PRIMARY TUBERCULOSIS OF SKIN (TUBERCULOUS CHANCRE) IN AN INFANT OF TUBERCULOUS MOTHER.

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ABSTRACT

A case of proven primary skin tuberculosis in an infant born to a mother with sputum positive pulmonary tuberculosis is reported. Both were treated successfully with short-course chemotherapy.

Introduction

Diagnosis of childhood tuberculosis is a riddle to many paediatricians due to lack of confirmatory evidence in great majority of these cases with paucibacillary lesions (1). Since we still do not have reliable and specific immunodiagnostic methods (2,3), demonstration of bacilli in the histopathological sections and/or bacteriological evidence are the only means of tuberculous establishing a definite diagnosis of tuberculosis. Since the tuberculous infection spreads mainly by droplets, the primary lesion usually develops in the lungs of children (1). Because of rarity of primary skin tuberculosis, a case in a three month old infant is being reported.

Case Report

A three months old female child weighing 3.5 Kg born full term in a hospital developed a small swelling on anterior chest wall of two weeks duration. Incision and drainage of the swelling was alone twice with two courses of broad spectrum antibiotics in a surgical clinic. Due to the non-healing nature of the swelling, the child was brought to this centre by the mother.

The child was looking ill, febrile, dyspnoeic and tachypnoeic. An ulcer measuring 1x2 cms with undermined edges, not fixed to the underlying bone was noticed on the anterior chest wall at the lower end of right side of sternum (Fig.). There was no other ulcer or swelling in other parts of the body. There was no history of any abrasion or trauma of chest wall of infant prior to development of ulcer. There was no lymphadenopathy. Other systems were within normal limits. The mother of the child had haemoptysis one week after delivery and was then discovered to have radiological and bacteriological evidence of pulmonary tuberculosis. The

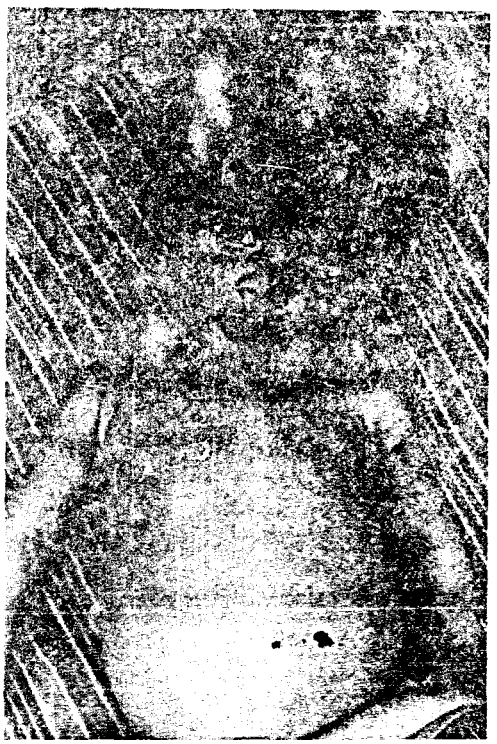

Fig. Tuberculous Chancre in an infant

M.tuberculosis isolated from mother was sensitive to isoniazid, rifampicin and ethambutol. She was treated at this centre with 800 mg Ethambutol, 400 mg Isoniazid, 450 mg Rifampicin and 1.5 gm Pyrazinamide thrice weekly for the first two months followed by 600 mg Ethambutol and 300 mg isoniazid daily for next 10 months, this being an effective method permitting direct supervision. Sputa of mother became negative for M. tuberculosis by culture at fourth month of treatment and continued to be negative at the end of treatment. The child was breast fed. The child was not exposed to any other source of infection. Peripheral

blood examination of the child's blood showed that the haemoglobin was 11.3 gms%, total leucocyte count 21,800 cells/cmm, with 43% polymorphs, 51% lymphocytes, 5% eosinophils and 1% monocyte. Erythrocyte sedimentation rate (ESR) was 40 mm/ hour. Mantoux test with 1 TU PPD was 15 mm. BCG scar was present which was given at the hospital on the fifth day after birth. Skiagram of chest was within normal limits. Liver function tests were normal. Stool examination did not show any abnormality. A biopsy of the ulcer was done and histopathological examination revealed chronic inflammatory cells with foreign body and Langhans type of giant cells and with areas of necrosis. The culture of pus from the ulcer had yielded one colony of Mycobacterium tuberculosis and the organisms were sensitive to streptomycin, isoniazid and rifampicin. There was no growth of other pyogenie organisms. Blood tests from mother was negative for Human lmmunodeficiency Virus (HIV) infection.

