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First Cases of Human Infection due to *Pseudomonas chlororaphis* and *P.* *alcaliphila/oleovorans* Group with Unexpected Presence of *bla*VIM-2

D. Faccone¹, F. Pasteran¹, O. Veliz¹, R. Bucciarelli², L. Gonzales³,
A. Corso¹;

¹Antimicrobianos, Natl Ref Lab (NRL), INEI-ANLIS, Buenos Aires,
ARGENTINA, ²Hosp Español, Mendoza, ARGENTINA, ³Hosp Infantil
Municipal, Cordoba, ARGENTINA.

Background. Until now, *P. alcaliphila* (PAL), *P. oleovorans* (POL) and *P. chlororaphis* (PCH) were described in the environment but not as human pathogens. metallo-beta-lactamase (MBL) production in these species were not described yet. Two *Ps* spp. suspected to produce MBL were submitted to the NRL for further characterization

Objective. to describe the emergence of unusual species of *Ps* clinical isolates producing an MBL

Methods. Two clinical isolates of *Ps* spp. were recovered from blood samples from two hospitals (2 provinces). Specie identification was performed by MALDI-TOF (Bruker Co). Phenotypic MBL-production was confirmed by synergism between carbapenems and EDTA/SMA discs and by the MHT. MIC was determined by Vitek2c. Detection of *bla*_{VIM}, *bla*_{IMP} and *bla*_{NDM} genes was performed by PCR and confirmed by sequencing. Integron array was evaluated by PCR combining different primers (5CS, 3CS, *tniC*-F, VIM-F, VIM-R) and DNA sequencing.

Results. Isolate M11740 was identified as PCH (score: 2.271). For M13320 two species were suspected: PAL (2.109) and POL (2.101). Both strains displayed imipenem resistance (MIC ≥16) using CLSI cut-off for *P. aeruginosa*. MBL production was confirmed in both isolates by the MHT and carbapenem/EDTA synergism. *bla*_{VIM-2} gene was detected in both isolates. PAL/POL M13320 harbored a class 1 integron containing *bla*_{VIM-2} and *aac(6')-IIc* cassettes. PCH M11740 harbored an unusual class 1 integron lacking the 3' CS but having the *tniC* gene of the Tn402-like transposon and containing the *bla*_{VIM-2} gene as unique cassette. Previously to PAL/POL emergence, *P. putida* isolates carrying *bla*_{VIM} gene was also detected at the hospital. Conversely, PCH constitute the first detection of an MBL in the Institution.

Conclusion. To our knowledge this is the first report of PAL/POL and PCH clinical isolates recovery from human infections and containing an MBL. Additionally, the array described in PCH M11740 and containing the *bla*_{VIM-2} as unique cassette in unusual class 1 integron is also novel. This report highlights the threat of unusual environment species of *Ps* spp. as potential human pathogens and reservoir of MBLs and other resistance genes.