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SMALLPOX

212. Smallpox history, epidemiology and eradication in Guinea, West Africa.

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Although the first documentation of smallpox on the «Guinea coast» occurred in 1664 there is evidence that this disease was present in West Africa as early as the seventh century A. D. During this century smallpox in Guinea was reported annually from 1925, when international disease surveillance was first begun by the League of Nations; to 1969, when the last known case was investigated.

In 1967 Guinea joined 18 other West and Central African countries in a regional smallpox eradication program which was financed in part by the United States Agency for International Development (USAID) and coordinated by W. H. O. and regional health organizations. At that time this country had the second highest reported smallpox incidence in the world. Smallpox transmission was interrupted within 13 months after the beginning of the national eradication program and after only 60 % of the population had been vaccinated.

Prior to eradication the mean annual incidence of smallpox was at least 388 cases per 100,000 persons with 57.3 % of cases occurring in children less than 15 years. More than 1 major epidemic per decade was observed in Guinea over most of this century and during these periods the incidence rose to at least 1,160 cases per 100,000 persons. The mortality rate was 9.4 %. Smallpox was essentially a dry season disease with most cases reported from February to April. Coastal regions having high population densities and a common border with Sierra Leone were the most severely affected before eradication was achieved.

The history and epidemiology of smallpox in Guinea were used to plan an eradication strategy which relied on the deployment of well trained national mobile teams. These units were as much concerned with epidemic investigation and assessment of program progress as they were with administering vaccinations.

213. Monkeypox in the Ivory Coast.

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Thirteen cases of human monkeypox have been reported from West and Central Africa, the only known focus, since 1970. The disease cannot be distinguished clinically from smallpox and epidemiological and laboratory evaluation are necessary for confirmation of the diagnosis. Because smallpox has recently been era-

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licated from these areas of Africa, each outbreak of smallpox like disease has been the object of intensive investigation.

In October, 1971, a five year old unvaccinated boy living in a small isolated hamlet in the southeast Ivory Coast experienced the prodrome, rash and subsequent clinical course of nonfatal smallpox. This area had been free of known smallpox for almost 5 years. Although virus-containing material was not available at the initial investigation, epidemiological and serological evaluation of the case suggested the diagnosis of monkeypox. Of 31 persons in contact with the child during the prodrome and rash 12 had no vaccination scar; none became clinically ill. Sera were collected from humans and domestic animals in intimate contact with the patient as well as from 136 wild animals found in the vicinity of the outbreak. Initial testing for variola-vaccinia group hemagglutination inhibition (HI) antibodies showed positive titers (Z 1:10 dilution) amongst monkeys, pangolins (scaly anteaters), small field mice, a mongoose, a squirrel, a bird and a small antelope. Highest HI titers (Z 1:80) were found in two pangolins (*Phataginus tricuspis*), a squirrel (*Protoxerus strangeri*) and a field mouse (*Crocidura*).

These serological findings are important in that the natural reservoir and mode of transmission of monkeypox are, as yet, unknown. Further studies of this disease should now be directed toward virologic analysis of tissue taken from wild animals having high variola-vaccinia antibody titers. Investigative efforts should be concentrated near outbreaks of human disease.

214. Program of action for an effective epidemiological surveillance of smallpox in Europe, involving critical situation in neighbouring countries.

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The program presented was organized in a very difficult epidemiological situation, with the aim of preventing the introduction of smallpox in Romania, without interfering with the normal international economical, cultural and social relationships.

The ways of implementing this program regarded :

—An efficient epidemiological surveillance of clinical suspect cases, presenting a possible contact with travellers or items arriving from the contaminated region. Ad hoc mobile teams of specialists established the «ring of contacts», ready to perform the most efficient «ring vaccination» around the cases, once they were confirmed.

—Rapid and efficient laboratory diagnosis in university centers using the immediate and safe shipment of suspected materials and their rapid processing for Electron microscope examination, immunodiffusion in agar gel, inoculation on the chorio-allantoic membrane of chick embryo incubated at 34°5 and 38° C.

—Control of the «takes» and efficiency of revaccinations for the directly exposed groups of persons: medical personnel, technical assistants, and people involved in the public health service or belonging to the commercial and transport reseau in the limitrophe regions and on the main roads of traffic.

—Very quickly a set of coloured slides were prepared, and an accompanying booklet were sent to every medical center to refreshing medical training for the clinical aspects of smallpox and eruptive diseases which could be misinterpreted as such.

In the Cantacuzino Research Institute, one of the diagnosis centers fully unct ional, the presence of smallpox virus was investigated in specimens prelevated from a number of 34 suspect cases; in 4 cases of generalized vaccinia the respective virus was identified (E. M. and cultivation on chorio-allantoic membrane), and

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