

ERYTHEMA NODOSUM AND ERYTHEMA MULTIFORME ASSOCIATED WITH MILKER'S NODULES

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Abstract. An epidemic of 44 cases of milker's nodules was recorded in the Tampere Central Hospital catchment area in Finland during the autumn of 1974. Exanthema or erythema multiforme-like secondary eruptions were seen in 10 cases. One female patient is reported in detail because of the simultaneous occurrence of erythema nodosum and erythema multiforme. The virological diagnosis was confirmed by electron microscopy.

Key words: Poxvirus infections; Milker's nodules; Erythema nodosum; Erythema multiforme

In connection with milker's nodules caused by paravaccinia, short-lived secondary eruptions are sometimes seen (2). These exanthemas usually appear one to two weeks after the primary nodules and are, according to Bonnevie (1) and Sonck (19), papulo-urticarial or erythema multiforme-like reactions.

Secondary eruptions occur more frequently in

some epidemics than in others. In 1929 Schultze & von Grundherr (18) observed exanthemas in 8 out of 25 cases in Germany and in 1934 Pomuss (16) recorded only 2 out of 81 cases in Russia.

Cases of milker's nodules have mostly been sporadic or limited to minor epidemics (10, 13, 14). In Finland milker's nodules have been on record since 1943, when Sonck (19) described 4 cases with secondary eruptions in Ostrobothnia.

The first wider epidemic in our country occurred in the rainy and warm autumn of 1974 when 44 cases of milker's nodules were seen in the Tampere Central Hospital catchment area (11). All these patients had been in contact with cattle infected with false cowpox. Ten patients (23%) later developed secondary eruptions and of these, 3 had morbilliform exanthema and 7 had erythema multiforme. Two of the last-mentioned group had bullous forms.



Fig. 1. Milker's nodule on the little finger

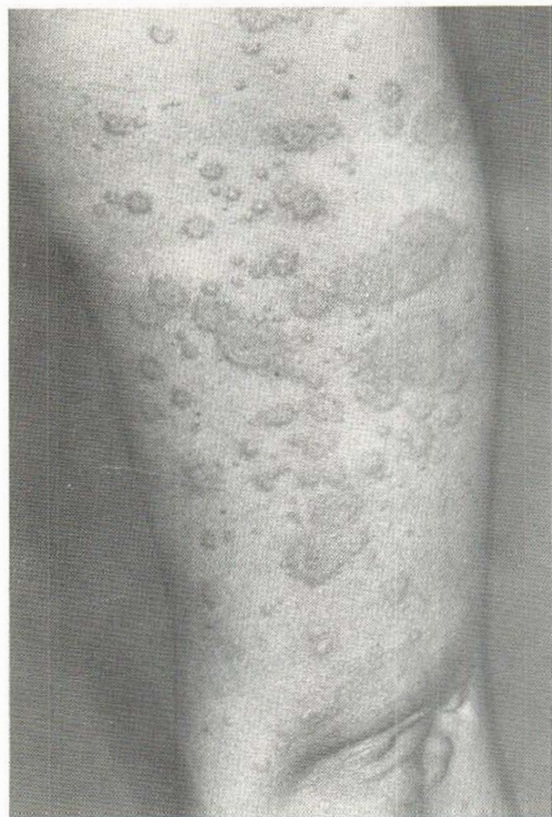


Fig. 2. Erythema multiforme-like eruption on the upper arm.

One female patient had besides erythema multiforme also both clinically and histologically typical erythema nodosum on her legs. We report this case in detail here, as we found in the literature only one previously reported case of erythema nodosum in connection with milker's nodules—described by Woringer in 1934 (21).

CASE REPORT

A 26-year-old previously healthy farmer's wife from Vammala. Two years earlier she had had an abortion because of rubella. She had milked cows daily by hand to supplement mechanical milking. One of the cows had a crusted eruption of false cowpox on the udder. This was at the beginning of October, 1974.

After 2 weeks, a bluish, firm, pea-sized nodule appeared in a burn already starting to heal on her left palm and others on her right palm and little finger (Fig. 1). On Oct. 29th, about 14 days after the primary nodule, she noticed papulo-urticarial eruption spreading on the arms, legs and trunk. The next day she was admitted to the Dermatological Department of Tampere Central Hospital for 2 weeks.

The eruption on the upper trunk and extensor surfaces of the arms was symmetrical and consisted of numerous reddish blue target-lesions measuring 5–15 mm in diameter (Fig. 2). On the fore parts of both legs a dozen dull-red and painful nodes measuring 35–80 mm were seen.

There were mild general symptoms—headache, malaise and pain in the wrist, knee and ankle joints. The eruption disappeared within one week, while erythema nodosum persisted for 2 weeks. After a month only a slight scar could be seen on the little finger.

Laboratory tests were normal: hemoglobin 13.7 g/100 ml, white blood count 9200, ESR 7 mm/hour, serum glutamic oxalo-acetic transaminase (SGOT) 6.0 units, serum glutamic pyruvic transaminase (SGPT) 7.5 units, AST was 60 and ASTA 1.0. Tests for detecting antibodies against various bacteria and viruses such as herpes, tularemia, listeria, toxoplasma, yersinia and vaccinia were all negative.

