The Turkish Journal of Pediatrics 1998; 40: 467-471

LUPUS VULGARIS SECONDARY TO SINGLE BCG VACCINATION*
A Case Report

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SUMMARY: Selimoğlu MA, Erdem T, Parlak M, Eşrefoğlu M. (Department of Pediatrics, Dermatology, and Histology and Embryology, Atatürk University Faculty of Medicine, Erzurum, Turkey). Lupus vulgaris secondary to single BCG vaccination. Turk J Pediatr 1998; 40: 467-471.

A 10-year-old girl with lupus vulgaris following single BCG vaccination is reported. She had a 15 x 20 cm painless lesion covering her left shoulder, axilla, triceps and biceps region. PPD test was positive. Histopathological picture was identical to lupus vulgaris. *Key words: lupus vulgaris, BCG.*

Lupus vulgaris, a form of cutaneous tuberculosis, is a common and progressive disorder. It usually occurs as a result of hematogenous or lymphogenous dissemination or of direct contact with an internal tuberculosis focus[1,2]. It rarely occurs following BCG (Bacillus Calmette-Guérin) vaccination. Lupus vulgaris following a single BCG vaccination is very rare; multiple BCG vaccinations increase the incidence[2,3].

We present here a lupus vulgaris case following a single BCG vaccination.

Case Report

A 10-year-old girl presented with a painless lesion on her left shoulder. Her parents reported that she had had the BCG vaccination at the age of four months. The lesion which occurred at the vaccination site had never healed, despite several treatments with unknown drugs, and had progressively enlarged, particularly in the last three months. On physical examination, no pathological sign was detected except the 15 x 20 cm painless lesion covering her left shoulder, axilla, triceps and biceps region, with irregular margins and geographic pattern. The center of the lesion was atrophic and hypopigmented and surrounded by a border consisting of 0.5-1 cm papules with crusts. New active papules were seen on the atrophic central region (Fig. 1).

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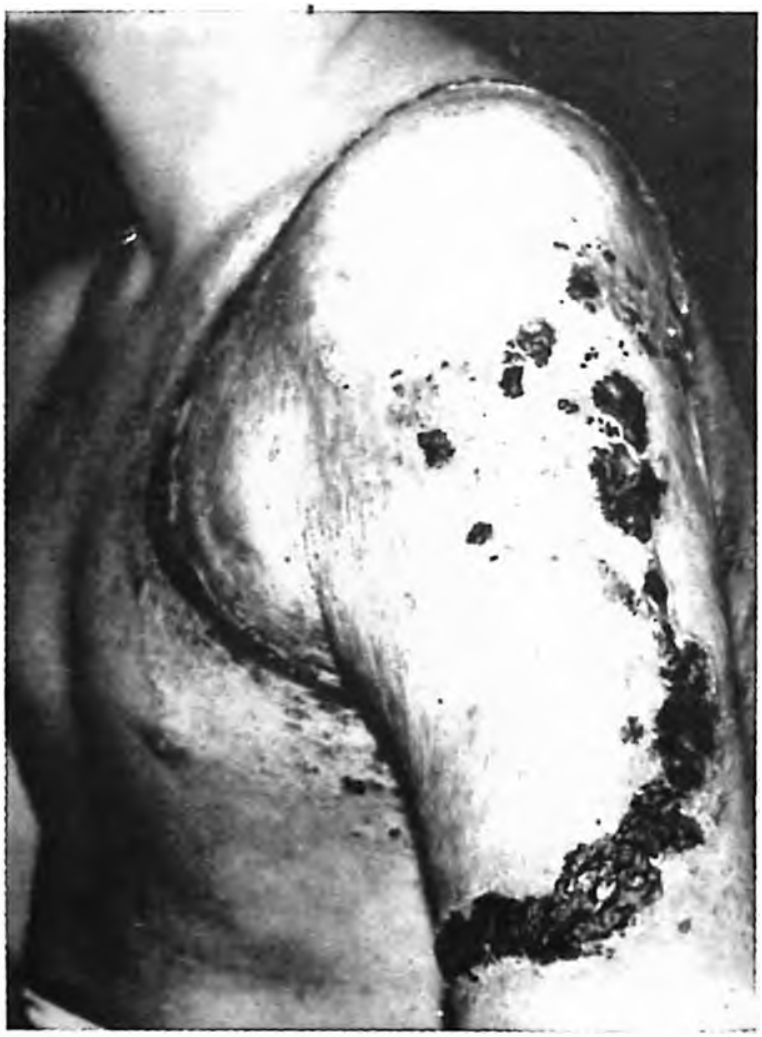

