

presenting these local manifestations and particularly is attention drawn to a spurious variety commonly known as the red raspberry excrescence; it just appears as a red elevation at the site of inoculation, closely resembles the papule of true vaccinia. It does not however progress to vesication, and the thin scab which forms over it, when it falls, leaves the original elevation which usually persists for some weeks.

The complications which can be truly considered as such, of a normal vaccination, are, with our modern lymph, and in the light of the researches of Copeman and others, reduced a very limited number.

Those due to a heightened inflammatory action of the skin are the most frequently met with, and even these can usually be traced to some injury to the pock or the introduction of some infection subsequent to the inoculation; or again there is a history of a pre-existing dyscrasia. For the most part they are not peculiar to vaccination, and are probably, according to Aldrich, "excited by some chemical irritant as distinguished from those which, like erysipelas, are due to micro-organisms". These eruptive troubles are as a rule of short duration and of limited severity, and with the knowledge of a pre-disposition or even in the presence of an exanthem we should not hesitate to inoculate when face to face with infection.

Probably the most serious complication is the development of a generalized vaccinia. This occurs usually about the time the pock at the seat of inoculation has arrived at maturity. The eruption appears in successive crops, and usually assumes the same appearance as the original pock; occasionally however, it so closely resembles the eruption in variola that it is difficult to differentiate. The appearance of the rash, however in generalized vaccinia is earlier than that in variola. The constitutional symptoms are less marked and it is also unusual to find the vaccinal eruption appear on the mucous surfaces. The great apparent difference is that generalized vaccinia is not communicable except by direct inoculation. As to the causes of generalized vaccinia little can be said beyond the marked susceptibility of the patient, auto-inoculation, the presence of general cutaneous eruption or the inhibition of the virus through channels other than the skin.

The most commonly troublesome complication is probably a localized necrosis following the maturity of the pock. The soft parts at the seat of inoculation slough and an ulcer is formed with the well-defined, clear cut edges; this complication can usually be traced to a want of care in the treatment of the arm, the confinement of discharges and the general lack of cleanliness. A thorough removal of the necrosed tissue is rapidly followed by resolution. A few other complications, such as vaccinia gangrenosa, vaccinia hemorrhagica, glandular abscess etc., are reported, but are of such extreme rarity that in a limited paper such as this they cannot be considered.

After observing over 2,000 cases of vaccination during the past 18 months these abnormalities, namely, skin eruptions, generalized vaccinia and localized necrosis were the only ones observed that could be rightly termed complications and they were rare, only one case of generalized vaccinia being reported.