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MAXILLARY RHINOSINUSITIS WITH ACHROMOBACTER XYLOXOSIDANS COMPLICATED OF A NECROSIS BONE AND SKIN

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ABSTRACT
Achromobacter is a gram-positive aerobic bacterium, belonging to the commensal flora of the ear and respiratory tract. Infection from this bacterium is rare. We report the case of a 54-year-old man, a surveyor with no particular background except for a long-standing iterative sinus puncture. The patient was hospitalized in our otolaryngology unit for management of a purulent naso-sinus infection complicated with osteo-cutaneous necrosis of the face. The bacteriological report of a collection at the infectious site finds Achromobacter xylosoxidans. He received antibiotic therapy adapted to the germ in question and flattened necrosis under general anesthesia. Achromobacter xylosoxidans is an invasive bacterium, multiresistant to several groups of antibiotics. Sinus localization is much rarer.

KEYWORDS: Achromobacter xylosoxidans, multi-resistant, paranasal sinuses.

INTRODUCTION
Achromobacter xylosoxidans is an aerobic, gram-positive bacterium belonging to the commensal flora of the ear and respiratory tract. This bacterium is rarely responsible for infection in humans.[1] The discovery of *Achromobacter xylosoxidans* in a sinuses sample is much rarer.[2] The severity of *A. xylosoxidans* infection linked in the killing activity and antibiotic resistance of this germ.[3]

Patient and observation
A 54-year-old male surveyor was hospitalized in the Otorhinolaryngology and Cervicofacial surgery department of the University Hospital of Antananarivo Madagascar in may 2020 for the treatment of a complicated maxillary rhinosinusitis.

Its history dates back to July 2019 with a headache associated with chronic bilateral nasal obstruction and purulent rhinorrhea diagnosed as maxillary rhinosinusitis. His history was marked by a sinus puncture under local anesthesia. In December 2019, he was undergoing endonasal endoscopic surgery, which involves the removal of polyploid formation with medium meatotomy. Then the patient was out of sight.

In April 2020, the patient returns with an aggravation of the lesion characterized by an intense frontal-orbital right headache, cacosmia, visual discomfort but the patient remains apyretic and of good general condition. Clinical examination revealed erosion of the right nose wing covered by blackish crust, glancing at the maxillary bone, right palpebral inflammatory edema, a necrotic wound of the right and infra-ocular cornerright orbital, right genital inflammatory swelling, large right naso-sinus suppuration, right upper lip edema and right mandibular (photos).

The endobuccal examination showed a limitation of the oral opening to 20 mm, good oral-dental condition, no oral-sinus communication, well mobile tongue without hypertrophy.

The neurological examination and other devices are without particularity. Biology showed: normocytic anemia normochrome light at 112g/dL, normal leukocyte formula, CRP at 35 mg/L, normal hemostasis test, normal creatinine, normal fasting blood glucose, normal kidney test, normal liver test, negative HIV serology.

Pus collection at the infection site yielded *Achromobacter xylosoxidans ssp xylosoxidans* multidrug resistant (Appendix 1). The facial mass scan revealed an anterior wall of the eroded maxillary bone, shortness of the nasal septum, skin destruction, filling of the left maxillary sinus and right spheroidal sinus. An

anatomopathological examination of the operating room showed a *pyoderma gangrenosum*.

He benefited from a surgical treatment that consists of a general anesthesia decrutanting of dead tissues, antibiotic therapy cures involving Imipenem 1g/8 hours, Gentamicin 160mg/24 hours, eye care. As for the evolution after two months of hospitalization, the patient died following an etiological problem of a seizure with a brain scan without abnormality

Appendix 1: Result of the antibiogram.

Antibiogram : *Achromobacter xyloxosidans*	
Sensitive	**Resistant**
Ticarcillin Ticarcillin + clavulanic acid Piperacillin Piperacillin + tazobactam Imipenème	Céfépime Aztréonam Ciprofloxacin Gentamicine Tobramycine Amikacine Levofloxacin Trimetoprime + sulfamides