Virological diagnosis

A biopsy specimen from the milker's nodule on the little finger was sent to the Department of Virology at Helsinki University. Pieces from affected skin were ground in a mortar with a small amount of distilled water. The suspension was placed on a grid and stained with negative staining using KPT, pH 7.0. When necessary, excess material was removed by brief washing, using distilled water.

The electron microscope was a Siemens Elmiskope Ia. The electron microscopy examination revealed typical paravaccinia viruses (Fig. 3).

Histology

Skin biopsies were taken from the primary nodule and from the secondary erythema nodosum-like lesion. The non-degenerated epidermis of the primary nodule on the hand was hyper- and parakeratotic. A marked acanthosis with enlarged rete ridges was seen. No intracytoplasmic inclusions were observed. The upper dermis was oedemic, densely infiltrated by mixed inflammatory cells and rich in capillaries.

The secondary erythema nodosum lesion on the leg had a normal epidermis. In the deeper layers of the dermis there were neutrophilic and lymphocytic infiltrates reach-

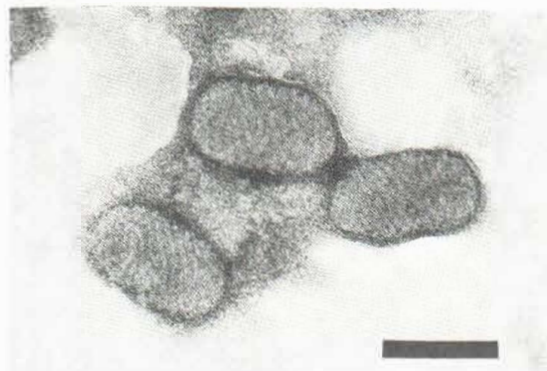


Fig. 3. Paravaccinia viruses demonstrated by electron microscopy examination. $\times 77000$. BAR 200 nm.

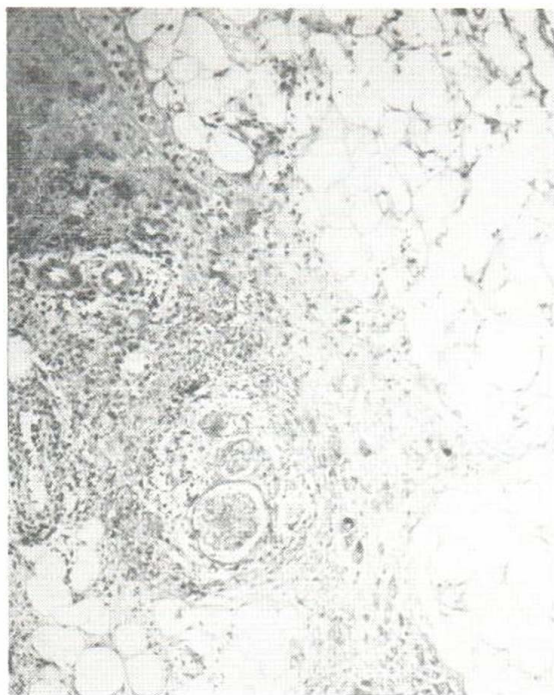


Fig. 4. Mixed cell inflammatory infiltrate reaching subcutaneous septae in the erythema nodosum lesion. $\times 115$.

ing to the subcutaneous septae (Fig. 4). No necrosis or giant cells were seen. An immunofluorescent examination showed complement around the involved vessels.

DISCUSSION

Viral diseases are very rarely seen as triggering factors of erythema nodosum. Hellerström (8) and Sonck (20) described erythema nodosum occurring with lymphogranuloma inguinale. Erythema nodosum has also been seen in connection with psittacosis and cat scratch disease (17, 9). Hannuksela (5) found among his 343 cases of erythema nodosum one patient with mononucleosis, one with acute aphthous fever and one patient had just been inoculated against smallpox.

In our patient, erythema nodosum was accompanied by erythema multiforme. The simultaneous occurrence of both these reactions has been described previously, e.g. in sarcoidosis, yersinosis and drug eruptions (5, 6). Our patient's secondary skin reactions were short-lived. Helander et al. (7) observed equally short-lived erythema nodosum with yersinosis.

The diagnosis of milker's nodules does not usu-

ally present any difficulties when the clinical picture is typical and the cattle have been infected with false cowpox. The nodules are sometimes located on the nail folds, resembling paronychia, or occasionally on the face, as in 2 of our cases in the described epidemic (11).

The histological picture of the milker's nodule shows acanthosis, a superficial dermal oedema and almost a granulomatous inflammatory infiltration. Signs of the virus infection as epidermal degenerations and intracellular inclusions are not demonstrable (15). The secondary eruptions are usually erythema multiforme-like target lesions consisting of a cellular and oedematous junctional dermis and of a subepidermal and epidermal vesiculation (19). In our case, however, the skin biopsy of the leg lesion showed a non-necrotic deep dermal and interlobar subcutaneous mixed-cell infiltration, as seen in erythema nodosum.

An electron microscopy examination is the quickest and easiest way to an exact diagnosis of paravaccinia (12). We mailed the biopsy material to the biopsy centre without any preservative, as described by Davis & Musil (3). During this epidemic an electron microscopy study was undertaken in 9 cases and it confirmed the diagnosis in 5. The isolation of the virus and serological tests for paravaccinia cannot be carried out by routine methods (4).

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Received May 21, 1975

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