Pathogenicity of sheep skin-cell-propagated camel-pox virus in camels (*Camelus dromedarius*)

C G Gitao¹, P N Nyaga² and J O Evans³

University of Nairobi, Nairobi, Kenya

Received: 23 February 1994

ABSTRACT

Camel-pox virus was obtained from a severe outbreak of camel-pox in 5-year-old camels. It was propagated on sheep skin cells where giant cell formation was evident by 72 hr. The virus was inoculated by scarification into 10 seronegative camels. There was reddening and swelling of most lesions by day 3. By day 4 vesicles had formed. These developed into pustules by day 5 and to scabs by day 7-10. The lesion severity and size increased with time to the maximum on day 10. Camel-pox virus could be reisolated from some of the lesions by day 10. There was a steady increase in neutralizing antibody up to a maximum on day 20. Sheep skin cells could therefore be used to propagate camel-pox virus to levels enough to cause a localized infection in camels.

Pathogenicity of camel-pox virus, obtained from a severe camel-pox field outbreaks in adults, was studied after the virus had been propagated on sheep skin cells and then inoculated into camels.

MATERIALS AND METHODS

Lamb skin cell-cultures were prepared by trypsin dispersion of lamb skin from healthy foetal lambs. Cell-cultures were grown on 5 mm diameter 6 × 4 wells (Costar) plates and in 500 ml medical flat bottles in Eagle’s MEM with non-essential amino acids and 10% foetal calf serum (FCS). These were maintained with medium 199 plus 5% FCS during virus growth.

Dried scabs from the naturally infected camels from Samburu district were homogenized in cell-culture medium using a frozen mortar and the suspension filtered using a millipore filter (0.22 μ). The suspension was then inoculated into lamb skin cells which were then examined for 10 days. The camel-pox virus was passaged for 6 passages and assayed (Davies et al. 1975) before inoculation.

Camels (10) were obtained from a herd which had no history of camel-pox and were seronegative for camel-pox. The inner right hind leg was used for challenge. Four, equidistant sites of 4 cm size were closely shaved and cleaned with 70% alcohol. On each site, scarification was performed with an abrasive paper (No. 2) until hyperaemia with no bleeding was observed. Diluted virus (1 ml) was then applied on the scarified skin. Four dilutions with 10⁶, 10⁵, 10⁴ and 10³ TCID₅₀ /ml were each applied on each site. On the left inner leg, a similar scarification with virus-free growth medium was performed. The camels were then closely examined for the next 30 days. The