Fig. 1: Lupus vulgaris lesion covering left shoulder, axilla, triceps and biceps region. Irregular margins and geographic pattern and new active papules were seen on the atrophic central region.

Since the lesion was covered with crusts, apple jelly appearance was not observed, when pressed with a diascope. Regional lymphadenopathy was not detected.

Erythrocyte sedimentation rate was 38 and 72 mm at one and two hours, respectively. The other hematological parameters were within normal limits. Chest and shoulder roentgenograms were normal. PPD (purfied protein derivative) test was considered to be positive with 12 mm of induration and a 1 cm zone of surrounding erythema at 48 hours, and was positive with ulceration at 72 hours.

Specimen taken from the margins of the lesion was negative for acid-fast bacilli and the culture was negative.

Biopsy specimen was taken from the margin of the active lesion and stained with hematoxylin-eosin. Epitheloid tubercles surrounded by lymphocytes and Langhans-type giant cells were observed. Neither caseation nor mycobacteria was seen (Fig. 2).

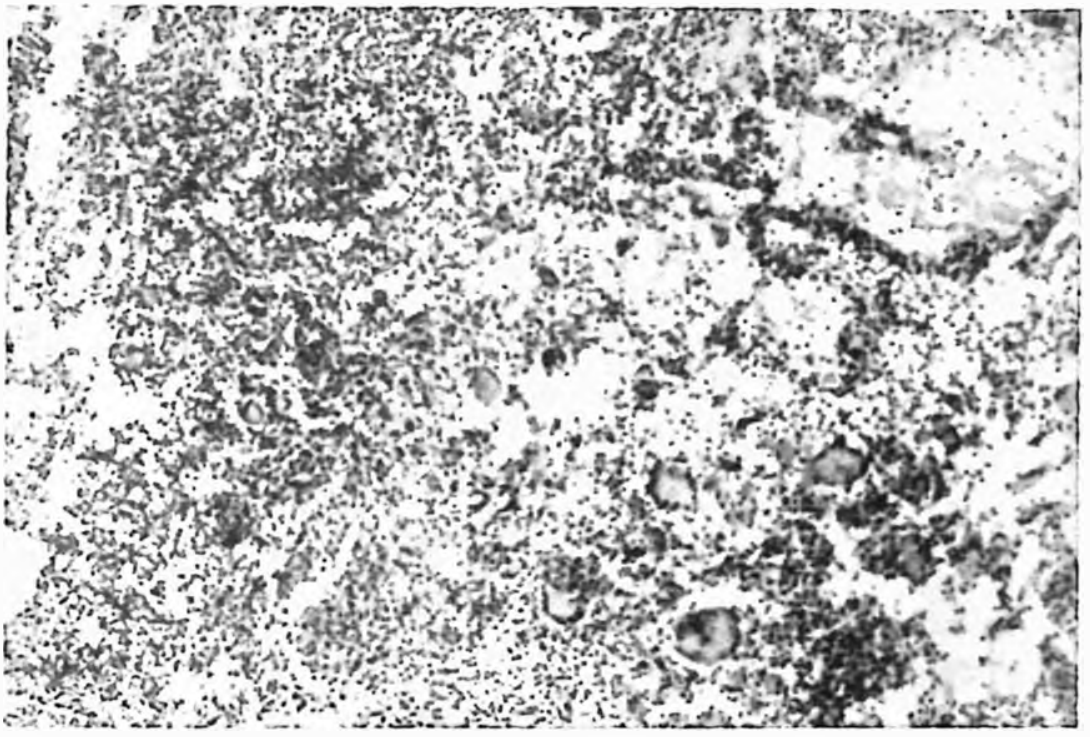

Fig. 2: Epitheloid tubercles surrounded by lymphocytes and Langhans' type giant cells, HE X 100.

