

Monkeypoxvirus: Excrétion virale dans les prélèvements

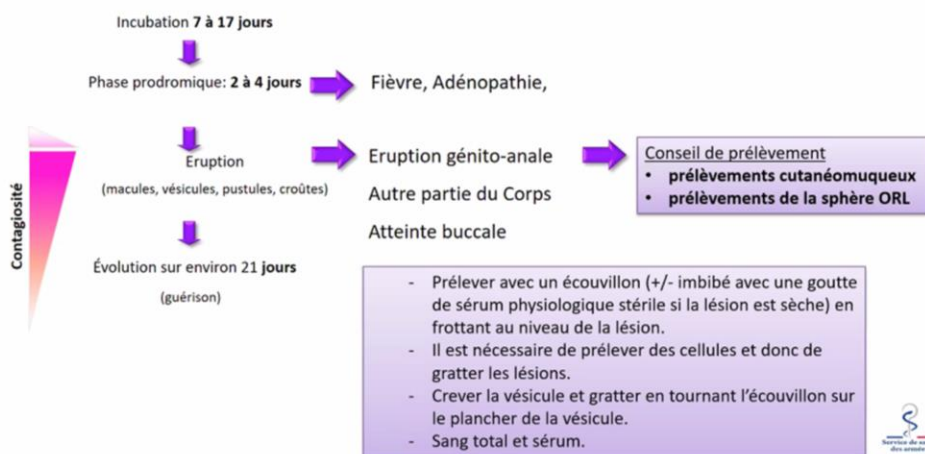
28^{ème} Journée Régionale de Pathologie Infectieuse

E.K. ALIDJINO, MD, PhD
MCU-PH Virologie



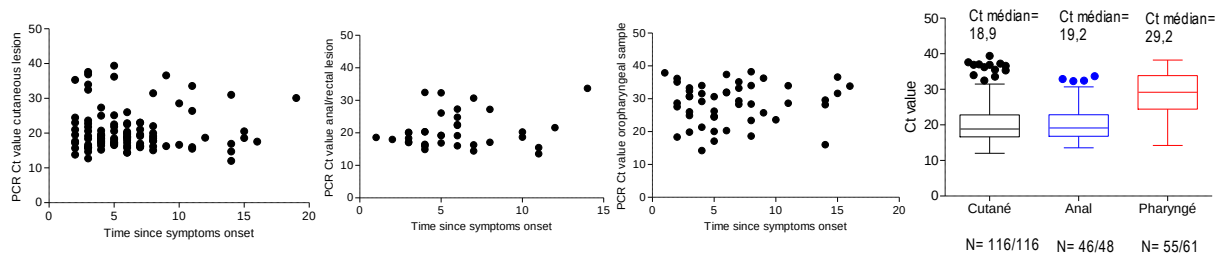
Lille, 11 octobre 2022

LES PRÉLÈVEMENTS RECOMMANDÉS



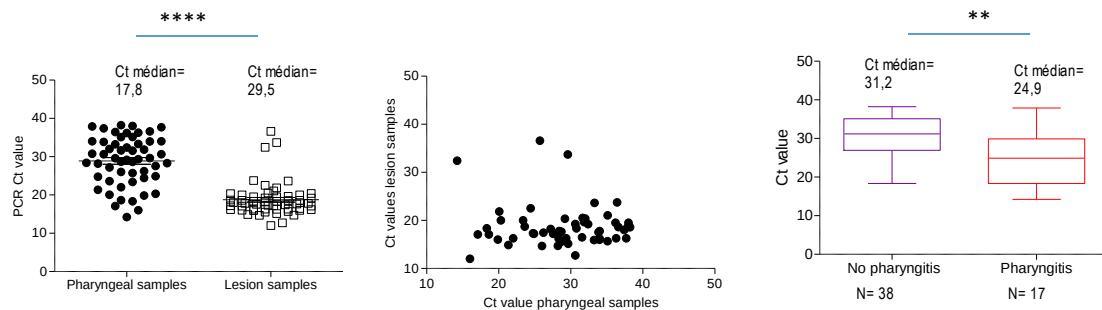
EXCRÉTION VIRALE DANS LES PRÉLÈVEMENTS

- 138 patients ayant au moins un prélèvement positif
- Prélèvements: cutané, anal/anorectal, oropharyngé
- Délai médian: 6 jours post début des symptômes



EXCRÉTION VIRALE DANS LES PRÉLÈVEMENTS

- Prélèvements oropharyngés versus lésions
- 54 prélèvements **appariés**



= Environ 4 log (X 10,000) de différence en charge virale

Important: Certains patients peuvent avoir des charges virales élevées:

- Un patient avec angine: Ct oropharynx = 14.2 <<<< Ct lésion cutanée (cicatrice) = 32.4).
- Un patient avec pharyngite sans lésions cutanées: Ct=18.

