 1980, after he had reduced thalidomide to 200 mg nightly, the left ulnar neuritis and fever recurred.

In September 1980, the patient experienced fever and gross hematuria. The urine contained 3+ proteinuria (656 mg/24 hr), red blood cells too numerous to count, and an occasional red blood cell cast. Creatinine was found to be 3.0 (previously 1.0), and blood urea nitrogen was 24. Creatinine clearance was found to be 25 ml/min and had been 48 ml/min in March 1979. Tests for streptozyme, rheumatoid factor, antinuclear antibody, urine cultures, blood cultures, and a throat culture were negative. Direct Coombs was positive. Serum cryoglobulin was found to be elevated. C3 was 120 mg/dl (normal 72–137) and C4 >60 mg/dl (normal 20–47). An intravenous pyelogram revealed decreased function bilaterally without obstruction. The patient refused renal biopsy. Within three days the creatinine decreased to 2.4 and only 20–30 RBC/HPF were evident. By four days the creatinine decreased to 2.1.

By October 1980, the serum creatinine had fallen to 1.2 with a BUN of 16, and only 13–15 RBC/HPF were found in the urinary sediment. From July through September 1981, ulnar neuritis, ENL, skin lesions, and fever recurred associated with increased hematuria to 150–200 RBC/HPF. In February 1982, the patient again had high temperatures, many ENL skin lesions, and right ulnar neuritis when thalidomide 300 mg nightly and prednisone 60 mg daily were reinstituted. The urine again contained numerous RBCs, but the creatinine remained 1.0. On this regimen, all manifestations of ENL cleared and the urinalysis showed only 4–6 RBC/HPF by March 1982. The patient had no signs of reaction or increased hematuria again until January 1983 and March 1983, when fever, ENL, skin lesions, and hematuria of 50–85 and 200–300 RBCs, respectively, recurred. From June 1983 to the present, the patient has been free of ENL and hematuria, and the creatinine has remained stable.

The relationship between leprosy, especially lepromatous leprosy with erythema nodosum leprosum, and renal disease, particularly amyloidosis and glomerulonephritis, has been repeatedly observed ([1, 5–8, 11]). Although hematuria is nonspecific and not necessarily associated with glomerulonephritis, it has been reported that a significantly greater number of lepromatous patients demonstrate hematuria in reactive phases ([11]) and ENL ([5]) than those with uncomplicated courses. Singhal, *et al.* ([10]) and Drutz, *et al.* ([5]) each reported a case of acute renal failure complicating the course of lepromatous leprosy having the clinical, laboratory, and histologic picture of rapidly progressive glomerulonephritis and exudative proliferative glomerulonephritis, respectively. A considerable body of evidence has accumulated from immunofluorescense and light and electron microscopy which suggests that the glomerulonephritis seen in leprosy is associated with immune complex deposition ([2–4, 9]).

Our patient would not permit renal biopsy; thus other etiologies of the glomerulonephritis, as well as the IgA nephritis described in leprosy ([12]), cannot be excluded. However, the presence of other concomitant manifestations of ENL together with gross hematuria, red blood cell casts, and mild acute renal failure, certainly are suggestive of the association of acute glomerulonephritis with ENL in this patient. The fact that subsequent to the acute episode the activity of ENL and microscopic hematuria paralleled one another suggests that exacerbation of ENL was associated with a low-grade recurrent glomerular process. This case demonstrates, once more, a probable association between glomerulonephritis and ENL and should alert clinicians to this relationship as a cause of renal failure and recurrent hematuria.

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Epithelioma Cuniculatum in Leprotic Foot

To the Editor:

In 1954, Aird, *et al.* ([1]) reported three cases of a previously undescribed, fungating, low-grade carcinoma occurring on the sole of the foot to which they gave the name epithelioma cuniculatum.

There are scanty references about this tumor in the literature. In this study, we report two interesting cases of epithelioma cuniculatum on top of leprotic plantar ulcers in Egypt.

Case I. A man of 38 presented in 1977 as a case of old borderline leprosy with a perforating plantar ulcer. In 1982, he complained of swelling in his left foot. On examination, a tumor in the form of cauliflower mass, measuring 20 × 15 × 5 cm, with multiple sinuses was found on the lateral side of the left foot (Fig. 1). Both discharge and culture revealed nothing, and the biopsy showed a well-differentiated squamous cell carcinoma (Fig. 2).

Case II. A 44-year-old man had had borderline leprosy since the age of 14. He complained of a boggy mass in his left foot. He had had a plantar ulcer for 10 years on his left foot, and 2 years ago a mass had started on top of this ulcer. On examination, there was a large, fungating, cauliflower mass, 10 × 12 × 3 cm, oozing thick pus from multiple points. This mass had an irregular verrucous surface. There was no metastasis (Figs. 3 and 4).

Comment. Verrucous carcinoma was first described by Aird, *et al.* ([1]) who reported three cases of tumor of the foot for which there appeared to be no description in the literature. These cases were similar macroscopically and microscopically to our cases. Amputation was carried out in all three patients. The authors used the term epithelioma, in the noncommittal sense of any tumor derived from epithelium; cuniculatum was chosen because of the branching and intercommunicating tunnels and clefts in the lesions which were compared to the (cuniculate) burrows in a rabbit warren. In 1965, three additional cases of epithelioma cuniculatum were reported by Thompson ([9]); wide excision was curative in two cases and amputation was required in the third case. Thorne ([10]) reported a seventh case of