

Clinical and histopathological findings in Seveso chloracne

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Introduction

On July 10, 1976 a cloud of finely dispersed TCDD spread in the air and settled over approximately 300 hectares of land densely populated. The actual hazard was not immediately recognized thus part of the population had the opportunity, beyond breathing and touching, to eat contaminated foods. Adverse dermatological reactions were the first signs of TCDD exposure. The purpose of these study is to illustrate the dermatological manifestations following TCDD exposure in 20 years follow-up and to present the histopathological findings of chloracne.

Materials and Methods

After the Seveso accident, our dermatologic survey was divided into three phases. During the first one, an outpatient facility was set up for all the population; in the second phase, screening of school children aged 5 to 18 was performed leading to 16000 observation; in the third, only the subjects who had developed dermatological manifestations related to TCDD exposure were classified and photographed. Some skin biopsies were taken and processed for histological examination.

Results and Discussion

447 people showed cutaneous lesions attributable to TCDD. Skin manifestations were subdivided in early and late lesions. The lesions appearing within 30 days were considered early one. The main clinical features of early lesions were erythema and edema, vesiculobullous and necrotic lesions, papulonodular lesions of the sun exposed areas, probably due to contact with pollutant. The late lesions were the chloracne and the atrophoderma vermicularis as consequence of chloracne. These lesions were considered due to systemic exposure to TCDD. 193 patients were classified as affected by chloracne ranging from mild to severe. Histopathological findings taken from chloracneic lesions showed dilated follicular ostia filled with cornified lamellae, horny metaplasia in acrosyringal tract of eccrine sweat gland duct and foreign body granulomas around the excretory duct.

The early irritative lesions are less specific for TCDD exposure since only 34 out of the 447 subjects with the early lesions developed chloracne. In the Seveso accident many contact irritants were released together with TCDD. Some of them were phototoxic agents thus explaining the burning in photoexposed skin areas.

Chloracne began 30 to 60 days after TCDD exposure. Most of the patients were children aged 2 to 10. The TCDD chloracne was characterized by comedo and cystic lesions; the malar region was the most affected. Severe chloracne was observed in eight children with spread of chloracneic lesions all over the body. All patients with chloracne developed a grade of atrophoderma vermiculatum related to severity of chloracne. The histologic observations suggest that TCDD may be eliminated via eccrine sweat gland duct and in keratinocytes nearby.

References

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