Viral loads in clinical samples of men with monkeypox virus infection: a French case series

Romain Palich, Sonia Burrel, Gentiane Monsel, Agathe Nouchi, Alexandre Bleibtreu, Sophie Seang, Vincent Bérôt, Cécile Brin, Ariane Gavaud, Yara Wakim, Nagisa Godefroy, Antoine Fayçal, Yanis Tamzali, Thomas Grunemwald, Michel Ohayon, Eve Todesco, Valentin Leducq, Stéphane Marot, Vincent Calvez, Anne-Geneviève Marcelin, Valérie Pourcher

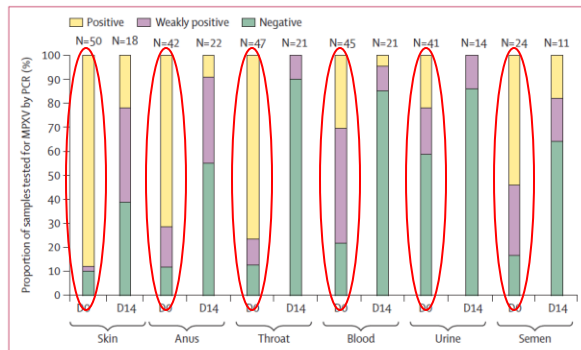


Figure 1: Proportion of clinical samples found to be positive, weakly positive, and negative for MPXV at diagnosis, by use of PCR
D0=day 0. D14=day 14. MPXV=monkeypox virus.

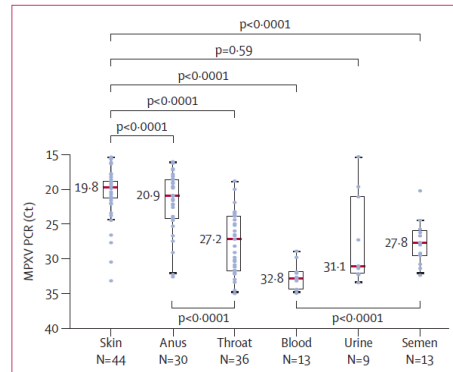


Figure 2: MPXV viral loads given as cycle thresholds, according to sampled sites

Viral loads in clinical samples of men with monkeypox virus infection: a French case series

Romain Palich, Sonia Burrel, Gentiane Monsel, Agathe Nouchi, Alexandre Bleibtreu, Sophie Seang, Vincent Bérôt, Cécile Brin, Ariane Gavaud, Yara Wakim, Nagisa Godefroy, Antoine Fayçal, Yanis Tamzali, Thomas Grunemwald, Michel Ohayon, Eve Todesco, Valentin Leducq, Stéphane Marot, Vincent Calvez, Anne-Geneviève Marcelin, Valérie Pourcher

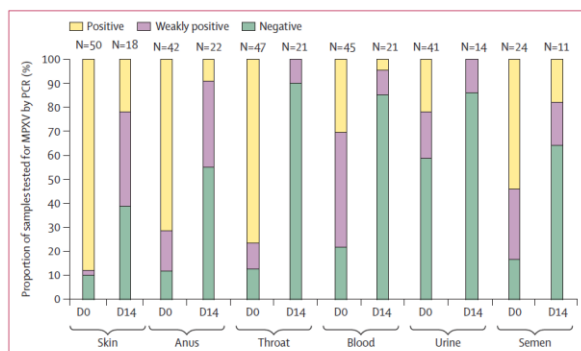


Figure 1: Proportion of clinical samples found to be positive, weakly positive, and negative for MPXV at diagnosis, by use of PCR
D0=day 0. D14=day 14. MPXV=monkeypox virus.

