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Glomerulonephritis in Congenital Syphilis

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Renal involvement is an uncommon complication of congenital syphilis. Two clinical forms of renal disease have been described: these are the nephrotic syndrome and a rare form of acute nephritis(1-3). The mechanism involved in pathogenesis of the renal lesion appears to be secondary to deposition of immune complexes. We report a case of glomerulonephritis, without other stigma of congenital syphilis, in a two-week old newborn infant.

Case Report

A 2-week-old boy was admitted in the SSKM Hospital, Calcutta with a history of swelling of legs, dorsum of hands, genitalia, puffiness of face and reddish colored scanty urine since the tenth day of birth. There was no history of vomiting, feeding difficulties, refusal to suck or failure to thrive. The mother had six living children, while the seventh child died immediately after birth. This child was delivered normally vaginally; the antenatal period was uneventful.

On examination the infant appeared well, with a weight of 3 kg, length of 50 cm and head circumference of 34 cm. He had edema of feet, dorsum of hands, facial puffiness and mild pallor. There was no history of jaundice, bullae, petechial lesions, significant lymphadenopathy or limitation of movements of one or more limbs. The rest of the systemic examination was normal.

Investigations revealed a hemoglobin of 10.9 g/dl, and the total leucocyte count was 7000/cu mm with normal differential leu-

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cocyte and platelet count. Urine examination showed 2+ protein, 20-30 red cells and 10-15 pus cells/HPF and granular casts. The 24 h protein excretion was 1000 mg. Urine culture did not reveal any organisms. The blood levels were: urea 49 mg/dl, creatinine 1.6 mg/dl, cholesterol 115 mg/dl, ASO 150 Todd units, bilirubin 0.1 mg/dl, total protein 5.2 g/dl, albumin 3 g/dl and alkaline phosphatase 170 IU/L (normal 50-155 u/L), SGOT 80 IU/L and SGPT 38 IU/L.

The VDRL was positive in a titre of 1 : 64. The mother and father were both VDRL positive at 1 : 32. Lumbar puncture revealed clear fluid, protein 41 mg/dl, sugar 44 mg/dl, chloride 120 mg/dl and cells 10/cu mm (80% lymphocytes). The cerebrospinal fluid did not show any organisms and the VDRL was negative. *X*-ray of the long bones showed deep segments of diminished density in the ends of the shafts. No erosion was seen and no periosteal reaction was present *(Fig. 1)*. Ultrasound examination of the abdomen was normal.

Histopathological examination of renal biopsy showed eight glomeruli, all of which showed thickening of the basement membrane. Three of the glomeruli showed mesangial proliferation and one showed a circumferential crescent *(Fig. 2)*. A few tubules were atrophic and contained hyaline casts. There was moderate degree of interstitial mononuclear cell infiltration with fibrosis.

The patient was treated with injection crytalline penicillin 50,000 units/kg per day in the divided doses for 2 weeks. By the end of 10 days of treatment, proteinuria had decreased with resolution of edema. After 16 days of admission, urine examination showed minimal protein, pus cells 2-3

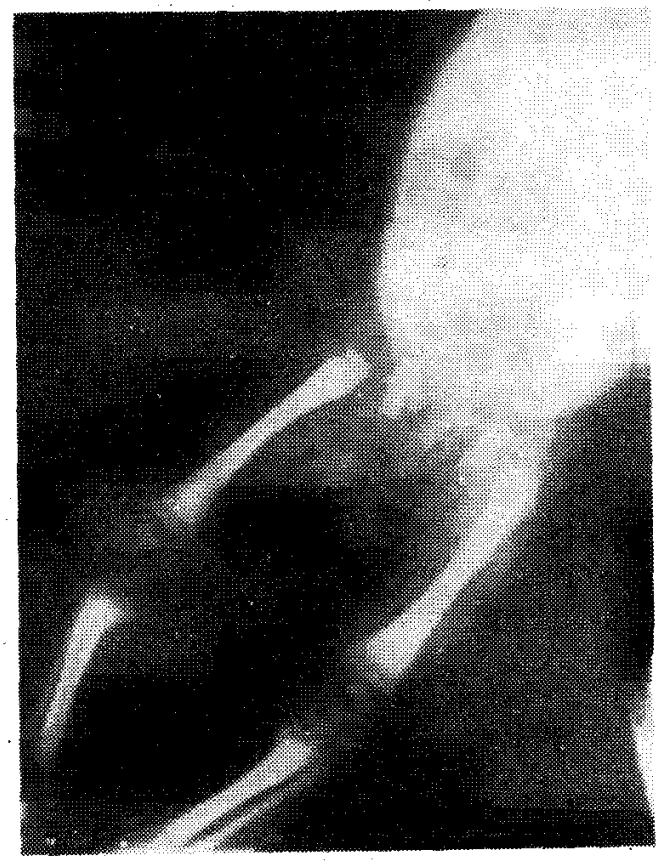

Fig. 1. X-ray of the long bones showed deep segments of diminished density in the ends of the shafts. No erosions or periosteal reaction is present.

Fig. 2. Section of the kidney showing one glomerulus with crescent formation (arrowed) and interstitial inflammatory cells (H & E x 320).

and red cells 8-10/HPF and a few epithelial and hyaline casts.

Discussion

Nephrosis or nephritis in congenital syphilis may be present at birth or may appear within one month. Presence of granular deposits IgG and C3, subepithelial electron dense deposits and elution of antitreponemal antibodies from glomerular deposits suggests an immune complex mediated pathogenesis(4).

Patients of syphilitic glomerulonephritis with azotemia, hematuria-glomerular proliferation, crescent formation and glomerulosclerosis usually carry a grave prognosis and the therapy may not alter the course of the disease(2). However, prognosis also depends on early initiation of therapy, the extent of glomerular damage and the age of child. According to Wiggelinkhuizen *et al.*(5), two younger infants aged 2 weeks and 2 months who were treated with penicillin showed clinical improvement and reversal of histological abnormalities.

Infants with nephritic or nephrotic syndrome should be screened for syphilis. Treatment with penicillin may result in resolution of biochemical abnormalities and clinical manifestations.

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Idiopathic Hypertrophic Osteoarthropathy

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Hypertrophic osteoarthropathy (HOA) is a syndrome manifested by clubbing,

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