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Monkeypox – re-emerging in unexpected places and risk groups

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Nine patients have been reported with monkeypox in the UK so far in May 2022 [1]. Three were related to discrete importations of infection from Nigeria, followed by 4 men who are gay or bisexual, and other men who have sex with men (GBMSM), mostly in London. None of these latter 4 or subsequent cases had travel connections with countries in Africa. Further cases are expected. More than 40 cases have since been investigated in similar sexual health settings in Lisbon and Madrid, again with no obvious African travel association [2]. Cases are now being reported from Montreal, Canada [3] and Massachusetts, USA [4,5,6], Rome, Stockholm, France and Australia. These novel cases pose many diagnostic, logistic and public health challenges.

Monkeypox (MPX) virus was first isolated from a macaque monkey and was subsequently associated with human infection in the Democratic Republic of Congo (DRC) in 1970 [7,8]. The natural hosts of this member of the orthopoxvirus genus (like smallpox and cowpox) are probably small rodents and it is uncertain how natural transmission is maintained between them and to humans and non-human primates. In endemic settings in Central and West Africa, risks for infection include preparing or consuming bush meat and close contact with cases (for up to 6 generations of contact) and with fomites such as bedding and clothes. Spread between humans includes droplets and direct and indirect skin contact. Smallpox vaccination was highly protective against both monkeypox infection and clinical severity of disease. The clinical course of the disease is worse in unvaccinated individuals, children, pregnant women including fetal loss and congenital infection [9,10] and in immunosuppressed people. Thus, today both clades of virus (West African and Central African) appear to have mortality rates of around 1% in endemic settings, although a rate of 10% is often quoted from earlier studies in the Central African Republic (CAR) [8].

There has probably been an increase in cases in the CAR and DRC in the last two decades [8] and documented increase in Nigeria [11], likely due to lower history of smallpox vaccination in exposed individuals. Cases outside Africa have so far been caused by the West African strain, including 47 cases in the USA (with no fatalities) related to importation of rodents from Ghana in 2003, and 2 sporadic cases in the UK and a healthcare worker looking after an index case in the UK in 2018 [12]; cases were also observed in Israel and Singapore in 2018; 1 UK case was reported in 2019, followed by 3 UK cases in 2021 [7] and 2 in the USA in 2021 [5].

The usual clinical illness resembles smallpox with a short prodrome of fever and malaise followed by crops of lesions starting on the face and peripherally including palms of hands and soles of feet, followed by lesions elsewhere. However, in some recent cases, lesions first appeared in the groin region, with less marked prodromal symptoms. Lesions may be single or multiple and typically evolve together in a single “crop” from early ulcer/vesicle to deeper, often painful, pustules followed by scabbing which may last up to 4 weeks before final shedding [1,5,11]. Lesions are infectious until scabs have all fallen off. Buccal and other mucosae may be affected, and genital involvement was common in monkeys with experimental infection [12]. In contrast to chickenpox and smallpox, lymphadenopathy is common. The classical descriptions in endemic areas probably excluded many less severe cases and clinical diagnosis is difficult in other settings, especially if not initially suspected. Examples of monkeypox lesions available on the UKSHA website [1] and the more ulcerative lesions currently reported as being seen in sexual health clinics and other community settings could easily be mistaken for other common infections: these include chickenpox, varicella zoster, herpes simplex, syphilitic chancre, gonorrhoea or molluscum contagiosum.

Diagnosis is usually confirmed by species-specific PCR of material from lesions, and virus may also be detected in respiratory secretions, blood and other fluids including urine. Although MPX virus is classified as a Category 3 pathogen and virus culture should only be attempted in highly secure laboratory facilities, transmission has never been documented in routine haematology, biochemistry, microbiology or virology laboratory practice. In the UK, the UKSHA advises that routine clinical investigations can continue locally, including nucleic acid extraction for PCR to exclude other infections, while waiting results of specific MPX PCR tests in reference laboratories. CDC offers similar advice [13].

The novel appearance of monkeypox in GBMSM and other sexual health settings poses many new logistic and public health challenges. It is highly likely that more cases will emerge outside the currently identified geographical risk locations. It is essential to provide information to the populations at risk and to conduct appropriate contact tracing without stigmatising them in health care or public facing documents. Clinics where patients present with possible sexually transmitted infections should anticipate seeing large numbers of worried well at the same time as trying to identify possible true cases. Prevention of spread between patients in clinic will necessitate social distancing and adequate PPE will be needed for staff (including eye protection, face mask, gowns or aprons and gloves), together with enhanced cleaning between patient visits, waste and fomite disposal. Clinicians should ensure that laboratories receive information about suspected cases so that appropriate tests are performed and biosafety measures are followed.

The latest cases reported have been managed in their communities. This contrasts with the strict approach taken with previous cases in the UK since 2018, where sporadic cases have been isolated in dedicated High Consequence Infectious Disease (HCID) units until virus shedding has ceased, which may take several weeks [14]. Smallpox vaccine was given to appropriate health care staff and was offered to contacts of cases [14], who may have to isolate for the full 21 days of possible incubation. Imvanex (Live Modified Vaccinia virus Ankara) vaccine was developed to prevent smallpox and has also been shown to be effective against monkeypox. Several countries are planning extended tracing of contacts of cases, together with vaccination of contacts and their contacts, analogous to “ring vaccination” strategies used to eliminate smallpox [15].

However, prevention of onward transmission to other people in household and social settings will remain a challenge, particularly with the long period of contagiousness, and the potential added risk of transmission to and from animals in domestic settings, which remains unknown.

We recommend that ESCMID colleagues familiarise themselves with the literature cited and think about the implications in their own areas of practice, as the situation rapidly evolves. In addition to the highlighted sources, two excellent 30-minute talks at ECCMID in 2019 give details about the situation in Nigeria and the clinical and operational issues of managing patients in the UK in 2018

Lessons from African monkeypox outbreaks. Symposium ECCMID 2019

https://elibrary.escmid.org/?search%5Bfrom%5D=0&search%5Bquery%5D=monkeypox#results

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