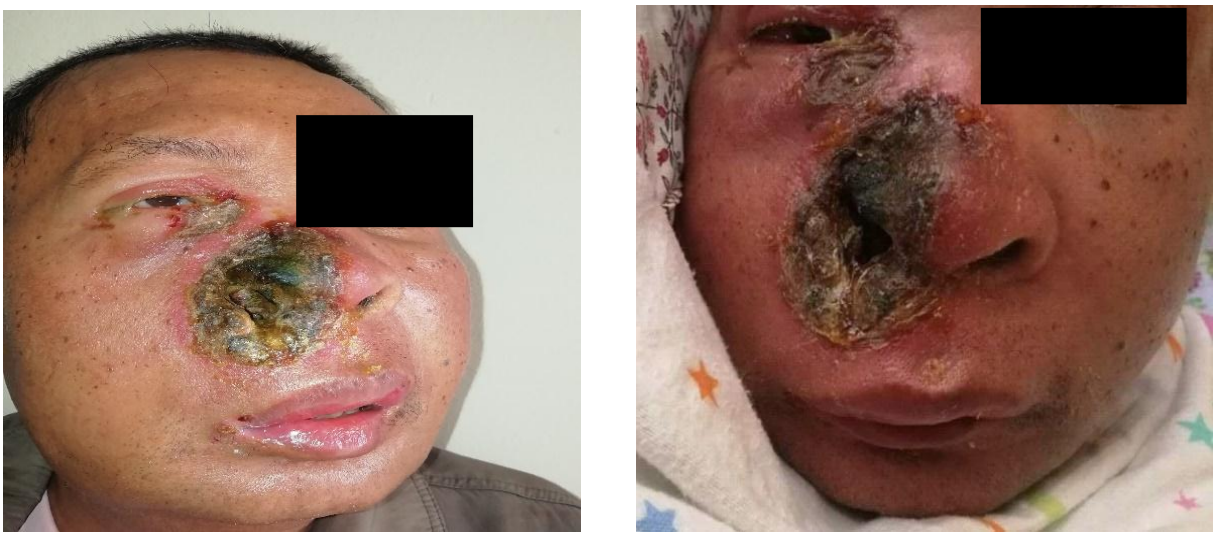

Photo 1: Lesions before decrutanting under general anesthesia.

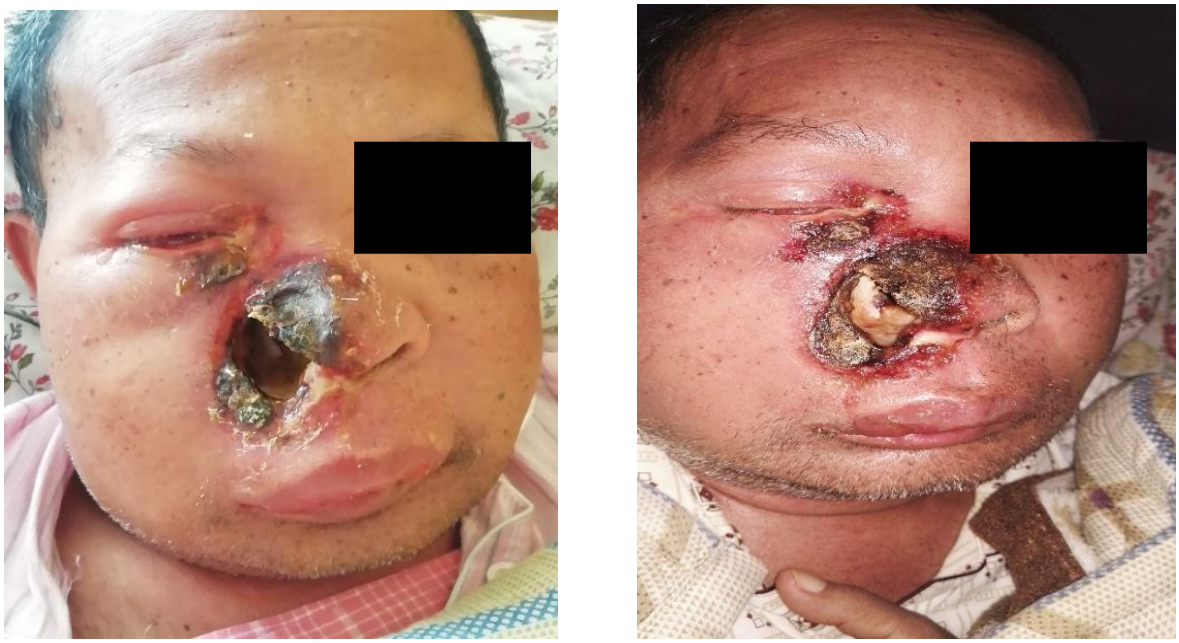

Photo 2: Lesions after decrutanting under general anesthesia.

DISCUSSION

Infection with *A. xylosoxidans* is most often nosocomial.[2] It is found in patients with pulmonary cystic fibrosis, solid or blood malignancies, kidney failure and immunosuppression.[4] The introduction of this germ into the paranasal sinuses is imported by equipment for exploration or secondary to functional sinus surgery.[2] Clinical lesions are due to the denitrification ability of the host by reducing nitrate to dinitrogen gas or altering nitric oxide reductase; the germ also secretes destructive toxins and proteases contributing to its aggressiveness; thus adhesion polysaccharides are present on its surface.[5] This germ is resistant to several antibiotics such as: vancomycin, penicillins like penicillin G or oxacillin, lyncosamides like clindamycin and lincomycin, aminoglucosides like gentamicin and kanamicin, quinolones.[5,6] Four antibiotics are capable of inhibiting the growth of this bacterium: mezlocillin, ticarcillin, imipenem and piperacillin-tazobactam.[5, 7]

CONCLUSION

Achromobacter xyloxosidans is an aggressive bacterium. The clinical presentation of the infection due to this germ is often severe. Naso-sinus localization is very rare.

This bacterium is multiresistant to several groups of antibiotics hence the interest of a bacteriological sample with antibiogram. The identification of the germ involved is essential before starting the anti-infectious treatment.

Conflicts of interest

The authors do not declare any conflict of interest.

Contributions from authors

All authors read and approved the final version of the manuscript.

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