TITLE: POSTSTERNOTOMY MEDIASTINITIS DUE TO GRAM-POSITIVE RODS – A CHALLENGE FOR THE CLINICIAN AND THE MICROBIOLOGIST

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ABSTRACT: Late diagnosis and inappropriate treatment are major contributors to a poor outcome in poststernotomy mediastinitis. We describe two cases due to uncommon gram-positive rods (GPR). **Methods: Case 1**: 56 years-old man, smoker and with a past alcohol abuse was submitted to myocardial revascularization (MR). On the 15th postoperative day (POD), starts a fever and purulent discharge (PD) from the sternotomy. On readmission, computed tomography (CT) of thorax suggestive of anterior mediastinitis (AM). Treated empirically with meropenem (MPM) and vancomycin (VAN). Developed intense inflammatory reaction and necrosis of the sternum. PD and sternum samples showed a GPR. Antimicrobials were changed to amikacin (AMK), azithromycin (AZM), imipenem (IPM) and co-trimoxazole (SXT) on 12th day of readmission and many surgical debridements were done. AZM was stopped on 14th POD and AMK used for 6 weeks. IPM and SXT was maintained during 60 days. The infection resolution was slow, but complete without recurrence for 22 months. Identification by MALDI-TOF after therapy: *Nocardia farcinica*. **Case 2**: 61 years-old man, arterial hypertension without other comorbidities. Submitted to MR and discharge on 15th POD. Readmitted on 37th POD with PD from the sternum. CT of thorax suggestive of AM. Treated empirically with VAN and piperacillin/tazobactam. A GPR compatible with *Rhodococcus* was isolated from wound discharge samples. Therapy was changed to meropenem (MPM), levofloxacin (LVX) and AMK. MALDI-TOF identification was *Rhodococcus ruber.* AMK was changed to SXT that was combined with MPM and LVX for 4 weeks. Re-approached, surgically, only once. Discharge on 34th day of hospitalization, with apparent resolution of the infection and with oral SXT for more 3 weeks. It's been followed for 13 weeks, without evidences of infection recurrence. **Discussion:** We reported two rare cases of severe infections, which posed challenges to the etiologic diagnosis for the routine microbiology laboratory and appropriate therapy. Probably, delay in the etiologic diagnosis on case 1 contributed to progression of injuries to soft tissues and bone. The major challenge in case 2 was the therapeutic choice, since only one case report involving *R. ruber* human infection (ceratitis) was found in the literature. **Conclusion:** uncommon infections by GPR can be severe and life threatening. A network support on the health system to prompt diagnosis and adequate therapy is necessary.

Keywords: poststernotomy mediastinitis, gram-positive rods, MALDI-TOF, *Nocardia farcinica, Rhodococcus ruber.*