Discussion

BCG vaccine is provided from attenuated bovine bacillus[5]. Severe complications following BCG vaccination are rare. A series of 17 cases of fatal disseminated BCG vaccine infection was reported; the majority of these patients were immunodeficient. In another reported series of 100 patients with complications of BCG vaccination, 71 had suppurative or perforating adenitis, 16 had simple adenitis, 11 had tuberculoids, 10 had lupus vulgaris, 10 had lupoid infection and 10 and Koch's phenomenon[4].

Among 33 patients who developed 43 lesions following BCG vaccination, two lupus vulgaris cases were also reported[4].

Complications following BCG vaccination were considered as specific and nonspecific in the literature. Keloids, erythema nodosum, simple macular eruptions, eczemas, toxicoderma hemorrhagica, urticaria, erythema multiforme, lichen scrofulosorum, epithelial cysts, and spinocellular epithelioma on scars are nonspecific; lupus vulgaris, Koch's phenomenon-like reaction, severe regional adenitis, slow scarring, local subcutaneous abscess, BCG osteitis, distant tissue tuberculosis, generalized adenitis and BCGitis are specific complications[2-4]. In 1946, the first case with lupus vulgaris following BCG vaccination was reported[4]. The incidence of lupus vulgaris following single BCG vaccination is 1/100,000-200,000 and it increases after multiple vaccinations[4,5]. In our patient, lupus

vulgaris had developed following single vaccination. There was no family history of tuberculosis or of exposure to patients with tuberculosis.

Lupus vulgaris may develop immediately after vaccination; however, it was also reported as developing on vaccine scars as long as three years after vaccination. Mean duration is approximately one year[1,5]. The interesting feature of our patient is that the non-healing lupus vulgaris lesion developed immediately after BCG vaccination.

The appearance of the lupus vulgaris lesion developed following BCG vaccination is the same as that of the classical lupus vulgaris lesion. If the vaccination is performed intradermally, the lesion is rounded. If it is performed by scarification, the lesion is band-like[3,5]. In our case, the vaccination was administered intradermally and the lesion shape was rounded. It is reported that the size of the lupus vulgaris lesion due to BCG vaccination may range from 1 mm to 10 cm[4]. The lesion of our patient was 15 x 20 cm.

Izumi and Matsunaga[4] reported a case with lupus vulgaris for 30 years due to BCG vaccination and the lesion was defined as 6.6 x 6.5 cm. In our case, although the lesion was present for only ten years, the diameter was greater than 10 cm.

Absence of pathological/radiological signs such as hilar lymphadenopathy confirmed our diagnosis. Like Izumi and Matsunaga[4], we also did not detect lymphadenopathy. In lupus vulgaris following BCG vaccination, mycobacteria generally cannot be shown on direct or histopathological examination[4,6]. Seven culture-positive cases among a series of 33 patients were reported[4]. But other series in literature had no culture-positive patients[4]. We also could not observe mycobacteriam on direct microscopic or histopathological examination, and the culture was negative.

PPD was positive in our patient. PPD contains immunologically active tuberculoproteins and it shows hypersensitivity against tuberculosis. In tuberculosis, a relation between hypersensitivity and immunity has not yet been established. Both develop at the same time. Although both are related to mononuclear cells, their antigens are different. For this reason, hypersensitivity can be used as an indicator of immunity[2,3]. Izumi and Matsunaga[4] also reported a strong reaction to PPD in one case.

Histopathological appearance of epitheloid tubercles surrounded by lymphocytes and Langhans-type giant cells was identical with lupus vulgaris[7,8].

Treatment of lupus vulgaris due to BCG vaccination is similar to that for classical lupus vulgaris[5]. Isoniazid (INH) (15 mg/kg/d) and rifampicin (20 mg/kg/d) were administered orally, and the treatment is continuing.

We presented this case with lupus vulgaris due to BCG vaccination in order to call to mind this rare entity, and we reviewed the literature.

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