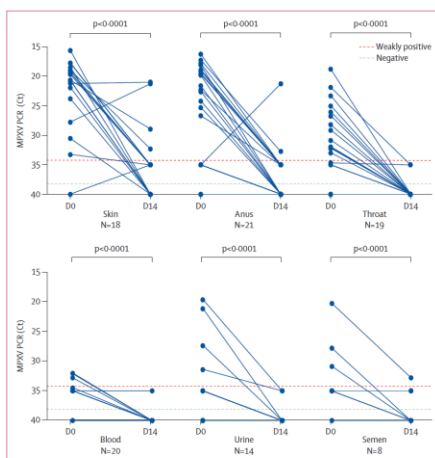
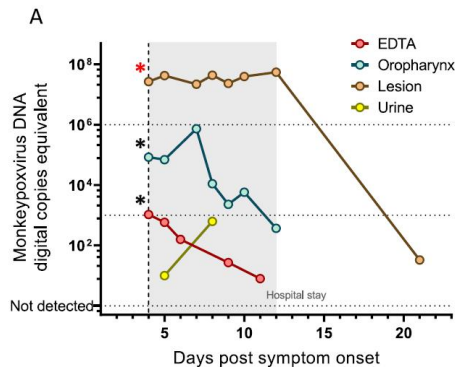


Figure 3: Change in MPXV viral load between D0 and D14 according to sampled sites

Clinical characteristics and comparison of longitudinal qPCR results from different specimen types in a cohort of ambulatory and hospitalized patients infected with monkeypox virus.

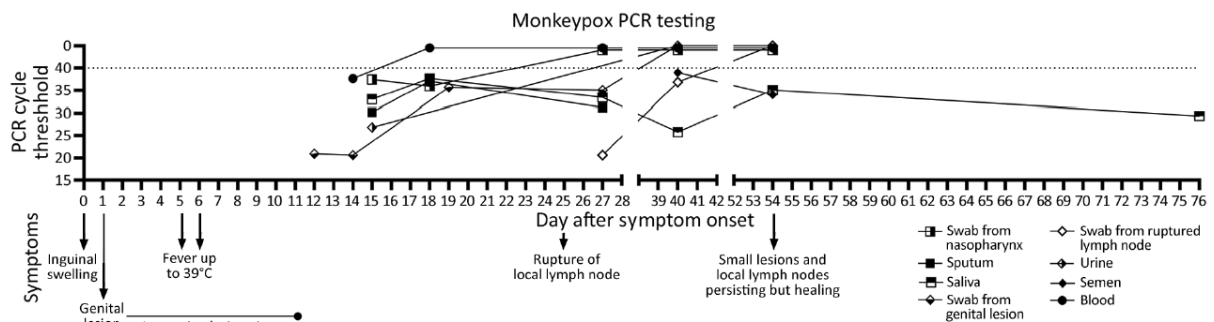
Dominik Nörz^a, Thomas Theo Brehm^{b,g}, Hui Ting Tang^a, Ilka Grewe^b, Lennart Hermanussen^b, Hanna Matthews^c, Julia Pestel^c, Olaf Degen^c, Thomas Günther^d, Adam Grundhoff^d, Nicole Fischer^a, Marylyn M. Addo^{b,e,f,g}, Sabine Jordan^b, Sandra Hertling^h, Stephan Ungerⁱ, Guido Schäfer^j, Knud Schewe^j, Christian Hoffmann^j, Martin Aepfelbacher^a, Susanne Pfefferle^{a,k}, Julian Schulze zur Wiesch^{b,g,l}, Stefan Schmiedel^{b,l}, Marc Lütgehetmann^{a,e,l}



Norz D et al, J Clin Virol 2022

Ten-Week Follow-Up of Monkeypox Case-Patient, Sweden, 2022

Aleksandra Pettke, Finn Filén, Katarina Widgren, Andreas Jacks, Hedvig Glans, Sofia Andreasson, Shaman Muradrasoli, Sofia Helgesson, Elenor Hauzenberger, Maria Lind Karlberg, Noura Walai, Annelie Bjerkner, Hadrien Gourel, Sara Gredmark-Russ, Oskar Karlsson Lindsjö, Klara Söndén,¹ Hilmir Asgeirsson¹



EXCRÉTION VIRALE ET TRANSMISSION

Lésions cutané-muqueuses +++

Secrétions oro-pharyngées: risque faible sauf lésion très active oropharynx

Transmission sexuelle ?