The child was prescribed isoniazid 40 mg and rifampicin 40 mg thrice weekly in parallel with the mother's treatment. The ulcer had healed well by the end of second month of treatment with the child gaining 1.5 kg weight. Subsequently the dosages of INH and Rifampicin were adjusted according to weight gain. Total leucocyte count reduced to 11,000 cells/cmm and Erythrocyte sedimentation rate came down to 25 mm/ hour. At the end of nine months of treatment, child was active and alert, weighed 7.6 Kg and ESR came down to 17 mm/ hour. Motor and mental milestones at nine months were normal.

Discussion

The development of tuberculous ulcer in a three month old infant born to an untreated sputum positive pulmonary tuberculous mother suggests that the infection could be of maternal origin. The occurrence of the ulcer in this baby born at full term, and the absence of common signs of congenital tuberculosis such as hepatomegaly, spenomegaly, lymphodenopathy and miliary pattern in chest skiagram (4) rule out the possibility of infections with M. tuberculosis during intrauterine life in this infant.

Though, the main mode of infection in tuberculosis is by droplets and most primary complexes are in the lung (1), the occurence of a primary tuberculous lesion on anterior chest wall of the infant suggests the possibility of inoculation of organism from the sputum of mother through an unrecognised abrasion of the tender skin of the infant. Possible kissing route of transmission is suggested The non-healing of ulcer with usual antibiotics as in this case should alert the physicians to the necessity of investigating for tuberculosis in a country like India.

It may be argued that the absence of the enlargement of the draining lymph gland (neck and axilla) suggests the possibility of a tuberculous gumma (tuberculosis colliquativa or metastatic tuberculous abscess). These gummata, however develop during dissemination of bacilli in the active phase of primary infection and most of them will demonstrate radiological evidence of primary infection in one or both lungs. The affected child also showed intact ceil mediated immunity (by the strong reaction to tuberculin), both of which are strong evidences against this being a gumma.

Since the mother reported one week after delivery, it was not possible to examine the placenta for tubercule bacilli (to rule out an intrauterine transplacental spread).

The morphology and clinical response did not suggest infection with atypical mycobacteria.

In a study of 2114 primary tuberculosis during 1909-1928, extra-pulmonary foci involving skin was reported in only three patients, even though tuberculosis was very common during this period (5). Similarly, between 1930 and 1947, there were only 14 extra-pulmonary primary tuberculosis, even though 964 radiographic evidences of primary tuberculosis was seen in Bellevue Hospital (1). Similar reports are not available from India. Lower extremities and face are the common sites for initial infection with tubercle bacilli in skin tuberculosis (1). Cutaneous manifestations usually occur in two ways(l). In one variety, the infection of skin is caused by direct contact with tubercle bacilli, as in our patient, resulting in a localised disease. In the second group, blood or lymphatic spread from an active focus of tuberculosis elsewhere in the body resuts in localised or scattered lesions. Nonspecific manifestations such as erythema nodosum can also occur.

As per the recommendations of British Thoracic Society (6,7) , children under five, who are close contacts of a smear positive index patient should receive chemoprophylaxis irrespective of their tuberculin status. They can be given BCG, if applicable, after chemoprophylaxis has been completed. Thus, the development of primary skin tuberculosis in this infant could have been prevented by giving chemoprophylaxis for four months (till mother became non-infectious) followed by BCG vaccination after completion of chemoprophylaxis. The first week vaccination received by

the child was not able to protect against this infection and disease.

REFERENCES

1. Lincoln, EM and Sewell EM ; Tuberculosis in Children. McGraw Hill Book Company, New York, 1963, 6-17. 18-35, 233-241.
2. Daniel TM. : Rapid diagnosis of Tuberculosis. Laboratory techniques applicable in developing countries. Rev. Infect. Dis. 1989. *11 (Suppl 2),* 471-78.
3. Inanyi J, Krambovitis E and Keen M. : Evaluation of monoclonal antibody (TB 72) based serological test for tuberculosis cutis. Exp. Immunol. 1983, *54* : 337 - 45.
4. Congenital Tuberculosis (Leading article) Tubercle, 1984, *65:* 81-2.
5. Ghon A and Kudlich H. Die Eintriltspforten der Infektion. Born standpunnkte der pathologis - chen Anatomie, In S. Engel and C.Perquet. (eds). “Handbuch der Kiuder-tuberkulos” George Thieme Verlag, Stuttgart, 1930, Vol 1 : P.20.
6. Citron CM, Darbyshire JH. Ormerod LT and Smith ML : Chemotherapy and management of tuberculosis in the United Kingdom - recommendations of the joint Tuberculosis Committee of the British Thoracic Society, Thorax, 1990, *45:* 403-8.
7. Control and prevention of Tuberculosis in Britain. An updated code practice : Subcommittee of the Joint Tuberculosis Committee of the British Thoracic Society, Brit Med. J. 1990, *300* : 995 - 9.

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