Monkeypox virus in human body sites and fluids: evidence for transmission



	Participants	HIV-positive	Skin*		Anogenital		Nasopharynx		Plasma		Urine		Semen		Saliva		Fecal matter	
			MPXV DNA prevalence	Median Ct	MPXV DNA prevalence	Median Ct	MPXV DNA prevalence	Median Ct	MPXV DNA prevalence	Median Ct	MPXV DNA prevalence	Median Ct	MPXV DNA prevalence	Median Ct	MPXV DNA prevalence	Median Ct	MPXV DNA prevalence	Median Ct
France (Palich et al, 2022) ^f	50	22/50 (44%)	44/50 (88%)	20	30/42 (71%)	21	36/47 (77%)	27	13/45 (29%)	33	9/41 (22%)	31	13/24 (54%)	28	NA	NA	NA	NA
Spain (Peiró-Mestres et al, 2022) ^g	12	4/12 (33%)	12/12 (100%)	20	11/12 (92%)	23	10/12 (83%)	31	NA	NA	9/12 (75%)	35	7/9 (78%)	32	12/12 (100%)	29	8/12 (67%)	24
16 countries (Thorhill et al, 2022) ^{h,i}	528	218/528 (41%)	512/528†	--	--	--	138/528 (26%)	NA	35/528 (7%)	NA	14/528 (3%)	NA	29/32 (91%)	NA	NA	NA	NA	NA
France (Mailhe et al, 2022) ^j	264	73/256 (29%)	252/258 (98%)	23	NA	NA	150/197 (76%)	32	8/26 (31%)	36	NA	NA	NA	NA	NA	NA	NA	NA
Spain (Tarín-Vicente et al, 2022) ^j	181	72/181 (40%)	178/180 (99%)	23	43/55 (78%)	27	82/117 (70%)	32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Italy (Raccagni et al, 2022) ^j	36	15/36 (42%)	36/36§	--	--	--	--	--	24/36 (67%)	34	8/36 (22%)	NA	22/36 (61%)	34	NA	NA	NA	NA

Data are n/N (%) unless otherwise specified. Ct=cycle threshold. MPXV=monkeypox virus. NA=not available. *Includes perianal skin. †Argentina, Australia, Belgium, Canada, Denmark, France, Germany, Israel, Italy, Mexico, Portugal, Spain, Switzerland, The Netherlands, UK, and USA. ‡Refers to skin or anogenital samples combined. §Refers to either skin, anogenital, or oropharyngeal samples combined.

Table: Large case series reporting prevalence of MPXV DNA and median Ct of positive samples at PCR in at least two different bodily fluids

Monkeypox virus isolation from a semen sample collected in the early phase of infection in a patient with prolonged seminal viral shedding



	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 13	Day 14	Day 15	Day 16	Day 17	Day 19
Plasma	NA	NA	NA	Positive (34-5)	NA	Negative	NA	Negative	NA	Negative	Negative	Negative	Negative
Urine	NA	NA	Negative	NA	Negative	NA	Negative	Negative	NA	Negative	NA	NA	Negative
Semen	Positive (28-0)	Positive (29-3)	Positive (27-8)	NA	NA	NA	NA	NA	Positive (34-3)	Positive (35-6)	NA	Positive (38-7)	Positive (40-6)
Rash or skin lesion	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Negative

Quantification cycle values are indicated in brackets after positive results. The cutoff cycle threshold is 45, thresholds of 42 or higher are retested for confirmation. Negative indicates no detection of monkeypox virus DNA or absence of rash or skin lesions. Positive indicates detection of monkeypox virus DNA or presence of rash or skin lesions. NA=not available.

Table: Timeline of monkeypox virus DNA detection in plasma, urine, and semen samples with increasing days from symptom onset

Lapa D et al, Lancet Infect Dis 2022

Isolation of viable monkeypox virus from anal and urethral swabs, Italy, May to July 2022

Davide Moschese¹, Giacomo Pozza², Davide Mileto³, Andrea Giacomelli², Miriam Cutrera³, Maria Vittoria Cossu⁴, Maddalena Matone⁵, Martina Beltrami², Federica Salari³, Spinello Antinori⁴, Alessandra Lombardi³, Giuliano Rizzardini¹

B. Viral culture: proportion of positive, negative and contaminated samples^a



Clinical presentation and virological assessment of confirmed human monkeypox virus cases in Spain: a prospective observational cohort study

Eloy José Tainí-Vicente, Andrea Alamaní, Miguel Aguado-Díez, María Ubals, Clara Suñer, Andrés Antón, Maider Aranda, Jorge Arroyo-Andrés, Elena Calderón-Lozano, Cristina Casari, José Manuel Cabaña, Pep Coll, Vicente Descalzo, María Dolores Figueira, Jorge N García-Pérez, Lorena Gil-Cruz, Borja González-Rodríguez, Christian Gutiérrez-Coll, Aqueleda Hernández-Rodríguez, Paula López-Roca, María de los Angeles Meléndez, Julia Montero-Mendigurez, Irene Muñoz-Gallego, Sara Isabel Palencia-Pérez, Roger Paredes, Alfredo Pérez-Rivilla, María Piñana, Nuria Prat, Aida Ramirez, Ángel Rivero, Carmen Alejandra Rubio-Ruiz, Martí Vall, Kevin Stephen Acosta-Velásquez, An Wang, Cristina Gallardo-Sachs, Michael Marks, Pablo A Ortiz-Romero, Oriol Mitjà

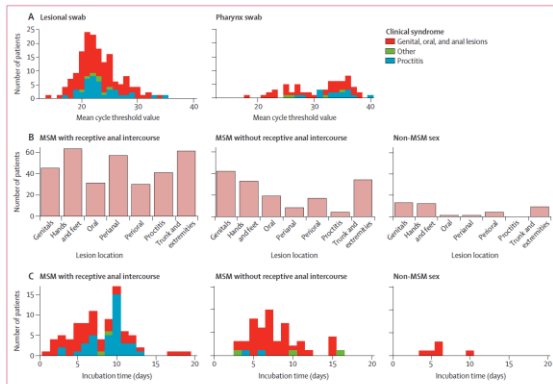


Figure 2: Mean cycle threshold values by swab location and location of skin lesions and incubation periods by presumed route of infection (A) Mean cycle threshold values as a proxy for viral load for lesional swabs compared with pharynx swabs. (B) Location of skin lesions by presumed route of infection. (C) Incubation period of monkeypox by presumed route of infection and location of lesions. MSM—men who have sex with men.

	MSM with receptive anal contact (n=108)	MSM without receptive anal contact (n=58)	Non-MSM sex (n=15)	Total (n=181)
Incubation period, days	8.0 (5.0-10.0)	7.0 (5.0-9.0)	6.0 (5.0-6.0)	7.0 (5.0-10.0)
Systemic symptoms before the rash	67 (62%)	16 (28%)	4 (27%)	87 (48%)
Presence of proctitis	41 (38%)	4 (7%)	0	45 (25%)
Throat PCR				
Not done	48 (44%)	16 (28%)	0	64 (35%)
Negative	11 (11%)	18 (31%)	6 (40%)	35 (19%)
Positive	49 (45%)	24 (41%)	9 (60%)	82 (45%)

Data are median (IQR) or n (%). MSM=men who have sex with men

Table 3: Association between the presumed route of transmission and epidemiological, clinical, and virological factors

Angine: 18/19 → rapport oral réceptif

ACCIDENT D'EXPOSITION AU VIRUS

► *Emerg Infect Dis.* 2022 Sep 19;28(11). doi: 10.3201/eid2811.221323. Online ahead of print.

Monkeypox Virus Transmission to Healthcare Worker through Needlestick Injury, Brazil

Laíra Bubach Carvalho, Luciana V B Casadio, Matheus Polly, Ana Catharina Nastri,
Anna Cláudia Turdo, Raissa H de Araujo Eliodoro, Ester Cerdeira Sabino, Anna Sara Levin,
Adriana Coracini Tonacio de Proença, Hermes Ryoiti Higashino

Emerg Infect Dis. 2022 Sep 30;28(12). doi: 10.3201/eid2812.221343. Online ahead of print.

Possible Occupational Infection of Healthcare Workers with Monkeypox Virus, Brazil

Richard Steiner Salvato, Maria Leticia Rodrigues Ikeda, Regina Bones Barcellos,
Fernanda Marques Godinho, Patrícia Sesterheim, Leticia Camiza Bulcão Bitencourt,
Tatiana Schäffer Grejanini, Ana Beatriz Gorini da Veiga, Fernando Rosado Spilki, Gabriel Luz Lallau

Merci pour votre attention

ek.alidjinou@chu-lille.fr



© service communication UFR35